

DEPARTMENT OF THE ENVIRONMENT

To: James Tregurtha, Assistant Secretary, South-Eastern Australia Environment Assessments Branch (for decision)

Approval Decision Brief (recommendation report) – East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

Timing: As soon as practicable. The statutory timeframe for a final decision was **31 March 2014**.

Recommendations:

1. Consider the proposed decision and the recommendation report at Attachment A.
Considered / please discuss
2. Consider the responses to the invitation for comment on the proposed decision at Attachment B1.
Considered / please discuss
3. Approve, for each controlling provision, the action as summarised in the table below.
Approved / Not approved
4. Agree to attach the conditions of approval as set out in Attachment C.
Agreed / Not agreed
5. Sign the notice of your decision at Attachment C.
Signed / Not signed
6. If you agree to 3 and 4, accept the reasoning in the Departmental briefing package as the reasons for your decision.
Accepted / Please discuss
7. Sign the letters at Attachment D advising the person proposing to take the action and other relevant parties of your decision.
Signed / Not signed

Summary of recommendations on each controlling provision:

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
Listed threatened species and communities (ss 18, 18A)	Approve with conditions	

James Tregurtha, Assistant Secretary, South-Eastern Australia Environment Assessments Branch:

Date: 11/4/14

Comments:



Key Points:

Background

1. On 10 March 2014, as recommended in the Proposed Approval Decision Brief (Attachment A), you wrote to the proponent seeking comments on your proposed decision.
2. On 25 March 2014 and 8 April 2014, the proponent provided comment on the proposed approval conditions (Attachment B1).
3. The Department recommends a number of changes to the proposed conditions reflecting the proponent's comments. A track-changed version of the decision notice, highlighting all changes made from the proposed conditions is provided for your reference at Attachment B2.
4. The matters for consideration and factors to be taken into account for your decision remain as set out in the Proposed Approval Decision Brief (Attachment A).

Issues / Sensitivities

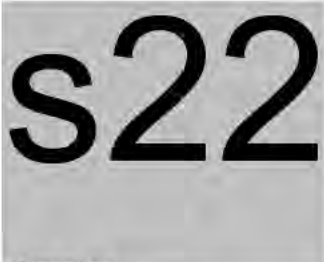
5. The proponent was generally satisfied with the proposed conditions and requested minor amendments to conditions 2, 3, 5 and 6 and clarification of several conditions. Proposed amendments are discussed below and are incorporated in the recommended final approval conditions (Attachment C).
6. Proposed condition 2 required the proponent to implement the Bairnsdale Grey-headed Flying-fox (*Pteropus poliocephalus*) Roost Site Strategic Management Action Plan (the Management Plan) prior to commencing the action. The proponent has requested that the condition be amended to allow the Management Plan to be finalised post approval. The Department recommends accepting the proposed change because the proponent will not be able to commence the action until the final plan is approved. The Department has amended the condition to clarify that prior to the removal of habitat the Management Plan be submitted to the Department for approval and the action may not commence until this approval is given. ✓
7. Proposed condition 3(b) required the proponent to notify all neighbouring Councils of the proposal prior to the removal of habitat. The proponent requested that condition 3(b) be amended to include only the Wellington Shire Council as the distance between the other Shire Councils and the proposal are significant. The Department recommends accepting the proposed change as it is likely that the Grey-headed Flying-fox would relocate within the East Gippsland Shire Council or within close proximity to the Bairnsdale site, thus excluding the other neighbouring Councils. The condition has been amended to include only the neighbouring Wellington Shire Council. ✓
8. The proponent requested minor administrative changes to clarify conditions 3(c) and (d). The Department has amended condition 3(c) for consistency and provided a definition of the 'Bairnsdale region' and amended condition 3(d) to specify a timeframe in which monies must be spent. These changes are administrative and clarify the intent of the original conditions. ✓

9. The proponent requested condition 5 be amended to remove the restriction of an emergency dispersal not being able to be undertaken between August to September and October to March as they believe it limits their ability to respond to an emergency event. The Department recommends not accepting this request as these times correlate to a particularly vulnerable time of the Grey-headed Flying-foxes breeding cycle. The Department considers that these measures are necessary to reduce potential impacts to the Grey-headed Flying-fox during the critical breeding season and to reduce the likelihood of significant stress, aborted fetuses, dropped young and the desertion of young. It is understood that an emergency response may need to be undertaken quickly to dissuade permanent settlement and the proponent is not limited by the condition in seeking the Minister's advice should a situation arise that involves emergency procedures for exceptional circumstances.
10. Proposed condition 6 required the proponent to submit a report to the Minister within one month of the completion of Stage One of the proposed action. The proponent requested clarification of timeframes for completing this reporting requirement. The proponent also sought clarification regarding the 'status' of the Grey-headed Flying-fox at condition 6(d). The Department has amended condition 6 to one month prior to the commencement of Stage Two to give the proponent sufficient time to prepare the report and ensure that the key data relating to the proposed action is captured. The Department has amended condition 6(d) to clarify that status refers to the health, condition and location of the Grey-headed Flying-fox. ✓
11. For the reasons discussed above, the Department considers that the amendments to the proposed conditions are appropriate and reasonable and do not affect the acceptability of potential impacts or the enforceability of the final conditions. The Department recommends that you accept the final conditions at Attachment C.

Consultation:

12. The outcome of the consultation is as follows and responses to your proposed decision are at Attachment B.

	Comment
Designated Proponent	The proponent has been provided with a copy of the revised recommended approval conditions and has indicated acceptance of these conditions (<u>Attachment B1</u>).
Monitoring & Audit Section	Comments were sought at the proposed approval decision stage. Comments have been incorporated in the proposed and final conditions.



Director
Victoria Section
South-Eastern Australia Environment
Assessments Branch
Ph: 02 6274 s22
11 April 2014

s22

Victoria Section

ATTACHMENTS

- A: Copy of Proposed Approval Decision Brief, including the Recommendation report
- B1: Proponent's responses to invitation for comment on proposed decision
- B2: Department's response to invitation for comment on proposed decision
- C: Notice of decision FOR SIGNATURE
- D: Letters to proponent and relevant State Minister FOR SIGNATURE

DEPARTMENT OF THE ENVIRONMENT

To: James Tregurtha, Assistant Secretary, South-Eastern Australia Environment Assessments Branch, (for decision)

Proposed Approval Decision Brief (recommendation report) – East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

Timing: 31 March 2014 - Statutory timeframe.

Recommendations:

1. Note that no conservation advice exists for species likely to be impacted by this proposal.

Noted / please discuss

2. Consider the recommendation report at Attachment A.

Considered / please discuss

3. Consider the finalised preliminary documentation at Attachment B.

Considered / please discuss

4. Agree that the recommended decision on page one of the recommendation report (Attachment A), and summarised in the table below, reflects your proposed decision.

Agreed / Not agreed

5. Sign the letters at Attachment G to consult the proponent on your proposed decision and inform relevant Ministers on your proposed decision.

Signed / Not signed

6. Agree to not publish the proposed decision at Attachment F on the internet for public comment.

Agreed / Not agreed

Summary of recommendations on each controlling provision:

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
Listed threatened species and communities (ss 18, 18A)	Approve with conditions	

James Tregurtha, Assistant Secretary, South-Eastern Australia Environment Assessments Branch

Date:

Comments:

Key Points:

Background:

1. The proposed action involves the removal of approximately 0.5 hectares (ha) of White Poplar (*Populus alba*) trees along the Mitchell River, adjacent to the northern side of the town of Bairnsdale, Victoria (Attachment B2, Figure 3). The East Gippsland Shire Council (the proponent) has been undertaking a poplar removal program since 2003 along the Mitchell River to enhance the environment. The poplars are targeted for removal as they are an environmental weed, in a state of senescence and pose a public safety threat in the near future due to dead branches and severe lean angles. The poplar trees to be removed are used by Grey-headed Flying-fox (*Pteropus poliocephalus*) as a 'summer camp' roost habitat.
2. On 25 August 2009, the proposed action was determined to be a controlled action (due to likely significant impacts on listed threatened species and communities, specifically the Grey-headed Flying-fox, (sections 18 and 18A), to be assessed by preliminary documentation. The preliminary documentation is provided at Attachment B.

Issues/ Sensitivities:

3. The proposed action will impact on listed threatened species as it involves the clearance of approximately 0.5 ha of poplar trees that represent habitat for the vulnerable Grey-headed Flying-fox.
4. While the removal of habitat will be timed to occur between 1 April and 31 July, to avoid the breeding season, and only during the species' absence the proposal is still likely to result in a number of direct and indirect impacts on the species as it will be forced to find an alternative summer roost.
5. The Department considers that, given the measures proposed to avoid and mitigate the risks of impact to the species within the referral and preliminary documentation (Attachments B1 and B2), in conjunction with the conditions proposed (as described at Attachment A), significant risks to listed threatened species and communities from the proposed action would not be unacceptable.
6. The Department understands that the proponent has not been subject to any proceedings under Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.
7. Your obligations as a decision maker are addressed, along with discussions on potential impacts on matters of national environmental significance, in the recommendation report (Attachment A).
8. The proposal has received local media attention, following the controlled action decision, and remains locally contentious. The nature and timing of any final approval decision may also attract public scrutiny. Public submissions were received against the removal of habitat for the Grey-headed Flying-fox.

Public submissions on assessment documents

9. The department recommends not to publish the proposed decision (Attachment F) on the internet for public comment. Public comment on the proposed decision is not considered necessary due to the extensive public consultation already undertaken for the proposed action and that further public consultation at this stage is not likely to raise additional matters to be addressed.

Number

For

Against

Not specified

Consultation:

10. The Approvals and Monitoring South (AMS) Section of the Compliance and Enforcement Branch was consulted on the proposed approval decision and AMS made a number of comments relating to the proposed conditions (Attachment C). The comments primarily related to consistency and clarification of conditions and these comments have been incorporated in the proposed approval conditions. The Department has also made minor amendments to standard conditions 8 and 9, in accordance with this advice.
11. The Department recommends consulting only with the proponent on the proposed conditions. Given the relatively small scale and localised nature of the proposal, and the lack of a significant number of public comments on the assessment to date, the Department does not recommend notifying other parties of the proposed decision and does not recommend publishing the proposed decision on the internet for public comment.
12. The Department does not consider that any Commonwealth Ministers hold administrative responsibilities relevant to the action, to the extent that their comment would be required, and as such does not recommend consulting with any Commonwealth Ministers. The Victorian Minister for Transport, Planning and Local Infrastructure, the Hon Matthew Guy MP, will be informed of the proposed decision as a matter of courtesy.

s22
Director
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March 2014

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ATTACHMENTS

A: Recommendation report

B: Finalised Preliminary Documentation

B1: Referral information

B2: Draft Management Plan

C: Approvals and Monitoring advice

D: Draft Recovery Plan

E: Public submissions

F: Draft Approval Decision Notice

G: Letters to proponent and Minister Guy FOR SIGNATURE

H. Referral decision brief (for reference)

RECOMMENDATION REPORT

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)

Recommendation

1. That the proposed action, to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program, which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*), in Bairnsdale, Victoria be approved subject to the conditions specified below.

Conditions	Relevant paragraph in report
The following measures must be taken to ensure the protection of listed threatened species and communities (sections 18 & 18A), specifically the Grey-headed Flying-fox :	
1. The person taking the action must not remove or adversely impact more than 0.5 hectares of Grey-headed Flying-fox habitat at the Mitchell River Roost Site .	75
2. The person taking the action must implement and comply with the Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan .	39 - 49, 64 - 68, 69
3. The person taking the action must ensure that: <ol style="list-style-type: none"> a) Prior to the removal of habitat at the Mitchell River Roost Site a Hotline with a dedicated contact phone number and email address is set up to respond to public enquiries; b) Prior to the removal of habitat at the Mitchell River Roost Site neighbouring Councils are notified of the proposal and provided with contact details to respond to enquiries; c) Undertake revegetation of long-term Grey-headed Flying-fox habitat within the Bairnsdale area, in accordance with expert advice on Grey-headed Flying-fox ecology, subject to negotiation with and approval by, the Department. If a long-term Grey-headed Flying-fox camp is not established within the Bairnsdale area then revegetation or improvement of Grey-headed Flying-fox habitat within the Bairnsdale region must be undertaken; and d) At least \$5,000 is spent on community education resources relating to Grey-headed Flying-fox, including, but not limited to, educational signage at a site of Grey-headed Flying-fox habitat. 	70, 71

<p>4. If, following the removal of habitat at the Mitchell River Roost Site, the person taking the action proposes to undertake a separate dispersal then a management plan must be submitted for the Minister's approval. The management plan must be approved by the Minister prior to the commencement of dispersal activities. At a minimum, the plan must address:</p> <ul style="list-style-type: none"> a) Proposed methodology for dispersal; b) Potential direct, indirect, cumulative and facilitative impacts to Grey-headed Flying-fox from the proposed dispersal activity; c) The presence of pregnant Grey-headed Flying-fox; d) The presence of dependant young; e) A commitment that the dispersal will not be undertaken on a Hot Day or on or within two days of a Heat Stress Event; f) Proposed avoidance and mitigation measures addressing potential impacts to Grey-headed Flying-fox, which must at a minimum include, stop work triggers; and g) Monitoring and reporting protocols. <p>Condition 4 does not apply to an emergency dispersal.</p>	54 – 57, 59
<p>5. The person taking the action may undertake an emergency dispersal. Unless negotiated with the Minister and approved, an emergency dispersal must be undertaken in accordance with the following requirements:</p> <ul style="list-style-type: none"> a) A suitably qualified ecologist must be engaged to advise of best practice dispersal methodology; b) During emergency dispersal a suitably qualified ecologist must be present to oversee best practice dispersal methodology, undertake behavioural monitoring and document the outcomes of the process; c) During emergency dispersal the person taking the action must comply with all recommendations and guidance from a suitably qualified ecologist; d) Emergency dispersal must not be undertaken between 1 August and 30 September; e) For the period 1 October to 31 March in any given year, emergency dispersal activities must not be undertaken if flightless dependant young are present (as determined by a suitably qualified ecologist); f) Emergency dispersal must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure Grey-headed Flying-fox have time to settle elsewhere before the heat of the day; g) Emergency dispersal must not be undertaken during a Hot Day or on or within two days of a Heat Stress Event; h) Once Grey-headed Flying-fox have not returned to the site of emergency dispersal for more than five consecutive days and while absent from the site of emergency dispersal, the person taking the action must implement passive measures; and i) Within five days of the completion of emergency dispersal, the person taking the action must submit a report to the Minister detailing the dispersal methodology implemented and the outcome achieved. 	58, 60, 61

<p>6. Within one month from the completion of Stage One of the removal of habitat (as detailed in the Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan) and on the same date every subsequent year in which removal of habitat or emergency dispersal occurs, the person taking the action must submit a report to the Minister that addresses the following:</p> <ul style="list-style-type: none"> a) Details of the activities undertaken that year relating to removal of habitat or emergency dispersal; b) Details of the associated outcomes of these activities; c) The data collected (in accordance with these conditions of approval and the Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan); d) The status of Grey-headed Flying-fox colonies in the Bairnsdale region; e) Details of how information gained has been incorporated into the future management of Grey-headed Flying-fox (adaptive management), including, but not limited to, the future removal of habitat or dispersal activities associated with the action; f) Details of any activities planned to occur in the following year; g) Written and signed confirmation by a suitably qualified ecologist verifying the accuracy of the data, information, analysis and conclusions contained within the report; and h) Raw data must be made available to the Department upon request. 	68, 69
<p>7. Five days prior to the commencement of the action, the person taking the action must advise the Department verbally and in writing of the actual date of commencement.</p>	
<p>8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.</p>	
<p>9. Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the Department within 48 hours of the non-compliance occurring.</p>	
<p>10. Upon the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister.</p>	

11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the Department for the Minister's written approval a revised version of that management plan. The varied activity shall not commence until the Minister has approved the varied management plan in writing. The Minister will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the Minister approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.	
12. If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the Minister may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the Minister's written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the Minister has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.	
13. If, at any time after five years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister .	
14. Unless otherwise agreed to in writing by the Minister , the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.	

Definitions:

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, DRAFT Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013*.

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at [Appendix A](#) as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Background

Description of the project and location

2. The proposed action involves the removal of approximately 0.5 hectares (ha) of White Poplar (*Populus alba*) trees and dense vegetation along the Mitchell River, Bairnsdale, Victoria. The proposed action is located approximately one kilometre downstream from the Lind Bridge and adjacent to the northern side of the town (see Attachment B2, Figure 3). The proponent, the East Gippsland Shire Council (EGSC), has been undertaking a poplar removal program since 2003 along the Mitchell River to enhance the environment. The poplars are targeted for removal as they are an environmental weed, in a state of senescence and pose a public safety threat in the near future due to dead branches and severe lean angles.
3. The poplar trees to be removed are used by an important population of Grey-headed Flying-fox (*Pteropus poliocephalus*) as a 'summer camp' roost habitat. The trees represent critical habitat for the Grey-headed Flying-fox (GHFF).
4. The removal of the poplar trees is proposed to be undertaken between 1 April and 31 July in three stages over a three year period, commencing in 2014.
5. The removal of trees is proposed to be by staged removal and revegetation of the area, which the proponent has been deemed the preferable option for the long term management of the site and to manage potential impacts to the GHFF. The proponent deemed no action as an inappropriate course of action due to the poplars continued impact on the Mitchell River environment, concern expressed by residents regarding the impact of GHFF on resident's wellbeing, and the senescing state of the current roost site. The proponent states that the poplars to be removed currently pose a public safety threat in the near future due to dead branches and severe lean angles. The proponent deemed one-off removal of the trees as not being appropriate as it does not allow an adaptive response to managing the potential impacts to the GHFF from removal of their habitat nor prior indication of alternative roosting locations for the GHFF and how these might be managed.
6. The tree removal program has been successfully ongoing for a number of years and is in accordance with the *East Gippsland Environmental Sustainability Strategy 2008-2013*.

Controlling provisions, assessment approach and public consultation

7. The proposal was referred on 28 July 2009 and determined a controlled action on 25 August 2009 due to likely significant impacts on listed threatened species and communities (sections 18 and 18A), in particular the GHFF. On 25 August 2009 it was also determined that the project would be assessed by preliminary documentation (preliminary documentation) that was considered appropriate given the scale of the proposed action and limited impacts on protected matters.

8. The Department received ten public submissions (plus one ministerial) at the referral stage. All issues raised by the public were generally common across the submissions and were not directly opposed to the action; however, considered the action a controlled action likely to have a significant impact on GHFF. No comments were received from State or Commonwealth Ministers at the referral stage.
9. On 4 August 2011, the proponent submitted draft preliminary documentation, in the form of a draft management plan, addressing potential impacts to the GHFF. On initial review, the Department noted deficiencies in the information and determined that the information provided was inadequate and did not meet the preliminary documentation requirements. Following Departmental comments on the adequacy of the documentation the proponent submitted further draft management plans, on 14 October 2011, 17 April 2012, 5 July 2012 and 20 November 2012.
10. On 13 December 2012 the Department determined that the draft preliminary documentation received on 20 November 2012 satisfied the initial preliminary documentation requirements. The draft preliminary documentation was exhibited for public comment for 20 business days between 14 January and 12 February 2013, and in accordance with subdivision 16.2.1 of the EPBC Regulations.
11. On 20 May 2013, the Department was advised by the proponent that 12 public submissions (Attachment E) were received during the publication period. No submissions were received from State or Commonwealth Ministers. Of the 12 public submissions received none were supportive of the proposed action. The issues raised in these submissions related to:
 - Opposition to the removal of the GHFF's habitat;
 - The threat to wildlife in urban locations and the communities perception of them as a problem wherever they are;
 - The potential use of private residences closest to the GHFF camp, including their removal;
 - The potential to increase knowledge and awareness of the GHFF in the community and the utilisation of GHFF as a tourism and educational feature;
 - The risk of the GHFF not being able to find suitable alternative habitat;
 - Management of the GHFF camp to reduce the impacts to local residents whilst enhancing the habitat for GHFF;
 - The value of invasive species providing habitat to native wildlife and the risk that the GHFF will move to equally unpopular roosting trees elsewhere;
 - Whether or not all residents of Bairnsdale have been canvassed in relation to attitudes to the GHFF;
 - That the options have not been costed; and
 - The Response Plan perpetuates the harassment of GHFF and does not consider GHFF welfare.

12. The proponent revised the draft preliminary documentation following the public comment period to address issues raised in the public consultation. This resulted in changes to the preliminary documentation in relation to:
- Updating the Response Plan to further consider the welfare of the GHFF during dispersals;
 - Amending the date that works will be undertaken to avoid a particularly vulnerable part of the GHFF breeding cycle; and
 - Including comments relating to the explanation of how the preliminary documentation documentation has addressed the concerns of the public.
13. On 12 December 2013, the proponent provided the final preliminary documentation (Attachment B1 and B2) to the Department, which included a summary of public comments and how they have been addressed within the revised preliminary documentation documentation. The final preliminary documentation also addressed further comment that the Department had provided in relation to the management plan.
14. Consistent with the *Environment Protection and Biodiversity Conservation Regulations 2000*, the final preliminary documentation was subsequently published, for information only, for a further 20 business days from 6 January to 3 February 2014.

State Assessment and Approval

15. There is no state assessment relevant to this proposal.

Assessment

Mandatory Considerations – section 136(1)(a) Part 3 controlling provisions

16. The proposal was determined a controlled action under the following controlling provision of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):
- Listed threatened species and ecological communities (sections 18 and 18A).

This controlling provision is discussed below.

Listed threatened species and ecological communities (sections 18 and 18A)

Grey-headed Flying-fox (*Pteropus poliocephalus*) – Vulnerable

Description

17. The GHFF is one of the largest bats in the world with a weight of 600–1000 grams and a head-body length of 230–289 millimetres. It is distinguishable from other flying-foxes by the collar of orange/brown fully encircling its neck and thick leg fur extending to the ankle.
18. The GHFF is highly mobile and the national population is fluid, moving up and down the east coast in search of food. There are no separate or distinct populations of GHFFs, with constant genetic exchange and movement between camps throughout the entire geographic range of the species. This indicates that there is one single interbreeding population.



19. The GHFF requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds in introduced tree species in urban areas and in commercial fruit crops. The primary food source is blossom from Eucalyptus and related genera but in some areas it also utilises a wide range of rainforest fruits. The GHFF roosts in aggregations of various sizes on exposed branches, commonly of emergent trees. Roost sites are typically located near water, such as lakes, rivers or the coast. Male GHFF are very territorial and have high site fidelity, often returning to the same roosting branch every year.
20. The mating season starts in early autumn, after which time larger camps begin to break up, reforming in late spring/early summer as food resources become more abundant. GHFF typically give birth to one pup in late September to early October following a six month gestation period. The young are completely dependent during this time, clinging to their mothers for the first few weeks, and then congregating in crèches when their mothers are off feeding. The pups begin to fly independently at approximately 12 weeks, but continue to be dependent on their mothers for food until at least 16 weeks of age. Lactation usually begins in October and continues for three to four months or sometimes longer. See Table 1 below.

Table 1: Reproductive cycle of GHFF.

Flying-fox breeding cycle			
Month	Time in breeding	Variations	
April	Mating	First female conceptions recorded	Most adult females do conceive but are prone to abortions and premature births in response to environmental stress
May	Mating/ early stages of pregnancy		
June	Early stages of pregnancy		
July	Early stages of pregnancy		
August	Mid stages of pregnancy		
September	Mid to late stages of pregnancy Starting to give birth		
October	Birthing and Dependant young in colony	Vast majority of births occur from October to December	
November	Birthing and Dependant young in colony		
December	Birthing and Dependant young in colony		
January	Dependant young in colony	Males increasingly sexually active from January on and establishing territories	
February	Dependant young in colony	Increasing frequency of copulation	
March	Dependant young in colony		

21. Key threats to the GHFF include: the loss and fragmentation of habitat, which results in a decrease in food sources and roosting sites; conflict between the habitat and foraging needs of GHFF and land owners, in both urban and peri-urban areas, is a widespread and ongoing issue; direct shooting of GHFF, as a result of destruction of commercial fruit crops in New South Wales and Queensland; competition with other flying-foxes including the Black Flying-fox and Little Red Flying-fox may be a threat due to the reduction of available habitat and food resources; electrocution; and pathogens, including Australia Bat Lyssavirus, Hendra virus and the Nipah virus.

Proposed action area

22. GHFF have been recorded at the Mitchell River roost site since 1995, with annual occupation recorded since 2002. The GHFF are generally present at the site between December and May each year and generally absent from July to November (exceptions were in 2003, when they overwintered at the site, and 2005, when the bats were not present). The number of GHFF using the site has varied between seasons (see [Table 2](#)) with numbers recorded from a few hundred to tens of thousands of bats, e.g. over 34,000 (recorded in May of 2006), approximately 20,000 (recorded in February 2010) and 26,000 (recorded in May 2011). The local Victorian Department of Primary Industries (DEPI) has been involved in monitoring the colony over this period. A heat stress event was experienced in 2009 leading to the loss of GHFF. It is difficult to attribute the variation of occupation to any one event; however, it is believed that the availability of resources may be a contributing factor.
23. The Department considers that the population of GHFF at Bairnsdale is an 'important population', consistent with the Significant Impact Guidelines (EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance, May 2006) as this population is likely to provide an important source for breeding and dispersal.
24. The 'summer camp' located at the proposed action area is used as a maternity roost and used during the nursery phase of the life cycle. In 2003 the colony remained on site throughout the year with pups being born on site. Both males and females have been recorded at the camp site. During the nursery phase it appears that the males rejoin the females. It is highly likely that the males attempt to court females with pair bonds being formed at this site.

Table 2: Grey-headed Flying-fox Roost Site.



Impact

25. There are a range of potential direct and indirect impacts to GHFF associated with the proposed action. These impacts relate to increased levels of stress that can be difficult to attribute or detect and also relate to problems associated with where they go after they have been dispersed. The following potential impacts have been identified as a result of the proposed action and are discussed further below.

Reduction of habitat

26. The proposed action will involve the removal of approximately 145 poplar trees (0.5 hectares) adjacent to the Mitchell River which have been identified as being utilised by the GHFF as a 'summer camp' and represents habitat critical to the survival of this species, as defined in the Draft National Recovery Plan (July 2009). The Draft National Recovery Plan (July 2009) also identifies the loss of roosting habitat as a threat to GHFF.

27. The Department's Species Profile and Threats Database (SPRAT) states that the impact of the loss of long-term sites, or the degradation of small remnants to the point that they are no longer used, is not known. DEPI have recognised that this stand of poplars are likely to be dead within five years time, hence the camp is not viable in the longer term; however, it is possible that the GHFF may continue to use the dead trees as a camp, should the trees remain.

Fragmentation

28. The proponent has proposed a staged removal of the poplars over a three year period allowing the GHFF to relocate and present enhanced opportunities to manage the relocation to other suitable habitat. The Department notes that partial or whole removal of camp habitat may lead to the GHFF colony dispersing and fragmenting into two or more groups if suitable habitat is not available. Knowledge of the movement patterns of GHFF and the factors influencing the establishment and persistence of camps is currently limited.

Behavioural changes, including disruption to the breeding cycle

29. The proposed action risks disrupting the breeding cycle of an important population of GHFF. The camp site has been identified as a maternity/nursery roost where young are reared by their mothers. The removal of roosting trees is likely to place stress on returning lactating females and young. Other factors such as lack of suitable roost habitat to deal with high risk weather events (high temperatures) may also result in young and adult fatalities. The disruption of the breeding cycle could result in a limited feeding season or no breeding taking place causing impacts on population levels in future years.

30. GHFF are particularly vulnerable to stress, including heat stress during the day, and mass deaths have been attributed to heat wave events. GHFF seek shelter in dense foliage during the heat of the day, and disturbing them may result in heat stress and death. GHFF are also particularly vulnerable during the third trimester of pregnancy, with mass abortions, premature births and dropped young (which is fatal) observed in GHFF in the wild in response to significant stress. Disturbing females with dependant young may result in them seeking refuge elsewhere, temporarily or permanently abandoning their pup in the process. Increased stress as a result of the dispersal may also lead to malnutrition (which is quite difficult to monitor), sleep deprivation due to dispersal measures or death. GHFF may also suffer injury from the dispersal through disorientation due to sudden disturbances. This may increase collisions that can lead to injury or death.

31. It is widely reported and accepted that females abort and abandon young due to stress. The potential for on-going dispersal of the GHFF, following the removal of their habitat, increases the risk of GHFF experiencing significant stress. If the GHFF move to an inappropriate location, following the removal of their habitat, it is likely that this will be within the breeding season for the species, i.e. when they return in the last trimester of pregnancy and are at high risk of aborting fetuses. Aborted fetuses are very small and are quite difficult to detect amongst ground litter.
32. Any follow on dispersals may also cause female GHFF that are carrying dependant young to drop them through stress-induced responses such as panicked flight. The result of this is often fatal. It is also possible that stress associated with follow up dispersal may cause mothers to desert young that are too large for them to carry but not yet fully independent. Dispersals may also result in the disruption to the mating cycle due to males being unable to establish territories and successfully mate due to on-going dispersal within the camp.

Overcrowding and increased competition

33. Removal of habitat may increase the use of the remaining poplars and other tree species within the immediate site. This may impact on the GHFF by reducing the number of selected defensible sites and result in competition due to the reduction of available habitat and food resources placing further pressure on the species. Removal of habitat has the potential to impact on surrounding colonies. GHFF attempting to settle in existing camps may increase overall stress levels due to territorial disputes, increased competition for resources leading to reduced reproductive output, and fragmentation, if the sites are unable to provide sufficient roosting habitat or have insufficient foraging habitat in the vicinity.

Inappropriate Site Occupation

34. This may include selection of alternative habitat that is deemed unsuitable for longer term occupation by the GHFF, due to distance from foraging resources, distance from water or human conflict. Habitat may be deemed unsuitable for occupation due to the potential for conflict with humans. This may be due to:
- an increased risk or perceived increased risk of disease (e.g. such as the transference of Hendra virus from horses if habitat is close to horses or from Australian Bat Lyssavirus from bites and scratches);
 - concern for health and safety (e.g. local residents have cited health problems associated with proximity to the GHFF camp);
 - a decrease in amenity (e.g. increased noise, odour and damage to roosting and foraging trees); or
 - increased community intolerance.

Conflict may result in an increased risk to the GHFF from human intervention that is not managed or foul play, such as the recent poisoning of trees at the current campsite.

35. If sites are deemed unacceptable (e.g. a hospital, playground or racetrack) and GHFF are further dispersed from these sites without ongoing management the species is vulnerable to all of the above potential impacts in addition to a cumulative impact of the action of dispersal being undertaken continuously. This would expose the GHFF to a number of stressors that, if not monitored or managed, may seriously impact GHFF.

Unexpected response

36. Unknown and irreversible impacts may occur due to the unpredictable nature of the species. The Department notes that the proponent has taken best endeavours to develop measures to address these potential impacts as far as practicable (see discussion below).

Avoidance and mitigation measures

37. As discussed above, there are a number of potential direct, indirect, facilitative and cumulative impacts to GHFF that could occur as a result of the proposed action. A number of these impacts are difficult to measure and quantify; however, the proponent has proposed a number of measures to reduce these impacts to an acceptable level. The Department considers that while many of these measures represent appropriate avoidance and management of the potential impacts with a high likelihood of effectiveness the Department also considers it necessary to recommend conditions of approval to manage the residual impacts to a level of acceptability.
38. The complete set of avoidance, mitigation, monitoring and reporting proposed by the proponent is included in the Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying-fox Roost Site, DRAFT Strategic Management and Action Plan (the Management Plan) at Attachment B2. The Department recommends an approval condition (condition 2) that requires the proponent to implement the Management Plan. Key mitigation and avoidance measures are discussed below.

Timing of proposed action

39. The proponent has committed to ensuring that the Poplar trees can only be removed after confirmation from DEPI (as the monitoring body) that GHFF are absent from the area. Provided that GHFF are absent, works can be undertaken at any time of the year except between the period from 1 August to 30 September, which corresponds with a particularly vulnerable part of the GHFF breeding cycle, when pregnant females in their third trimester can spontaneously abort their pregnancy under relatively low stress conditions. While the GHFF are not normally present at the site during this time the possibility that they may return during this period cannot be discounted.
40. Therefore, works will be timed to occur between 1 April and 31 July, to avoid the breeding season. The period May to July is outside of the critical stages of the breeding season and considered by experts as a 'safe time' to relocate GHFF. If the GHFF return to the camp during this time the Department considers that the timing of the action will avoid stress during particularly vulnerable parts of the breeding cycle for pregnant and lactating females.

Stop Work Triggers at Mitchell River Roost site

41. To mitigate stress levels on potentially pregnant and lactating GHFF and their pups at the Mitchell River roost site the adoption of stop work triggers have been proposed by the proponent. DEPI will be consulted and approval sought prior to commencement of any scheduled works on the Mitchell River site to ensure that GHFF are not present. If, at any stage during the works, the GHFF return to the site or its vicinity (including the surrounding vegetation), all works must cease and cannot recommence until all GHFF depart. Twice daily checks will be undertaken and recorded by the Project Manager and staff to ensure that works do not commence if the GHFF are present or surrounding the site. The Department considers that these measures are likely to be effective in reducing the risk to GHFF becoming stressed from the proposed action during a particularly vulnerable part of the breeding cycle for pregnant and lactating females.

Staged removal of habitat

42. The proponent has proposed a staged removal of trees that is intended to encourage the GHFF to find suitable habitat at another location and reduce a sudden change in conditions at the site. The staged removal of trees is also intended to assist in the adaptive management of the colony by indicating what potential roost sites the GHFF may move to following the removal of their habitat.
43. The proponent has prepared a Revegetation Plan, included in the Management Plan, which outlines the protocols and management of the habitat removal and revegetation of the site. The removal will be undertaken in three stages with stages two and three reliant on the outcomes of stage one. The number of trees removed at each stage will be different; however, the percentage of habitat removed at each stage is approximately equal based upon the observed distribution of the GHFF at the site in previous years. Therefore, each stage of removal will represent a similar area of habitat being removed (see [Table 3](#)).

Table 3: Proposed removal and revegetation stages.

44. The Management Plan states that the removal of poplars at stages one and two will allow the GHFF to occupy the roost site within the remaining trees, with established revegetation areas surrounding the site providing some additional habitat with appropriate microclimatic requirements. The Management Plan states that the remaining area and surrounding vegetation is considered likely to support the population short term until a more suitable site is selected and that it will be sufficient to accommodate the population at high levels. The Department notes that a risk of overcrowding (see above) exists if the expected movement to a more suitable habitat is not undertaken; however, the Department also notes that overcrowding is a natural phenomenon, largely dependent on the number of individuals that choose to roost at Bairnsdale in any given year.
45. The Management Plan states that after each stage of poplar removal DEPI Wildlife Management Officers and a representative of the proponent will be on site each day for one week after the GHFF return and then twice per week for four weeks to observe the reaction of the GHFF in relation to the removed habitat. Records will be maintained at each visit noting observations of the GHFF behaviour and their reactions to the removal of their habitat. The Department considers that this monitoring will be sufficient to document the behavioural response of the GHFF to the removal of habitat.

46. If, after stage one, the GHFF are believed to be showing distress, as determined by a qualified DEPI officer, an immediate response will be initiated by DEPI to reduce stress levels. This may include the installation of temporary signage to encourage reduced noise levels and disturbance, temporary closure of the walking path under the colony and/or continued monitoring. DEPI will then review the continuation of stage two having regard to the response of the GHFF to stage one works.
47. Following stage one, an assessment will be made by DEPI on the continuation of the program. If DEPI considers that the response of GHFF following stage one is negligible to the long term wellbeing of the GHFF then stage two will proceed. If DEPI considers that the effect on the GHFF will negatively impact their long term wellbeing then DEPI will advise the proponent that stage two cannot proceed as proposed. Likewise, any isolated negative effect (i.e. increased death and injury, abandonment of dependents etc.) will prompt mitigation and adoption of an alternative strategy to be undertaken in consultation with DEPI and the Department.
48. If the program proceeds, DEPI will continue to monitor the GHFF after stage two to inform decisions relating to the commencement of stage three. The Department considers that this method of monitoring will ensure that an informed judgement is made regarding the long term wellbeing of the GHFF and continuation of the program. Any movement of the GHFF further afield from the immediate site is expected to be captured by this monitoring and the local community. Newly recorded locations will be assessed as to the suitability of longer term roosting when it is determined where they have moved to.
49. The Department recommends a condition (condition 2) that requires the proponent to implement the Management Plan, which will ensure that the action is undertaken consistent with the staged approach described above. The Department has requested that the proponent add a clause to the Management Plan, prior to finalisation of the Management Plan, to state that if DEPI are unavailable to fulfil the roles as described in the Management Plan that a suitably qualified ecologist will undertake the monitoring and reporting roles described above. This will ensure that the proponent remains responsible for the monitoring and reporting actions discussed.

Alternative available habitat

50. The proponent has identified alternative local roosting sites that may provide habitat for the GHFF. While it is not fully understood what specifically attracts the GHFF to a particular roost site some characteristics, such as a closed, continuous canopy within 50 km of the coast, within close proximity to waterways and within nightly commuting distance of generally less than 20 km of sufficient food resources, are typical. The GHFF have been recorded occupying sites within East Gippsland and at nearby West Gippsland. There is a risk that if a large number of the GHFF relocate to a GHFF camp that is already occupied that significant pressure could be placed on the foraging resources at that site, which in turn could impact the existing population.
51. The proponent's preferred location for the GHFF to relocate to is either further along or across the Mitchell River in existing native vegetation; however, the proponent does recognise the associated difficulties and poor level of success of previous relocation projects. Predicting where GHFF could potentially relocate is not possible due to the unknown response from the GHFF and a lack of information concerning their site selection. Therefore, it is not possible to identify with certainty suitable alternative roost sites for the GHFF; however, the Department recognises that the region has vast areas of potentially suitable habitat that may provide an alternative camp for the GHFF.

52. The Management Plan states that it is possible that colonies will establish camps at new sites during and after the habitat removal and that without tagging it will be impossible to distinguish which new camps are formed as a result of the disturbance to Mitchell River camp and which are new colonies whose establishment is not related to the habitat removal at Mitchell River. Given this uncertainty, the proponent has stated that they are willing to accept the responsibility for the management of any and all colonies that establish within a five year period following Stage three of the revegetation program.
53. The Department considers that the expiry date of the approval captures the responsibility of the proponent within this time frame. In the event that, following the removal of habitat, the GHFF move to a location that requires a dispersal or emergency dispersal within the Bairnsdale region the Council has a responsibility to contact the Department prior to future dispersals. This gives the Department the opportunity to review the proposed dispersals arising from the removal of habitat and assess the potential impacts. Proposed conditions to control the undertaking of dispersals and emergency dispersals are discussed below.

Ongoing dispersal of GHFF

54. The proponent has proposed possible on-going and follow up dispersal of the GHFF if it is required. There is a risk that the GHFF will move to an undesirable location following the removal of their habitat. Examples of undesirable locations may include habitat near to a hospital, school or race course where the concerns for public safety will be heightened (emergency dispersals). In addition, the GHFF may move to a location that is not suitable for long term occupation. The proponent has prepared a Response Plan, which addresses how locations will be assessed for suitability and how the ongoing dispersal will be managed.
55. The Response Plan proposes management techniques used in previously approved GHFF projects, including the Relocation of the Grey-headed Flying-Fox colony from the Royal Botanic Gardens, Sydney (EPBC 2008/4646) and the Management of the Grey-headed Flying-fox Campsite Boundary and Buffer, Yarra Bend, Melbourne, Victoria (EPBC 2011/5958). While these projects involved the relocation and nudging of the GHFF, as opposed to habitat removal and ongoing dispersal, the Department acknowledges that these approved plans are an appropriate reference for management protocols.
56. While the Department acknowledges that the draft Response Plan partly addresses potential impacts to GHFF from ongoing dispersal following the removal of habitat it does not mitigate against the risk of dropped young and the desertion of young from October to February when mothers may be carrying young and a dispersal event may trigger abandonment. It also does not account for how the GHFF may react to stress that may result in injury or death from attempted dispersals and has not provided sufficient detail in relation to what methods of disturbance are to be used for follow up dispersals. Nor does it address the fact that an inappropriate site includes any physical contact with humans being imminent, which is difficult to define and may include the whole township of Bairnsdale being deemed unsuitable habitat for GHFF.
57. Therefore, the Department considers that the information in the draft Response Plan does not take account of key potential impacts to GHFF from ongoing dispersals nor does it contain sufficient information for the Department to appropriately assess the likely impacts to the GHFF due to the lack of information regarding site specific details. As a result the Department has proposed the following conditions to ensure that the proponent adapts the Response Plan, or adopts a new plan, according to the individual circumstances of the new dispersal site and addresses residual concerns before it is approved for use by the Minister. The Response Plan will be removed from the Management Plan, prior to finalisation.

Emergency dispersal

58. The Department has proposed a condition (condition 5) that enables the proponent to undertake an emergency dispersal should GHFF locate to an area compromising human health (i.e. hospital, school) and public safety (race course, horse stud), or anything else, as agreed with the Department. If an emergency response is required, the Department has recommended a condition (condition 5) that requires the proponent to address key concerns relating to GHFF welfare, unless negotiated and approved by the Minister. The Department considers that these measures are necessary to reduce potential impacts to the GHFF during the critical breeding season and to reduce the likelihood of significant stress, aborted foetuses, dropped young and the desertion of young. It is understood that an emergency response may need to be undertaken quickly in order for the GHFF not to settle and thus negotiation and approval by the Minister has been included to ensure that human health is considered alongside the management of an emergency dispersal.

Other dispersals

59. The Department understands that there may be situations where the proponent wishes to disperse a colony that would not be covered by the emergency dispersal protocols outlined above. This may occur as a result of landholder complaints, or for other public interest reasons. The Department recommends a condition (condition 4) that requires the proponent to prepare and submit a dispersal plan prior to the commencement of dispersal activities. This will ensure that the proponent provides a tailored plan for any further dispersal of GHFF that addresses the key concerns of the Department and is commensurate with the risks of that individual dispersal. This will ensure that dispersal can only be undertaken in the "safe window" and will avoid the critical breeding season. This will also reduce impacts to GHFF by minimising aborted foetuses, dropped young and the desertion of young. The Department considers that this approach will avoid, mitigate and minimise potential impacts to the GHFF, including the disruption of the breeding cycle of GHFF, to an acceptable level.

Modification of vegetation

60. The proponent had proposed in the Response Plan that, following dispersal from an inappropriate, site modification of vegetation be undertaken to prevent the GHFF re-occupying that unsuitable site in following years. This may include pruning horizontal branches, which are large enough for roosting, or removing shrubs or ground storey to reduce the humidity of the site and increase access for sunlight, thus changing the microclimate of the potential habitat.

61. The Department considers that any vegetation utilised by the GHFF may constitute critical habitat for the species. Unless further information is provided it is difficult to determine whether or not the habitat represents critical habitat. Even if unoccupied, uncertainty regarding the potential impacts of habitat removal on the GHFF exists. The information provided in the Response Plan does not take account of potential impacts to GHFF from the removal of critical habitat when returning to the roost, which may include the potential impacts discussed above in relation to the removal of the poplars, including impacting the breeding cycle and significant stress. The Department considers that by conditioning that passive measures may only be undertaken following an emergency dispersal it is unlikely that GHFF would have settled long enough for the habitat to be determined critical habitat. In addition, the Department has proposed a condition (condition 5(h)) that passive measures can only be undertaken when GHFF have not returned to the site of emergency dispersal for more than five consecutive days and are not present during the passive measures.

Behavioural changes

62. The Management Plan states that heat stress that may occur as a result of the removal of habitat will be managed in accordance with existing DEPI protocols. Should the GHFF relocate to an area deemed inappropriate for the GHFF that might not have sufficient foliage or be more exposed to heat these protocols will apply. DEPI's key action during heat events is aimed at minimising disturbance to GHFF but also includes being on alert when the temperature reaches over 35 degrees Celsius and when there are consecutive days of hot weather, the use of signage to deter people from disturbing the site and monitoring for deaths following days of heat.

63. The Department considers that this is appropriate for avoidance of additional stress on the GHFF during hot days or heat stress events. Other behavioural responses, such as abortion, abandonment of young, injury and malnutrition, caused by increased stress as a result of dispersal are addressed by the timing of the action and stop work triggers, discussed above, and adaptive management, as discussed below. The Department considers that these are adequate measures to address potential behavioural changes during and following the removal of habitat.

Monitoring, reporting and management

64. The proponent has proposed a monitoring and adaptive management program that involves monitoring the movement, population, stress levels and reproductive cycle of the GHFF to determine the impact of the removal of habitat in order for adaptive management. Various measures have been proposed in the Management Plan that will be undertaken during and after the removal of the GHFF habitat.

65. Methods to be used include assessing the welfare of GHFF in the region to determine impacts from the removal of habitat, monitoring the suitability of roosting habitat and monitoring stress levels as a result of the removal of habitat by observing GHFF behaviour, including the abortion of fetuses, abandoned young, and injured or dead GHFF, collating information on new locations of GHFF, levels of conflict with humans and any recorded reporting or monitoring undertaken to measure key performance indicators.

66. The Management Plan states that reporting will be undertaken by both the proponent and DEPI at the Mitchell River site during occupation. Regular counts will be undertaken on a fortnightly basis during occupation with behavioural changes recorded at each alternative visit immediately after each stage of vegetation removal. Regular population counts will be recorded by DEPI and maintained for future reference. An annual report will be submitted to the Department until the Wildlife Management Officers from DEPI decide that the colony has settled and established fidelity to the new long term site.

67. This monitoring and reporting will determine any detrimental impacts to GHFF and assist in influencing future activities. The success of mitigating any negative impacts on the GHFF from the removal of their habitat at the Mitchell River roost site will be determined by the use of key performance indicators. Key performance indicators will include the continuation of the GHFF reproductive cycle, maintaining the GHFF as one population, maintaining or reducing the foraging distance of the GHFF, limiting the GHFF behavioural changes and implementation of any follow up dispersals that result in the GHFF establishing fidelity to another site that can cater to their ecological requirements with limited impacts to their wellbeing.

68. The Department considers that this monitoring and reporting is adequate to capture most activities and outcomes of the proposed action on GHFF; however, has proposed a condition (condition 6) to ensure that other key matters of interest to the Department are included in the annual report. Other key matters of interest to the Department include annual reporting of activities undertaken, the outcomes of these activities, the data collected from the activities, the status of GHFF colonies in the Bairnsdale region, adaptive management and future activities planned.

Adaptive Management

69. The Management Plan states that indications of behavioural, physiological or reproductive cycle changes will prompt an adaptive management approach to the removal of habitat in consultation with DEPI, the Department and the local community. Adaptive management strategies will be developed to reduce potential impacts to GHFF in accordance with the risk to the GHFF and monitoring results. The Department considers that, given the unpredictability of GHFF and the high risk of unexpected responses, an adaptive management response is acceptable for the management of potential impacts to GHFF. The Department has proposed a condition (condition 6) that the management plan be updated accordingly for currency and to incorporate lessons learned from the staged removal of habitat. The condition states that this information must be submitted to the Minister in an annual report.

Compensatory measures

70. The Department considers that there is a risk of residual impacts to the GHFF as a result of the proposed action and therefore recommends a condition (condition 3) that requires the proponent to:

- nominate a contact for public enquires;
- notify neighbouring Councils about the habitat removal of habitat;
- undertake revegetation of GHFF habitat in accordance with expert advice; and
- provide community education with the provision of resources such as interpretative signage at GHFF habitat to the value of \$5,000.

71. The Department considers that this is appropriate compensation given the level of management that the proponent has already committed to in the Management Plan. In addition, this compensation may assist DEPI in resourcing funds for the continued management of GHFF as a consequence of the removal of habitat.

Conclusion

72. With the proposed mitigation measures as well as the recommended conditions of approval, the Department considers that impacts to the GHFF are at an acceptable level. The Department considers that the impacts to the GHFF have been adequately compensated for and adequately minimised. On this basis, the Department considers that the mitigation and avoidance measures contained in the Plan, and implementation of the recommended proposed conditions will ensure that **the proposed action does not result in unacceptable impacts to listed threatened species and ecological communities, in particular the GHFF.**

Other listed threatened species and ecological communities

73. The Department considers that the removal of 0.5 hectares of poplar trees along the Mitchell River is unlikely to impact on any other listed threatened species or ecological community. This is because the site does not constitute potential habitat and is unlikely to support populations of any other listed threatened species.

Considerations for Approval and Conditions**Recommended Proposed Conditions**

74. This section includes a summary of the recommended proposed conditions and reasons why the Department believes they are necessary for the protection of matters of national environmental significance. The complete list of recommended proposed conditions is provided in the table at the start of this document. The Department is confident that the recommended proposed conditions are reasonable and appropriate having regards to the nature and scale of potential impacts. The Department therefore considers that the proposed action will not result in unacceptable impacts to threatened species and ecological communities as long as it is undertaken in accordance with the recommended proposed conditions.

75. Proposed condition 1 and 2 limit the person taking the action to undertaking the proposed action in the 0.5 hectare area identified in the assessment documentation and in the manner described in the assessment documentation. These conditions reflect commitments made by the proponent and will ensure that the proposed action is undertaken in the manner described.

76. Proposed condition 3 is recommended to ensure that the person taking the action makes appropriate effort in providing communication to the public and neighbouring councils in regard to the proposed action and that adequate compensation is provided for the provision of long-term education and revegetation of GHFF habitat in the Bairnsdale area. Compensation is deemed appropriate to compensate for the risk of unavoidable impacts to the GHFF.

77. Condition 4 is recommended to ensure that, if ongoing dispersal is required, and the dispersal is not an emergency dispersal, that the person taking the action must provide a plan to the Minister for approval prior to undertaking that dispersal and the plan must address key concerns to the satisfaction of the Minister.
78. Condition 5 is recommended in the scenario that the GHFF move to an area that is considered a human health and safety risk and to ensure that, unless negotiated with the Minister, that the key concerns of the Department are addressed in undertaking that emergency dispersal.
79. Condition 6 is recommended to ensure that the person taking the action provides adequate reporting to the Minister that addresses key concerns that are not addressed in the Management Plan or in the standard conditions. This proposed condition includes a mechanism for incorporating currency and adaptive management into the future management of the GHFF.
80. Conditions 7 to 14 are standard conditions recommended for the majority of proposals assessed and approved under the EPBC Act. They include reporting and publishing protocols as well as specifying requirements for independent audits. These conditions also specify the steps necessary to review or vary plans or programs which are a requirement of this approval.

Mandatory considerations – section 136(1)(b) Economic and social matters

81. The proponent has addressed economic and social matters within the Management Plan ([Attachment B2](#)). The public submissions also raised a number of social and economic issues. These are discussed below.

Concerns of Public Safety

82. The current condition of the poplar trees has been considered to be a safety risk to recreational users of the walking path that passes near to the trees along the Mitchell River. Unsafe trees and branches were identified in an independent arboricultural report undertaken in 2010, and reviewed in 2011, to inspect and highlight trees of safety concern to the public (see [Attachment B2, Appendix 4](#)).
83. On 30 June 2011, the proponent sought approval from the Department to undertake urgent arboricultural works within the stand of poplar trees representing critical habitat for the GHFF. The works consisted of the removal of 11 trees, dead wooding of 22 trees and some removal of ivy. The Department noted the proponent's advice that the trees and dead wood presented a safety risk to users of the Mitchell River walking track and that the proposed works were urgently required to assure the safety of the community, which utilise the track.
84. While the Department considered that the works are a component of the broader tree removal program referred to the Department it was considered that, given the number of trees proposed to be removed, the current absence of GHFF from the site and the requirement to assure public safety, the action was unlikely to significantly impact the GHFF colony and did not represent a significant breach of national environmental law, as long as the action was undertaken in the manner described.
85. The proponent undertook these works to ensure the immediate safety of track users but notes that the condition of the poplars are an ongoing concern and will require subsequent management to provide a safe environment for the community.

Health risks and concerns

86. The proponent has cited the risk of disease from the GHFF as a common concern of the residents of Bairnsdale. In particular, the diseases Australian Bat Lyssavirus, Hendra virus and Nipah virus have been mentioned as diseases potentially fatal to other animals, who may also act as vectors to humans, and humans. While the risk of exposure to these diseases is considered limited, public concern remains high especially when considered in relation to the increased opportunity for human/domestic animal contact and possible disease transmission. The Department notes that there may be the possibility, or perception of, increased exposure of the disease to humans as a result of the colony dispersing to sites near to human habitation. In particular, Hendra virus has become more prominent in the national press recently resulting in stronger community concerns. Negative public perception of the GHFF has intensified with the discovery of three zoonotic viruses that are potentially fatal to humans: Hendra virus, Australian Bat Lyssavirus (ABLV) and Menangle virus.
87. The Management Plan states that no animal is to be handled at any point during the dispersal by persons other than the authorised officers from DEPI. In addition, all personnel involved in dispersal actions will be required to wear Personal Protective Equipment (PPE) during dispersal actions. The Management Plan states that the Project Manager is responsible for the safety and wellbeing of all personnel and will be First Aid Level 2 qualified and have first aid requirements on site at all times.
88. The Management Plan states that the Australian Bat Lyssavirus is a rabies-like virus that has been identified in five species of bats. It states that infection of humans is extremely rare (only three fatal cases have been documented in Australia to date, with less than 1% of wild GHFF carrying the virus). Effective pre-exposure and post-exposure protection from ABL is available through a vaccine that can be administered by medical practitioners.
89. The Nipah virus is closely related to the Hendra virus and also occurs naturally in some species of bats; however, has not occurred in Australia to date. It was first identified in 1999 in Asia and has caused disease in animals (mostly pigs) and in humans through contact with infectious animals.
90. Outbreaks of Hendra virus in Queensland and New South Wales in 2011 raised concerns about the proximity of flying-foxes to urban and peri-urban areas. Flying-foxes are natural 'hosts' of Hendra virus, meaning that they carry the virus but it has little effect on them. There is no evidence to suggest they can directly transfer the virus to humans. It is believed that the virus may be transmitted from flying-foxes to horses via exposure to urine or birthing fluids although this has not been confirmed. On rare occasions, humans have contracted the virus through close contact with infected horses. The disease risk to the general bat population and to humans remains an active area of research.
91. The Department acknowledges that Hendra virus and Menangle virus is common in GHFF; however, there is no evidence that the infections can be transmitted directly to humans. The disease can only be transferred to humans through a vector such as a horse or pig. The Department considers that while there is a risk that the proposed removal of habitat and ongoing dispersal may lead to increased human/flying-fox interface an increase in the contraction of these two diseases to humans is low. The Department considers that the inclusion of health provisions within the Management Plan and increased community awareness of these diseases will further reduce these risks.

Social impacts

92. The Management Plan prepared by the proponent states that the GHFF campsite currently impacts on local residents, especially those living to the north-west of the roost site, along Riverine Street, Bairnsdale. The proponent states that many local residents find the campsite difficult to tolerate close to their properties and have cited health problems associated with the presence of the camp. It is stated that the main concerns relate to the odour and noise levels of the GHFF and the general detracting from the amenity of the area.

93. Increased noise levels occur during dawn and dusk when the GHFF return to camp to roost, and mothers locate their young in the camp or exit the camp to forage. The GHFF communicate through vocalisation, which includes defending their selected territories. This pattern often clashes with the rest patterns of humans with noise levels increasing in the early dawn hours.
94. The odour associated with a GHFF camp is not largely caused by faeces or urine but the scent secreted by the GHFF during the breeding season as males mark their territories and, to a lesser extent, by females scenting to locate young in the camp, from October through to March. It is stated that residents find the odour of the GHFF offensive and that the smell is so overwhelming that their ability to use outside areas is restricted and impacts on their personal lives.
95. The Management Plan also states that partial defoliation of trees by the GHFF results in a negative visual impact to the site. Defoliation is a natural process at GHFF camps and should be considered alongside the important role that the GHFF plays in pollinating and seed dispersal of native flora that assists in the evolution and regeneration of forests that provide for many life forms and natural processes.
96. There are also concerns to humans if the GHFF relocate to people's backyards, public areas and/or commercial fruit crops, and the problem is shifted from the current camp site to other areas. If the GHFF relocate to a site such as a member of the public's backyard, the proponent has proposed a number of measures to manage this particular social impact, including a public awareness campaign and ongoing dispersal activities. It should be noted that there may be unpredictable social impacts related to the movement of GHFF that have not been accounted for. This is planned to be addressed through an adaptive management approach to the GHFF management.

Community consultation

97. The Management Plan states that consultation has been undertaken by both the proponent and DEPI to engage local residents regarding the issues of managing the GHFF campsite and the necessity to provide a carefully planned approach to continue the poplar removal program and revegetation efforts. The proponent states that they will develop an engagement plan for the implementation of the Management Plan with reference to the EGSC Community Engagement Policy (see Attachment B2, Appendix 8). This will require the provision of information, such as fact sheets, website information, displays and ongoing consultation with the community.
98. The proponent considers that the promotion of a positive image for the GHFF within the local region is of high importance when managing the GHFF longer term. The proponent will actively promote DEPI's theme of 'Living with Wildlife' in relation to the management of the GHFF within the East Gippsland Shire. This will include on site signage should the GHFF permanently relocate to an acceptable area under the proponent's management.

Revegetation

99. Revegetation of the Mitchell River corridor has been an ongoing project with collaboration of the East Gippsland Catchment Management Authority, Bairnsdale Urban Landcare Group, Advance TAFE and other educational institutions. The program has been nominated for State Landcare Awards in 2009.
100. Revegetation of the entire corridor has resulted in the Mitchell River roost site being one of the final sites to be revegetated as part of this ongoing project. The proponent has stated that continuation of the revegetation program protects investment of funding and significant volunteer inputs into provision of biodiversity values along the corridor. As the roost site vegetation is almost completely populated with invasive species the reinfestation of revegetated areas through both seed and vegetative spread remains a possibility. Revegetation efforts continue along the Mitchell River riparian corridor in line with the Mitchell River Environs Local Structure and Development Plan 1998.

Economic matters

101. The Management Plan states that the value of properties has reduced due to the close proximity of the GHFF roost and the loss of amenity.
102. If the GHFF relocate to a commercial fruit crop, the impact this could have to the financial return of the fruit crop could be detrimental, especially if the entire crop is destroyed. The economic impact of the GHFF on fruit growers in other areas of Australia varies between seasons from minimal or no impact to significant loss. The proponent has not fully addressed this concern; however, as the GHFF have caused damage to commercial fruit crops since the time of European settlement it would be questionable whether the removal of habitat or ongoing dispersal would actually lead to an increase to the risk of impacts to commercial fruit crops, when the impact is already present due to GHFF natural behaviour to search for food resources during their daily migratory pattern. It should also be noted that increased numbers of GHFF in localities including commercial crop regions in Victoria may be a result of adverse weather conditions in Queensland.
103. In some areas of Australia GHFF roost sites and dusk exit flights are increasingly being recognised as attractions for eco-tourism, e.g. camps in Port Macquarie, Brisbane and Yarra Bend in Melbourne. The Management Plan states that with careful management the Bairnsdale GHFF colony may provide an opportunity to develop into an eco-attraction that would benefit not only the relationships between humans and the GHFF but local tourism.

Factors to be taken into account – section 136(2)(a) Principles of ecologically sustainable development

104. The principles of ESD, as defined in Part 1, section 3A of the EPBC Act, are:
- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
 - (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
 - (c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
 - (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;
 - (e) improved valuation, pricing and incentive mechanisms should be promoted.
105. In formulating this recommendation, the Department has taken into account the principles of ecologically sustainable development. In particular:
- (a) This report and the assessment documentation provided contain information on the long-term and short-term economic, environmental, social and equitable considerations that are relevant to the decision and are presented for your consideration.
 - (b) Any lack of certainty related to the potential impacts of the projects is addressed by conditions that restrict environmental impacts, impose strict monitoring and adopt environmental standards which, if not achieved, require the application of response mechanisms in a timely manner to avoid adverse impacts.
 - (c) The proposed conditions will ensure protection of EPBC listed species and communities. Those conditions allow for the project to be delivered and operated in a sustainable way to protect the environment for future generations and preserve EPBC listed species and communities in perpetuity.

- (d) The Department has considered the importance of conserving biological diversity and ecological integrity for this project and the advice provided within this document reflects that consideration.
- (e) The Department's advice includes reference to and consideration of a range of information on the social and economic costs, benefits and impacts of the project.

Factors to be taken into account – section 136(2)(bc) – preliminary documentation

- 106. In accordance with section 136(2)(bc)(i), the finalised preliminary documentation relating to the action, given to the Minister under section 95B(3) is at Attachment B1 and B2 of the proposed decision briefing package.
- 107. In accordance with section 136(2)(bc)(ii), this document forms the recommendation report relating to the action given to the Minister in accordance with section 95C.

Person's environmental history – section 136(4)

- 108. The information provided in the referral documentation advises that no legal proceedings have been taken against the proponent under a Commonwealth State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. The Department is likewise unaware of any such proceedings.
- 109. Subject to consultation with the proponent on the proposed approval conditions the Department has no reason to consider that they would be unwilling or unable to undertake this proposal in accordance with the recommended decision and conditions.
- 110. The Department is not aware of any proceedings against the East Gippsland Shire Council or its executive officers under Commonwealth, State or Territory law for the protection of the environment. The Department is not aware of any reason that the East Gippsland Shire Council would not be able to comply with the recommended proposed conditions.

Requirements for decision about listed threatened species and communities - section 139 (1)

- 111. Section 139(1) of the EPBC Act states that in deciding whether or not to approve for the purposes of subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, you must not act inconsistently with:
 - a) Australian obligations under:
 - i. the Biodiversity Convention; or
 - ii. the Apia Convention; or
 - iii. CITES; or
 - b) a recovery plan or threat abatement plan.

The Biodiversity Convention

- 112. The Biodiversity Convention is available at:
<http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1993/32.html>
- 113. The objectives of the Biodiversity Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

114. The proposed approval decision is not considered to be inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. The ultimate aim is conservation of listed threatened species and communities in the wild.
115. This has been considered in, and is consistent with, the recommended approval which requires species specific mitigation, management and compensation measures for listed threatened species and communities.

Convention on the Conservation of Nature in the South Pacific (APIA Convention)

116. The APIA Convention is available at:
<http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1990/41.html>
117. The APIA Convention was suspended with effect from 13 September 2006. While this Convention has been suspended, Australia's obligations under the Convention have been taken into consideration. The proposed action is considered to be not inconsistent with the Convention which has the general aims of conservation of biodiversity.
118. The APIA Convention encourages the creation of protected areas which, together with existing protected areas, will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations, and regions and objects of aesthetic interest or historic, cultural or scientific value. The proposed approval requires the proponent to secure, protect and improve large areas of primary value habitat to compensate for residual impacts to listed threatened species and communities.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

119. CITES is available at: <http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1976/29.html>
120. The proposed action has no implications for CITES as it does not involve international trade.

Conclusion

121. The Department considers that likely impacts on listed threatened species and communities and in relation to water resource dependent listed threatened species will be avoided and mitigated by the proponent to a reasonable degree under the proposed conditions, and that residual impacts will be appropriately compensated for. Approving the proposed action subject to the proposed conditions would therefore not be inconsistent with the Biodiversity Convention, CITES or the Apia Convention.

Recovery Plans and Threat Abatement Plans

122. The action is considered to have, or likely to have, a significant impact on the following listed threatened species and communities:
- Grey-headed Flying-fox (*Pteropus poliocephalus*).
123. The Recovery Plans relevant to the proposed action is as follows, and is provided at Attachment D:
- DECCW 2009, *Draft National Recovery Plan for the Grey-headed Flying-fox Pteropus poliocephalus*. Prepared by Dr Peggy Eby and by the Department of Environment, Climate Change and Water, NSW for the Australian Government Department of the Environment, Water, Heritage and the Arts.
124. There are no Threat Abatement Plans relevant to this action.

Conclusion

125. The Department has considered all relevant Recovery Plans and Threat Abatement Plans and is of the view that approval of this action would not be inconsistent with the above obligations.

Requirements for decision about listed threatened species and communities - section 139 (1)

126. Section 139(2) of the EPBC Act requires that if you are considering whether to approve, for the purposes of a subsection of section 18 or section 18 A, the taking of an action; and the action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community; you must, in deciding whether to so approve the taking of the action, have regard to any approved conservation advice for the species or community.

Conservation Advice

127. No approved conservation advice is available for the GHFF, as the only species likely to be significantly impacted by the action. As such, in approving this action you would not be acting inconsistently with any conservation advice.
128. Listing advice does exist for the GHFF and includes justification against the following criteria; a decline in numbers, geographic distribution, population size and the decline in numbers or distribution and probability of extinction in the wild.

Conclusion

129. The Department considers that approving the proposed action in the manner recommended will not be inconsistent with any conservation advice or listing advice.

Bioregional plans

130. In accordance with section 176(5) the Minister is required to have regard to a relevant bioregional plan in making any decision under the EPBC Act to which the plan is relevant.
131. Marine bioregional plans have been developed for the Commonwealth marine area to support the decision-making process for marine-based industries under the EPBC Act. As part of this process, new Commonwealth marine reserves have been identified by the department for the conservation of marine ecosystems and biodiversity of Australia's oceans. These reserves are intended to meet Australia's commitments to establish a National Representative System of Marine Protected Areas.
132. Five marine regions have been identified as part of the bioregional planning process, including Southwest, North-west, North, East (Temperate East and Coral Sea) and South-east Marine Regions.

Conclusion

133. The Department does not consider there to be any relevant bioregional plan for the purposes of the Minister's decision-making.

Minister not to consider other matters

134. In deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, you must not consider any matters that you are not required or permitted, by Subdivision B, Division 1, Part 9 of the EPBC Act, to consider.

Any other information the Minister has on the relevant impacts of the action; and

135. All information on the relevant impacts of the action is available in this Recommendation Report (including in the Attachments).

OtherTime frame for approval

136. It is recommended that the approval be valid until 1 July 2022. This allows for the undertaking of the proposed action (approximately three years) and a buffer of five years of monitoring and adaptive management. After this time it is considered reasonable that further dispersals may need to be considered independently of this approval.

Consultation

137. The department has consulted with the Department's Compliance and Enforcement Branch, the Species Information and Policy Section and New South Wales and Queensland 1 Sections in the preparation of the Recommendation Report.

Considerations in deciding on condition – section 134

138. In accordance with section 134(1), the Minister may attach a condition to the approval of the action if he or she is satisfied that the condition is necessary or convenient for:
- (a) protecting a matter protected by a provision of Part 3 for which the approval has effect (whether or not the protection is protection from the action); or
 - (b) repairing or mitigating damage to a matter protected by a provision of Part 3 for which the approval has effect (whether or not the damage has been, will be or is likely to be caused by the action).
139. As detailed in the assessment section above, all recommended conditions attached to the proposed approval are necessary or convenient to protect, repair and/or mitigate impacts on a matter protected by a provision of Part 3 for which this proposed approval has effect.
140. In accordance with section 134(4), in deciding whether to attach a condition to an approval the Minister must consider:
- a. any relevant conditions that have been imposed, or the Minister considers are likely to be imposed, under a law of a State or self-governing Territory or another law of the Commonwealth on the taking of the action;

As detailed in the State Assessment and Approval section above, the Department has considered all state requirements. The Department considers that the recommended proposed conditions are not inconsistent with state requirements.

- aa. information provided by the person proposing to take the action or by the designated proponent of the action;

The information provided by the person proposing to take the action has been considered. Documentation provided by the person taking the action is at Attachment B1 and B2 of the proposed decision briefing package.

- b. the desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and a person taking the action to achieve the object of the condition.

The Department considers that the conditions proposed (as discussed above) are a cost effective means of achieving acceptable impacts on protect matters.

141. In preparing this report and recommending whether to attach a condition to an approval, the Department has considered:

- a. No other conditions have been imposed or are likely to be imposed under a law of a state or self-governing Territory or another law of Commonwealth;

The information provided by the person proposing to take the action has been considered. Documentation provided by the person taking the action is at Attachment B1 and B2.

- b. the desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and a person taking the action to achieve the object of the condition.

The department considers that the conditions proposed (as discussed above) are a cost effective means of achieving acceptable impacts on protect matters.

Conclusion

142. The proposed action is likely to impact on an EPBC Act listed threatened species. The Department considers that the likely impacts of the proposed action on protected matters will be acceptable, provided that the action is undertaken in accordance with the recommended conditions and consistent with the mitigation and avoidance measures proposed by the proponent. Having considered all matters required to be considered under the EPBC Act, the Department recommends that the proposed action be approved, subject to the recommended conditions.

Material used to prepare Recommendation Report

143. Relevant documents considered by the Department in the formulation of this recommendation report include:

- (a) Referral documentation and attachments (Attachment B1);
- (b) Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, DRAFT Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013 (Attachment B2); and
- (c) Commonwealth/state policies and guidelines including:
 - Department of the Environment and Heritage, 2003, *EPBC Administrative Guidelines on Significance: Supplement for the Grey-headed Flying-fox, What you need to know about the Grey-headed Flying-fox for the 2003–2004 fruit season*.
 - Department of the Environment, Water, Heritage and the Arts, 2009, *Significant Impact Guidelines 1.1 Matters of National Environmental Significance*, Department of Environment, Water, Heritage and the Arts, Canberra.
 - Department of the Environment, Water, Heritage and the Arts, 2010, *Survey guidelines for Australia's threatened bats: Guidelines for detecting bats listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999*.

- Department of the Environment website, including information on diseases in Australian flying-foxes, <http://www.environment.gov.au/node/16394>.
- Department of Sustainability, Environment, Water, Population and Communities, 2012, *Flying-foxes and national environmental law Information Sheet*.
- The Department's Species Profile and Threats Database (SPRAT).
- NSW Department of Environment, Climate Change and Water, 2009, *Draft National Recovery Plan for the Grey-headed Flying-fox (Pteropus poliocephalus)*. Prepared by Dr Peggy Eby and by the Department of Environment, Climate Change and Water, NSW for the Australian Government Department of the Environment, Water, Heritage and the Arts.



Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister. To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be taken. These decisions are made within 20 business days, provided that sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
 - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
 - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from the Department's web site:

- the Policy Statement titled [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#). Additional [sectoral guidelines](#) are also available.
- the Policy Statement titled [Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies](#).
- the [interactive map tool](#) (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act). If you wish to make a referral for a staged or component referral, read '[Fact Sheet 6 Staged Developments/Split Referrals](#)' and contact the Referral Business Entry Point (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act. Information is available on the Department's [web site](#).

What information do I need to provide?

Schedule 2 of the EPBC Regulations sets out the information that must be included in a referral. Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in green text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below two megabytes (2mb) as they will be published on the Department's website for public comment (Note: the Minister may decide not to publish information that is commercial-in-confidence). To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referral Business Entry Point for advice. Attachments larger than two megabytes (2mb) may delay processing of your referral.

How do I submit a referral?

Referrals may be submitted by mail, fax or email.

Mail to:

Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are appreciated.

Fax to: 02 6274 1789

- Faxed documents must be of sufficiently clear quality to be scanned into electronic format.
- Address the fax to the mailing address, and clearly mark it as a 'Referral under the EPBC Act'.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment (**Note: the Minister may decide not to publish information that is commercial-in-confidence**).

The Department will write to you at the end of 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral, including:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action has, will have or is likely to have a significant impact it is called a *controlled action* and the particular matters upon which the action may have a significant impact (such as World Heritage or threatened species) are known as the *controlling provisions*.

The proposed action is subject to a public assessment process before it can be considered for approval. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

Compliance audits

The Department may audit your project at any time to ensure that it was completed in accordance with the information provided in the referral or the particular manner specified in the decision. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes.

For more information

- call the Department of the Environment, Water, Heritage and the Arts Community Information Unit on 1800 803 772 or
- visit the web site www.environment.gov.au/epbc

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title: East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-Fox Zone

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(j).

1.1 Short description

East Gippsland Shire Council Poplar tree removal program on the Mitchell River. Removal of poplar trees used as a seasonal roost habitat by Grey-headed Flying Fox.

1.2 Latitude and longitude

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

location point	Latitude			Longitude		
	degrees	minutes	seconds	degrees	minutes	seconds
Poplar site	-37	49	12	147	37	22

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If area less than 5 hectares, provide the location as a single pair of latitude and longitude references. If area greater than 5 hectares, provide bounding location points.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.

Do not use AMG coordinates.

1.3 Locality

The site is adjacent to the northern side of the town of Bairnsdale on the Mitchell River approximately 1km downstream of the Lind Bridge (Bairnsdale – Wy Yung Road crossing of Mitchell River).

1.4 Size of the development footprint or work area (hectares)

The area of intended tree removal is approximately 0.5Ha

1.5 Street address of the site

59-100 Riverine Street

1.6 Lot description

EGSC committee of management Crown land.

1.7 Local Government Area and Council contact (if known)

East Gippsland Shire Council application

1.8 Timeframe

The tree felling component of the project will be completed in a two week time frame commencing late March 2010. Tree poisoning (none impact) usually occurs three months prior to tree falling.

1.9 Alternatives

Does the proposed action include alternative timeframes, locations or activities?

	No
X	Yes, you must also complete section 2.2

1.10 State assessment

X No

	Is the action subject to a state or territory environmental impact assessment?		Yes, you must also complete Section 2.4
1.11	Component of larger action Is the proposed action a component of a larger action?	X	No
			Yes, you must also complete Section 2.6
1.12	Related actions/proposals Is the proposed action related to other actions or proposals in the region (if known)?	X	No
			Yes, provide details:
1.13	Australian Government funding Has the person proposing to take the action received any Australian Government grant funding to undertake this project?		No
		X	Yes, provide details: The project has been funded from EGSC, EGCMA and Landcare. It is possible that funding may be procured from AG however there are no grant applications presently pending.

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.6.

2.1 Description of proposed action

East Gippsland Shire Council has been undertaking a Poplar removal program since 2003 along the Mitchell River, adjacent to the township of Bairnsdale between the Lind Bridge and the Princess Highway Bridge. The Poplars are targeted for removal by this ongoing program as they are an environmental weed, in a state of senescence and will pose a public safety threat in the near future due to dead branches and severe lean angles. The Poplar removal programs next scheduled stage of action will remove trees used by GHFF as 'summer camp' habitat. It is intended the trees will be removed and burnt nearby during April 2009. The operation process of removal will require that trees maybe completely removed on level ground or felled with stumps remaining in the ground on slopes. The trees will NOT be removed if bats are present at the time of scheduled operations. Revegetation activities will commence following removal. The program represents a concerted community effort by East Gippsland Shire Council, East Gippsland Catchment Management Authority and the Bairnsdale Urban Landcare Group. The program has been nominated for State Landcare Awards in 2009.

2.2 Alternative locations, time frames or activities that form part of the referred action

The extent of the poplar distribution along the Mitchell River in the program activity zone will allow for continued removal of poplar species. Staged removal of the area of poplars used by the GHFF is an option while allowing the poplar program to continue. It is considered that the staged removal could occur over a three year period allowing the GHFF opportunities to relocate and present enhanced opportunities to manage the relocation to other suitable habitat.

2.3 Context, planning framework and state/local government requirements

The poplars are recognised as environmental weeds and do not require approval under the native vegetation framework for removal. The program has been successfully ongoing for a number of years and is in accordance with East Gippsland Environmental Sustainability Strategy 2008-2013.

2.4 Environmental impact assessments under Commonwealth, state or territory legislation

Proposal is not considered to be subject to environmental impact assessment.

2.5 Consultation with Indigenous stakeholders

Indigenous stakeholders are not considered to be effected by this proposal.

2.6 A staged development or component of a larger project

The project is an ongoing program, the proposed activities represent one particular years work but it is not considered that this project represents a component of a larger project.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The [interactive map tool](#) can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of impacts should refer to the following resources (available from the Department's web site):

- specific values of individual [World Heritage properties and National Heritage places](#) and the ecological character of [Ramsar wetlands](#);
- profiles of relevant species/communities (where available), that will assist in the identification of significance;
- [Significant Impact Guidelines 1.1 – Matters of National Environmental Significance](#); and
- associated sectoral and species policy statements available on the web site, as relevant.

Note that even if your action will not be taken in a World Heritage area, Ramsar wetland, Commonwealth marine area, or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

None in area within 1km of site (protected matters search tool).

Nature and extent of likely impact

Address any impacts on the World Heritage values of any World Heritage property

3.1 (b) National Heritage Places

Description

None in area within 1km of site (protected matters search tool).

Nature and extent of likely impact

Address any impacts on the National Heritage values of any National Heritage place

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

Gippsland Lakes is listed as Ramsar wetland. The Poplar program intends to enhance native vegetation in the Mitchell River environment, a major tributary of the Gippsland Lakes.

Nature and extent of likely impact

The proposed project is considered to have a positive impact on the health of the Gippsland Lakes. Erosion control measures to minimise run off from ground disturbance will be undertaken and work will not be undertaken in periods of high erosion incidence. Address any impacts on the ecological character of any Ramsar wetlands

3.1 (d) Listed threatened species and ecological communities

Description

Removal of poplar trees presently used as habitat by Grey-headed Flying-fox.

Nature and extent of likely impact

Loss of habitat for GHFF at present summer camp site. It is anticipated that the GHFF will relocate to find other suitable habitat. The camp is presently used by 3-5000 bats (on average) over summer and is closely monitored by the Department of Sustainability and Environment. While other suitable habitat is without question available locally it is the potential human interaction of any new habitat adopted by the bats that is of concern. Where possible the bats will be encouraged to adopt habitat of low human contention.

Address any impacts on the members of any listed threatened species or any threatened ecological community, or their habitat

3.1 (e) Listed migratory species

Description

Nature and extent of likely impact

Address any impacts on the members of any listed migratory species, or their habitat

3.1 (f) Commonwealth marine area

Description

12 species listed within 1km (protected matters search tool)

Nature and extent of likely impact

This is a terrestrial site in the riparian zone, ground disturbance will be minimised and work will only be undertaken in dry conditions to avoid any potential run off.

3.1 (g) Commonwealth land

Description

If the action will affect Commonwealth land also describe the more general environment. The Policy Statement titled [*Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies*](#) provides further details on the type of information needed. If applicable, identify any potential impacts from actions taken outside the Australian jurisdiction on the environment in a Commonwealth Heritage Place overseas.

Nature and extent of likely impact

Address any impacts on any Commonwealth land

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, or actions taken on Commonwealth land

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area; or
- will be taken on Commonwealth land.

Your assessment of impacts should refer to the [*Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies*](#) and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))

3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.3 Other important features of the environment

Provide a description of the following features of the project area and the affected area.

3.3 (a) Soil and vegetation characteristics

Deep alluvial soils on river flats with limestone escarpment and exposed limestone on steeper slopes. The pre settlement ecological vegetation community is warm temperate rainforest however the site is heavily invaded with weed species, predominantly poplar and ivy and the site is not now considered to represent the warm temperate rainforest ecological vegetation community.

3.3 (b) Water flows, including rivers, creeks and impoundments

Site is adjacent to the Mitchell River.

3.3 (c) Outstanding natural features, including caves

Underlying limestone escarpment.

3.3 (d) Gradient (or depth range if action to be taken in a marine area)

3.3 (e) Buildings or other infrastructure

Site is adjacent to the urban area, separated by a road.

3.3 (f) Marine areas

3.3 (g) Kinds of fauna & flora

3.3 (h) Current state of the environment in the area

The Mitchell River environs are heavily infested with weed species and the program has provided an opportunity for rehabilitation to be undertaken. Extensive areas of the Mitchell River environs are now revegetated with native species.

Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

3.3 (i) Other important or unique values of the environment

The area is part of a linear walking path in the urban area that provides many residents with a recreational opportunity.

Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

3.3 (j) Tenure of the action area (eg freehold, leasehold)

3.3 (k) Existing land/marine uses of area

3.3 (l) Any proposed land/marine uses of area

4 Measures to avoid or reduce impacts

The poplar trees will NOT be removed if GHFF are present at the time of intended operations. If the GHFF are present operation works will be postponed until the GHFF have departed the site.

The staged removal of trees may help to encourage the bats to find suitable habitat at another location and reduce any sudden change in conditions at the site.

It is anticipated that a three year staged removal program would represent a practical option for the limited size of the site if this option was required to be exercised.

The Minister for the Environment, Heritage and the Arts may decide that a proposed action is not a controlled action if the action will be undertaken in a particular manner that will ensure that any potential significant impacts are avoided or reduced by mitigation measures to the extent that they will not be significant (Subsection 77A(1) of the EPBC Act).

To be considered, any such measures must:

- clearly form part of the referral (eg be identified in the referral form and fall within the responsibility of the person proposing to take the action),
- be concrete and prescriptive, and
- be clearly effective in avoiding or mitigating significant impacts.

Examples of relevant measures to avoid or reduce impacts may include the timing of works to avoid critical periods for listed species, avoidance of habitat important for listed species from direct and indirect impacts, application of specific design measures to avoid or reduce impacts, or adoption of specific work practices to reduce or avoid impacts.

More general commitments (eg preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making a decision on significance (but are relevant at the assessment and approval stages if your project proceeds to these stages).

Refer to the [Guideline on Particular Manner Decisions](#) under the EPBC Act available at the Department's web site.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:

- what the measure is
- how the measure is expected to be effective
- the timeframe or workplan for the measure.

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. significant impacts on the matters protected under the Act are likely) and the reasons why. If you think that the action is a controlled action, you must also identify the relevant protected matters in section 5.3. (An action is a controlled action if it has, will have, or is likely to have a significant impact on a matter protected by a provision of Part 3 of the EPBC Act).

5.1 Do you THINK your proposed action is a controlled action?

<input type="checkbox"/>
X

No, complete section 5.2

Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is not a controlled action (ie. NOT LIKELY to have significant impacts).

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) of the EPBC Act that you think are likely to be impacted (controlling provisions).

Matters likely to be impacted

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
X
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

sections 12 and 15A (World Heritage)

sections 15B and 15C (National Heritage places)

sections 16 and 17B (Wetlands of international importance)

sections 18 and 18A (Listed threatened species and communities)

sections 20 and 20A (Listed migratory species)

sections 21 and 22A (Protection of the environment from nuclear actions)

sections 23 and 24A (Commonwealth marine environment)

sections 26 and 27A (Protection of the environment from actions involving Commonwealth land)

section 28 (Protection of the environment from Commonwealth actions)

Sections 27B and 27C (Commonwealth Heritage places outside the Australian Jurisdiction)

Specify the key reasons why you think the proposed action is a controlled action (ie. LIKELY to have significant impacts).

The proposed action will remove habitat presently used by GHFF. It is considered that the impact will be minimal as suitable habitat is likely to be found by the bats at other nearby locations.

6 Environmental history of the responsible party

NOTE: If a decision is made that a proposal needs approval under the Act, the Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach for actions that need approval under the Act.

	Yes	No
<p>6.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details</p> <p>The project will be undertaken by EGSC and coordinated by the Sustainability Units Environment Officer.</p>	X	
<p>6.2 Has the party taking the action ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>If yes, provide details</p>		X
<p>6.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p> <p>If yes, provide details of environmental policy and planning framework</p>		X
<p>6.4 Has the person proposing to take the action previously referred an action under the EPBC Act?</p> <p>Provide name of proposal and EPBC reference number (if known)</p>		X

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than two megabytes so they can be published on the Department's website. Attachments larger than two megabytes (2mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)		
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.3)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.4)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters and that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action; or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action¹.

Project title: East Gippsland Shire Council Poplar Removal Program – Grey-Headed Flying-Fox Zone

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

The Minister may also request additional information from this person, for the purposes of deciding whether the action is a controlled action, the controlling provisions that apply, and for the making of an approval decision (if applicable).

If approval for the action is required and is granted, it will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions of approval.

If the Minister decides that the action is a controlled action, the Minister must also designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action².

Name Ian Bate

Title Environment Officer

Organisation East Gippsland Shire Council

ACN / ABN (if applicable)

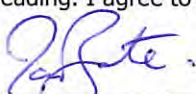
Postal address PO Box 1618, Bairnsdale, VIC 3875

Telephone 0438 011198

Email ianba@egipps.vic.gov.au

Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be nominated as the proponent for this action.

Signature




Date 24/7/09

¹ If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.

² If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.

8.2 Person preparing the referral information (if different from 8.1)

Individual or organisation who has prepared the information contained in this referral form.

Name Ian Bate
Title Environmental Officer
Organisation East Gippsland shire Council
Postal address PO Box 1618, Bairnsdale VIC 3875
Telephone 0438 011198
Email ianba@egipps.vic.gov.au
Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading.
Signature  Date 24/7/09

If the referring party is a small business (fewer than 20 employees), estimate the time taken, in hours and minutes, to complete this form (include your time reading the instructions, working on the questions and obtaining the information and time spent by all employees in collecting and providing this information).

Hours	Minutes

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ☐ Completed all required sections of the referral form?
- ☐ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ☐ Provided a map showing the location and approximate boundaries of the project area?
- ☐ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ☐ Provided complete contact details and signed the form?
- ☐ Provided copies of any documents referenced in the referral form?
- ☐ Ensured that all attachments are less than two megabytes (2mb)?
- ☐ Sent the referral to the Department (electronic and hard copy preferred)?

Present GHFF Camp Location







Mitchell River Revegetation Program

Bairnsdale Grey-headed Flying Fox Roost Site



DRAFT Strategic Management and Action Plan

East Gippsland Shire Council
November 2013

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LIST OF ACRONYMS

DE	Department of Environment (Commonwealth)
DEPI	Department of Environment and Primary Industries (State)
EGCMA	East Gippsland Catchment Management Authority
EGSC	East Gippsland Shire Council
EPBC Act 1999	Environment Protection and Biodiversity Conservation Act 1999
FFG Act 1988	Flora and Fauna Guarantee Act 1988
GHFF	Grey-Headed Flying Fox

IUCN	International Union for Conservation of Nature
The Plan	Grey Headed Flying Fox Strategic Management and Action Plan

1 SUMMARY

Grey-headed Flying-fox (*Pteropus poliocephalus*) (GHFF) is nationally listed as a vulnerable species and is a regular seasonal visitor to Bairnsdale inhabiting a seasonal campsite on the Mitchell River. Numbers have varied from a few hundred to records of over 34,000 individuals in 2006. The roost site is situated within a large stand of White Poplar, *Populus alba*. This vegetation is in a very poor and senescent condition and has a limited lifespan. The poplars are also an undesirable invasive pest plant species. Due to the high public usage of the walking path and the condition of the trees they are becoming a public safety issue.

The Mitchell River roost site is adjacent to a residential area. Residents have expressed concerns over the impacts from the colony including disease, noise, smell, and the potential for the devaluation of their homes. The roost site is also adjacent to the Mitchell River Walking Track which is a highly used piece of recreational infrastructure. The local Landcare group, with funding from the East Gippsland Catchment Management Authority (EGCMA), has worked with EGSC to remove poplars and other invasive plants and revegetate with native species around the river walk. The roost site poplars form part of this program. The national listing of the GHFF means that the proposal to remove the existing roost trees is a controlled action under the *EPBC Act 1994* and requires the development of a management plan that will ensure no or minimal impact to the conservation of this species.

Three options for the management of the roost site were identified as:

- Do nothing
- One off replacement of vegetation from non-native to native species (i.e. complete clear felling of site with corresponding site revegetation).
- Staged replacement of non-native vegetation (i.e. partial site clearing with corresponding site revegetation).

Staged replacement of non-native vegetation is EGSC's preferred option. This allows development of a buffer between adjacent houses and the site whilst giving time to observe the GHFF response to a reduction in the poplar roosting trees. One-off removal of the poplars runs the risk of shifting the colony into a more inappropriate site and no opportunity to assess its impact on the GHFF population.

Schedules have been developed for each stage to ensure programmed works occur when GHFF are absent from the roost site to mitigate impacts from the actions on GHFF. Increased community involvement and education regarding GHFF will be ongoing for the duration of works and beyond.

Assessment of the impacts to the GHFF by undertaking works has been undertaken to mitigate impacts and allow adaptive management of the site should significant stress be observed on GHFF after undertaking each staged approach. If the GHFF relocate to other areas, dispersal may be required dependant upon the location. Each of these sites will be assessed as to the appropriateness in reference to longer term ecological requirements of GHFF and reaction in creation of conflict with the community through the documented Response Plan.

2 INTRODUCTION

2.1 Purpose of this Plan

This plan has been prepared by East Gippsland Shire Council and in consultation with Department of Environment and Primary Industries (DEPI), Gippsland. This partnership in preparing the plan reflects the responsibilities relating to GHFF and the roost site with EGSC being the land manager and DEPI having responsibilities for fauna protection under the Victorian *Wildlife Act 1975*.

This Strategic Management and Action Plan (The Plan) provides for an opportunity to manage the GHFF colony and the Bairnsdale roost site in a sensitive manner and in accordance with both Federal and State obligations. The Plan also allows for the rehabilitation of the site in accordance with sections of the EGSC *Mitchell River Environs Local Structure and Development Plan 1998*.

2.2 Objectives of the Plan

The objective of this plan is to implement proposed revegetation actions and provide contingencies for possible impacts on GHFF and their subsequent management.

This plan aims to achieve the following:

- Continue, maintain and enhance the revegetation efforts within the Mitchell River corridor to facilitate recreational use and also to enhance the ecological character of the area;
- Secure a longer term site for the requirements of the GHFF that is accepted by the wider community;
- Balance the concerns of local residents and the wider community with the requirements placed upon EGSC by the relevant legislation.

2.3 Planning Process

This plan is based on extensive research, investigation, monitoring and consultation undertaken by both DEPI and EGSC into GHFF ecology and appropriate site management. The Yarra Bend Park Flying Fox Campsite Management Plan (DEPI 2005) was a reference during the preparation of the Plan.

The Plan has been prepared by EGSC with the cooperation of DEPI and relevant community stakeholders. Expert advice in relation to GHFF ecology was provided by Tony Mitchell, Wildlife Management Officer, DEPI.

3 BACKGROUND

3.1 Regional Information

East Gippsland Shire is located in the far eastern corner of Victoria, between 280 and 550 Kilometres from Melbourne. It covers 21,051 square kilometres and is the second largest municipality in Victoria.

The main urban centres of the East Gippsland Shire are Bairnsdale, Lakes Entrance, Orbost, Paynesville, Omeo and Mallacoota. Bairnsdale has the largest population and is also the principal regional retail and service centre. There are approximately 10 smaller towns and a large number of rural settlements or localities generally centred on community and sporting facilities.

GHFF have been recorded in Victoria at Geelong and Melbourne intermittently in the 1880's (DECCW 2009). GHFF occupy other sites within East Gippsland and have also been recorded in nearby West Gippsland (see **Appendix 3**). Nelson (1964) refers to a site at Dowell's Creek in Mallacoota as being a seasonal GHFF camp, with intermittent sightings at Orbost and Bairnsdale.

3.2 Bairnsdale Township

Bairnsdale is the principal commercial and retail centre in East Gippsland. The town has a population of approximately 11,000 residents. The town is situated adjacent to the Mitchell River on the edge of an extensive plains area.



Figure 1 - Aerial Image of Bairnsdale

3.3 History of GHFF in Gippsland

GHFF have been recorded using the Mitchell River roost site since 1995, with annual occupation recorded since 2002. The number of GHFF using the site has varied

between seasons, with numbers recorded from a few hundred to thousands. The largest numbers recorded onsite were 34,000 and 18,000 in May of 2006 and 2010 respectively (See **Appendix 1**).

In 2003, the colony remained on site through the year with pups being born on site. The exact reason for the extended period of occupancy cannot be determined, but could be attributed to extended periods of available feeding resources.

3.4 Stakeholders

Current and potential stakeholders now, and longer term, include;

- East Gippsland Shire Council (EGSC);
- Department of Environment and Primary Industry (DEPI); (Formerly Department of Sustainability and Environment)
- East Gippsland Catchment Management Authority (EGCMA);
- Bairnsdale Urban Landcare Group (BULG);
- Department of Environment (DE) (Formerly Department of Sustainability, Environment, Water, Population and Communities)
- Riverine Bat Cluster;
- Federal Member for Gippsland;
- Member for Gippsland East;
- Adjacent landholders;
- Wildlife Shelters and Foster Carers;
- Local residents and the wider community;
- Tourists and visitors to the area;
- East Gippsland Tourism;
- Local orchards; and
- Animal Welfare/Activist Groups (e.g. Bat Advocacy NSW, Victorian Advocates for Animals).

4 SPECIES INFORMATION

4.1 Grey-headed Flying Fox (*Pteropus poliocephalus*)

4.1.1 Distribution

GHFF is a native faunal species that can be found along the Eastern Coast of Australia from Bundaberg in Queensland to South Australia. Due to declining numbers GHFF was nationally listed as Vulnerable under the Commonwealth *EPBC Act 1999*. Habitat loss is considered to be the main reason for the population decline.

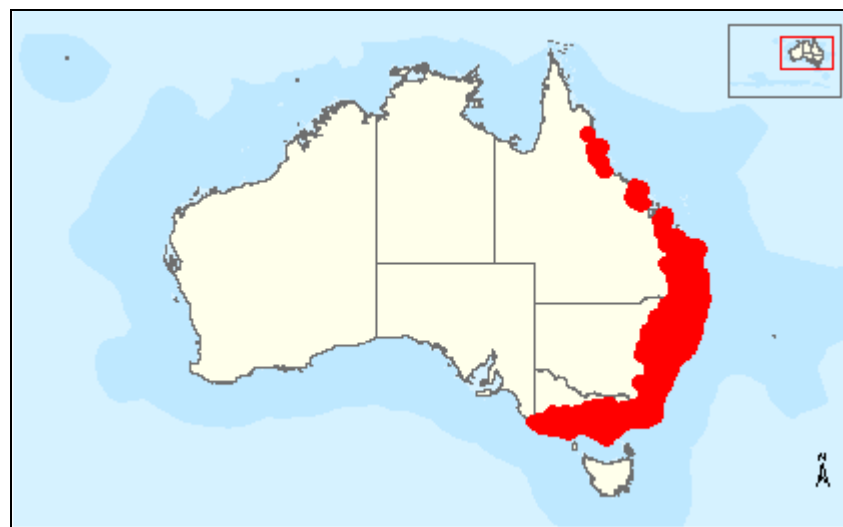


Figure 2 - Range of GHFF in Australia (DE 2013)

4.1.2 Ecological Role

GHFF play an important role in pollination and seed dispersal, which is essential for maintaining biodiversity. Although other species also fill this role, GHFF are very important because of the large distances they travel and they traverse highly disturbed areas (Roberts 2006). As native vegetation continues to become fragmented the movements of many pollinators and seed dispersers becomes restricted, GHFF will have an important role in linking genetically isolated and remnant patches of forest (Shilton *et al* 1999 in Roberts 2006).

4.1.3 Legislation and Conservation Status

Due to the national vulnerable status of the GHFF, works that may potentially have significant impact on this species require approval under the *EPBC Act 1999*.

- National: Listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*;
- New South Wales: Listed as Vulnerable under the *Threatened Species Conservation Act 1995*;
- Queensland: Listed as Least Concern under the *Nature Conservation Act 1992*;

- Victoria: Listed as Vulnerable under the *Flora and Fauna Guarantee Act 1988*.

4.1.4 Breeding Cycle

This species has a low fecundity with only one young born per season. Peak births occur between October and November (Tidemann and Nelson 2004). This species generally lactates after birth for 3 or 4 months, with the young dependant upon the mother (Nelson 1965). Hall and Richards (2000) report that young travel with their mother to feeding sites for a period of 5-6 weeks post birth and once furred are left in maternal camps until they become independent at around 12 weeks of age.

Mating behaviour commences in January where the male establishes a defendable territory and co-exists within this space with usually one female as a bonded pair, and some exhibit polygamous tendencies (DECCW 2009). Conception is generally considered to occur in March and April, but mating behaviour can extend beyond this period (Tidemann and Nelson 2004).

4.1.5 Habitat Requirements

This species utilises camps during the day and leave the camps to feed in surrounding vegetation from dusk to dawn. Selection of camp sites across their distribution typically include some of the following attributes (Eby 2002, Eby and Lunney 2002, Hall and Richards 2000, Roberts 2005 in DECCW 2009);

- Closed canopy;
- Continuous canopy area > 1 ha;
- Within 50km of the coast and at less than 65 msl;
- Close proximity to waterways (<500m);
- Level topography;
- Canopy height 8m and above; and
- Positioned with a nightly commuting distance of generally less than 20km of sufficient food resources.

Campsites are thought to be selected by the availability of surrounding food resources. The exact attributes that attract GHFF to a particular area is under researched and is difficult to define (DECCW 2009). This species typically forage in native vegetation that is dominated by Eucalypts and feed mostly on nectar and pollen bearing species. The number of GHFF in a camp is primarily related to the food available in the local area.

Species within the Myrtaceae family that is preferentially sought by GHFF exhibit differing flowering periods across a spatial scale. The availability of each species can also exhibit seasonal variation annually.

Populations of GHFF at roost or camp sites fluctuate with individuals remaining for extended periods of several months whilst others stay for much shorter periods. Camps are used as day refuges by animals that forage in surrounding areas as part of migration stopovers.

There is evidence that the majority of individuals are nomadic either continuously or during certain seasons (Ratcliffe 1931; Eby 1991; Spencer *et al.* 1991). GHFF have no adaptations for withstanding food shortages and migrate in response to changes in the amount and location of flowering plants (Eby 1991; Spencer *et al.* 1991).

5 ROOST SITE

The current roost site is considered to be an inappropriate location to support a GHFF colony of the population size seen in recent years. Key reasons include disturbance of the colony from recreational walking path users, creation of conflict with local residents, proximity to high traffic areas and limited longevity of the current roost trees.

5.1 GHFF Roost Site

The GHFF roost site primarily comprises of Crown Land reserve which EGSC is the appointed Committee of Management with the remainder of the site being an EGSC managed road reserve.



Figure 3 - Bairnsdale Roost Site Location (see Figure 6)

This reserve forms a steep narrow embankment between the Mitchell River and Riverine Street. The Mitchell River Walking Track runs along the river bank immediately at the bottom of the embankment. There is a pedestrian footpath between the road reserve and Riverine Street and there is a linking footpath down the embankment between the river walk and Riverine Street. The Mitchell River Walking Track is a 5.4km loop and runs along both sides of the river between the Lind and Mitchell River Bridges and incorporates the Port of Bairnsdale and Howitt Park. The walking track has very high usage all year round.

5.2 Roost Site Vegetation Condition

The roost site is situated amongst a predominantly over mature stand of White Poplar, *Populus alba*, along the Mitchell River within the township of Bairnsdale, as shown in **Figure 3**.

An arboricultural report was conducted in June 2010 and reviewed in June 2011. The report highlighted that the useful life expectancy of *P.alba* at this site ranges between 5-15 years under normal conditions. White Poplar is a short lived tree species with non durable heartwood. It is estimated that the crown ratio of the trees inspected (being representative of the whole stand) was around 60-70%.

The majority of *P.alba* on site have a multi stemmed habit and exhibit a growth habit towards light/away from competition resulting in trees being swept at the base with precipitous angles of lean. A high proportion of the trees are suffering from degrees of die-back, which could be attributed to a combination of senescence of trees and also presence of GHFF. There are a number of trees that have already fallen within the stand which is demonstrated in **Figure 4**.

The poplars, as a stand of trees and as a roost site, have a very limited lifespan regardless of any intervention by EGSC. Vegetation condition will decrease over a short period of time. It is reasonable to expect the crown die back will increase and live crown ratio will fall. An increasing number of stems will fall down. There is little suitable recruitment of native species or poplar that will provide for roost habitat into the future within the poplar stand.



Figure 4 - Current Condition of Poplar Stand

Annual occupation of the poplars has resulted in defoliation of the canopy across their distribution on site. Lack of a canopy encourages germination and spread of

weed species, and added is the enrichment of the soil through faecal drop. Repeated defoliation accelerates the decline of the stand as this decreases the resistance of trees to pathogens and also interrupts photosynthetic processes. Presence of fruit bearing weed species like Wild Tobacco (*Solanum mauritianum*) and Broad Leaved Privet (*Ligustrum lucidum*) at the roost site is potentially another cause of spread through consumption by GHFF.

The conservation value of the reserve is very low as a result of weed coverage. This site currently has more than 50% coverage of invasive species with the dominant canopy species being *P.alba*. English Ivy (*Hedera helix*) is covering a significant amount of the site and regeneration of any native species is restricted by invasive plant diversity and abundance. **Appendix 5** shows the invasive species recorded onsite and their density.

5.3 Surrounding Revegetation

There has been significant investment in the Mitchell River environs by EGSC in accordance with the *Mitchell River Environs Local Structure and Development Plan 1998*. The local urban Landcare Group has worked with EGSC to improve the walking track and remove the poplars and other invasive plants and revegetate with native species. EGCMA has been a significant contributor to these works. Refer to recent revegetation works in **Figure 5**, which reflect the principles of the East Gippsland Regional River Health Strategy.



Figure 5 - Revegetation works on the northern side of the Mitchell River

6 GREY-HEADED FLYING FOX ASSOCIATION WITH THE BAIRNSDALE SITE

GHFF have been recorded occupying the Bairnsdale site annually since 2002, concentrated in the stand of *P.alba*. **Figure 6** demonstrates the approximate minimum occupation area in yellow, and the approximate maximum occupation area in purple. The red area is the proposed non-native vegetation removal.

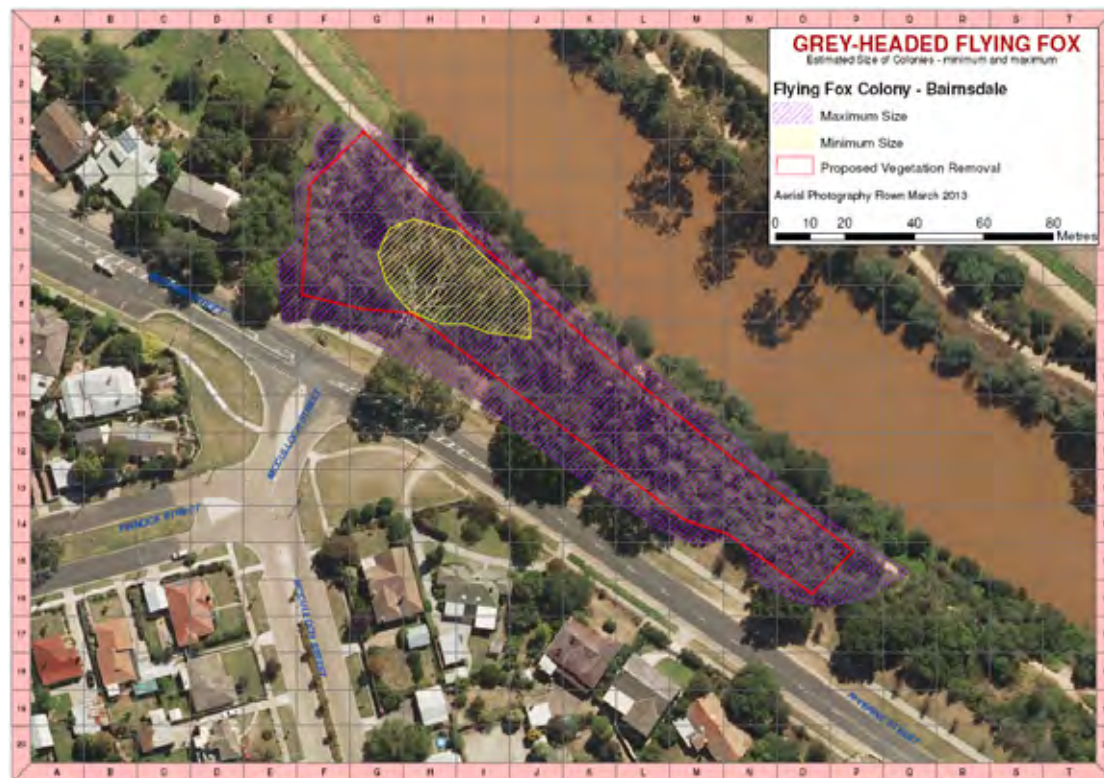


Figure 6 - Grey Headed Flying Fox Roost Site

6.1 Role of roost site in lifecycle of Grey-headed Flying-fox

6.1.1 Breeding Cycle

After reaching sexual maturity within 2 years (DECCW 2009), GHFF give birth to usually only one young in October or November (Martin and McIlwee 2002 in DECCW 2009). Records on the first arrival of GHFF to the Bairnsdale roost site has predominately been in December with initially low numbers. Some young have been observed being carried by females which is the normal for several weeks after birth for GHFF during the lactation period. Nursing continues until the young can be left alone in camp. The coupling and mating period occurs between January and May, (DECCW 2009) and GHFF has been observed at the site with seasonal variability during this period (**See Appendix 1**).

Based on occupation counts carried out by DEPI, the species is most likely to be present at the Bairnsdale site, between December and May. Bats have been absent from the sites in most years between July and November (see **Appendix 1**). In 2003 the colony were in residence for an entire year, whilst in 2005 bats were not recorded

in any month. Counts suggest that the number of bats fluctuates between months and is highly variable, which is suggestive of a transient GHFF population.

6.1.2 Habitat Attributes

The location and nature of the Bairnsdale roost site provides a home base or central point as a migration stopover for GHFF. It is used as a day camp during this period and facilitates movement of GHFF into nearby areas where flowering resources are available within their foraging range (Tidemann and Nelson 2004).

It can be concluded that the main role of the roost site in Bairnsdale is that it primarily acts as a central stopover as part of a southbound feeding migration from winter camps in New South Wales and Queensland. The erratic count numbers and variation in occupation times suggest that their arrival and departure is resource driven as opposed to functioning as a key maternity roost site.

With the numbers of GHFF recorded and annual occupation since late 2002 (with the exception of 2005), this particular roost site is now considered to be ecologically important, in accordance with the definition of critical roosting habitat as outlined in the Draft National Recovery Plan for the Grey Headed Flying Fox (DECCW 2009) and also defined as a Significant Impact Criteria affecting Vulnerable species under EPBC Policy Statement 1.1

The Draft Recovery Plan (DECCW 2009) documents critical roosting habitat as having the following attributes;

- Is used as a camp either continuously or seasonally in greater than 50% of years;
- Has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained greater than 10,000 individuals, unless such habitat has been used only as a temporary refuge, and the use has been of limited duration (i.e. in the order of days, rather than weeks or months);
- Has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained greater than 2,500 individuals, including reproductive females during the final stages of pregnancy, during lactation or during the period of conception.

6.2 Nearby Feeding Locations

6.2.1 Native Vegetation

GHFF are capable of travelling long distances (up to 100 km in a single night) to satisfy nutritional requirements (Eby 1996; Parry-Jones and Augee 2001). Observations during 'fly out' monitoring counts of GHFF in Bairnsdale have seen them heading from the roost site to likely feed on flowering Eucalypts including Red Ironbark (*Eucalyptus tricarpa*), Yellow Box (*E. melliodora*) and Coastal Grey Box (*E. bosistoana*) and also heading towards the coast to feed on Coastal Banksia (*Banksia integrifolia*). These species can occur within 20 – 40 Kilometres of the Bairnsdale camp (refer to **Appendix 3**). Small numbers of GHFF from the Bairnsdale camp have been observed to be regular visitors to a stand of non-indigenous Bushy Yates (*E. lehmannii*) on private property. The availability (volume, species, location) of natural food near Bairnsdale and the situation with food supplies further east towards NSW appears to be the limiting factor on GHFF population numbers arriving to the site and when they depart. Exact feeding areas have not been recorded, but rather

the observations of direction of flight made during monthly fly out counts of the population.

6.2.2 Residential Areas

Residential areas with no sources of food are unlikely to attract GHFF, however, those properties that provide a food source (eg. flowering eucalypts, coconuts palm leaves) may attract GHFF from time to time and their presence may only become noticeable when competing animals squabble over food, leave droppings or take fruit. Feeding on residential fruit trees is a secondary food source, and occurs when natural food sources are low or exhausted. Unexpected rain events may also force GHFF into residential areas due to removal of nectar and pollen from native trees.

6.2.3 Commercial Areas

GHFF can cause damage in commercial orchards which can lead to conflict with producers. However, in the Bairnsdale area they usually only target fruit crops during periods when natural sources of food are scarce (Hall and Richards 2000) or reduced through adverse weather events such as heavy rains.

Damage has been recorded at orchards near Bairnsdale and Johnsonville (17kms east of Bairnsdale) to apples and stone fruits. In 2010 an apple orchardist was heavily impacted when thousands of GHFF descended on the property following heavy and prolonged rains washing nectar from flowering Eucalypts which they would normally preferentially feed on. Damage is therefore sporadic and generally only as an alternative or targeted by individual GHFF. The level of damage is influenced by food availability and not the location of the campsite within urban Bairnsdale.

7 CURRENT SITUATION

Many concerns have been raised about the continued occupation of GHFF in the Mitchell River corridor. These include public safety risk, associated health impacts and environmental issues.

7.1 Concerns of Public Safety

The current condition of the trees on site has been considered to be a safety risk to residents and recreational users. Unsafe trees and branches were identified in an independent Arborist report undertaken in 2010, and reviewed in 2011 to inspect and highlight trees of safety concern.

Approval was sought from DE and works were undertaken meeting the conditions as stated in line with Section 74AA of the *EPBC Act 1999*. EGSC considered that works were essential to mitigate the risks at that time. However, the condition of the poplars are an ongoing concern and will require subsequent management to provide a safe environment for the community.

7.2 Health Risks and Concerns

A common concern regarding the presence of GHFF is the risk of disease such as Australian Bat Lyssavirus, Hendra virus and Nipah virus. Whilst these diseases can

be fatal in humans, the risk of exposure is very limited. Pets and other animals are also at risk of becoming infected with GHFF associated diseases and potentially acting as a vector to humans, however the risk is still considered to be very low.

Australian Bat Lyssavirus is a rabies-like virus that has been identified in five species of bats (QLD Health 2013). Infection of humans is extremely rare (only three fatal cases documented in Australia to date). Research so far indicates that less than 1% of wild GHFF carry the virus. This virus is transmitted by a bite or scratch from an infected bat. People living near GHFF or interacting with GHFF are not at risk provided they do not handle bats.

Hendra virus is naturally found in some species of GHFF, and can infect horses which may then be transmitted to humans who have contact with infected horses. There is no evidence that it can be transmitted directly from GHFF to humans. Hendra virus has become more prominent in the national press in recent months resulting in stronger community concerns. Nipah virus is closely related to Hendra virus and also occurs naturally in some species of GHFF. Nipah virus was first identified in 1999 in Asia and has caused disease in animals (mostly pigs) and in humans, through contact with infectious animals. Nipah has not occurred in Australia to date.

7.3 Social Impacts

The Bairnsdale campsite currently impacts on nearby residents along Riverine Street due to odour, noise levels and general amenity. Depending on the time of year and population size of the colony, GHFF usually roost close to or on the boundary of the nearest property to the northwest of the roost site. Many local residents find the campsite very difficult to tolerate close to their properties and have cited health problems associated with the presence of the camp.

7.3.1 Noise

GHFF effectively communicate with each other through vocalisation. This allows individual animals to defend their selected territories, and is also used by mothers to locate their young in the camp. Increased noise activity occurs during dusk and dawn when they exit the camp to feed locally and in the morning when they return to roost. Their nocturnal habit can clash with the rest patterns of local residents, with noise levels increasing in the early dawn hours.

7.3.2 Odour

The odour of a GHFF roost site is not largely caused by faeces or urine, but rather the scent secreted by the animals. The odour is most noticeable during the breeding season, as males mark their territories, and, to a lesser extent, while young are being raised from October through to March (Martin and McIlwee 2002 in DECCW 2009). Mothers use this scent to locate young in the camp.

Many people find the noise and odour of the GHFF offensive; homes in close proximity of the GHFF roost often feel that the smell is so overwhelming that their ability to use outside areas is restricted and impacts on their personal lives. There is also concern that the close proximity of the GHFF roost has reduced the value of these properties.

7.3.3 Damage

There is also a visual impact resulting from the partial defoliation of trees used for roosting, particularly in the core area of the colony where the bulk of the animals

occur. Wherever GHFF roost, they have an impact on the vegetation at the campsite (Tidemann 1999), even more so at permanent camps, where animals roost year-round. This is a natural phenomenon and part of a natural process. Degradation of small remnant patches of vegetation reduces the longevity and suitability of sites as camps (Pallin 2000).

It is important also to recognise that GHFF can have a positive impact on vegetation wherever they choose to roost. This impact should be put in context when compared to the important role that GHFF plays as an important pollinator and seed-disperser of native flora which assists with the evolution and regeneration of forests which provide for many life forms and natural processes (DECCW 2009).

7.4 Economic Impacts

The economic impact of the GHFF on fruit growers in other areas of Australia varies between seasons from minimal or no impact in some areas to significant losses. Impacts on local orchards have varied between seasons. The impact on the equine industry has been an issue in other States.

In other areas GHFF roost sites and dusk exit flights are increasingly being recognised as attractions for eco-tourism, as is apparent at camps in Port Macquarie, Brisbane and Yarra Bend in Melbourne. With careful management the Bairnsdale GHFF colony in the right location provides an opportunity to develop into an eco-attraction that would benefit the relationships between humans and GHFF and local tourism. The broader theme of 'Living with Wildlife' will be reiterated during the implementation of the Plan in line with EGSC Community Engagement Policy (**Appendix 8**).

7.5 Environmental Issues

Revegetation of the Mitchell River Corridor has been an ongoing project through collaborative efforts with EGCMA, Bairnsdale Urban Landcare Group, Advance TAFE and other educational institutions. Revegetation of the entire corridor has resulted in the Mitchell River roost site being one of the last sites to be revegetated as part of this ongoing project.

Continuation of the revegetation program protects investment of funding and significant volunteer inputs into provision of biodiversity values along the corridor. The roost site vegetation is almost completely populated with invasive species which can cause reinfestation of revegetated areas through both seed and vegetative spread.

7.6 Current Management

The Bairnsdale GHFF colony is monitored by DEPI Wildlife Management staff and volunteers through static and fly out counts during the time they are present. This is an ongoing DEPI management action. Monthly counts are done in co-ordination with other areas across the state and additional regular visits are made to the site to determine when the GHFF arrive, and how the colony is developing in size. DEPI staff also monitor the colony in the event of extreme heat events and respond to issues of illegal action or unauthorised actions concerning GHFF. DEPI have developed a Grey-headed Flying-fox heat stress response plan for the colony at Yarra Bend Park (DSE 2011). This plan is available to DEPI Gippsland for use but due to resourcing, local DEPI use a minimal disturbance response which is based

around observation on the colony during this period, ensuring limited disturbance to GHFF and monitoring post heat events.

Infrastructure maintenance is minimal due to the necessity of timing works around the arrival and departure of GHFF. Maintenance of the vegetation has not occurred in recent years except for treatment of dangerous trees in 2011 and the commencement of the referral process with DE under the *EPBC Act 1999*. Revegetation efforts continue along the Mitchell River riparian corridor in line with the *Mitchell River Environs Local Structure and Development Plan 1998*.

8 CONSULTATION

8.1 Initial Consultation

Consultation has been undertaken by DEPI and EGSC to engage local residents regarding the issues of managing a GHFF campsite and the necessity to provide a carefully planned approach to continue the poplar removal program and revegetation efforts.

Consultation has included to date:

- Media (radio and newspaper) statements and interviews with DEPI;
- Key stakeholder meetings to present possible management options and associated issues;
- Establishment of a working group of regulatory authority officers;
- Meetings with technical experts including biologists and ecologists (Tony Mitchell, Lindy Lumsden, William Peel) on site to discuss habitat requirements and site issues;
- Regular briefing and update of process and progress of the management of the site to residents significantly impacted on by the site;
- Ongoing consultation with DE to develop the management plan;
- On site signage providing information regarding interaction with GHFF;
- Ongoing involvement (4 years) with the Bairnsdale Urban Landcare Group in relation to GHFF site management;
- DEPI website FAQ's used as a reference for resident requests of information; and
- Evaluation of other GHFF management sites and plans in other states to ensure up to date information in management trends;
- Draft preliminary documentation (i.e. The Plan) was published for public comment in February 2013 by EGSC.

Initial involvement has been limited and undertaken separately by both EGSC and DEPI up to this stage. Exact dates of occurrences of each process is difficult to obtain, but has been ongoing since 2007.

Community consultation is an ongoing process and will continue and increase as management options are implemented to ensure that available information is current and collation of shared information to manage the roost site into the future.

A previous version of the Plan was exhibited in February 2013 and open for public comment. A total of 12 responses were received on the document, and issues raised addressed as part of the referral process. The responses to Public Comments are attached to the Plan as **Appendix 10**.

8.2 Ongoing Community Engagement

EGSC will develop an engagement plan for the implementation of the GHFF Management Plan with reference to EGSC Community Engagement Policy (**Appendix 8**). The level of engagement required with this situation involves provision of information and consultation. Involvement at this level can include provision of fact sheets, addition to EGSC website and displays.

Our community engagement will be part of a co-operative approach with DEPI in order to ensure a cohesive approach to provide a consistent message.

8.3 Education

DEPI have an established theme of 'Living with Wildlife'. Promotion of a positive image for GHFF within the local region is of high importance when managing the GHFF colony longer term. Within our community engagement process, EGSC will actively promote this theme for management of GHFF within the East Gippsland Shire.

This process will include on site signage should the GHFF permanently relocate to an acceptable area under EGSC management which will promote GHFF conservation.

9 MANAGEMENT OPTIONS AND IMPLICATIONS

9.1 Discussion

Key issues with the existing GHFF roost site include:

- Council's revegetation proposal to replace the existing non-native roost trees with native vegetation;
- Poor overall condition and useful life expectancy of the poplar trees that constitute the roost site;
- Risk that the GHFF colony will move to a more inappropriate location through inaction or inappropriate action;
- Close proximity of the current roost site to adjacent landholders creating a risk of disease, noise, odour and property value concerns;
- Potential risk of personal injury to neighbours and walking track users and damage to neighbouring properties from falling limbs;
- Wider community concern about the impacts of the GHFF population on health (human and equine) and primary production (e.g. commercial orchards); and
- Relevant legislation, particularly the *EPBC Act 1999*, which places specific requirements and responsibilities upon EGSC as land manager.

Given the risks associated with the continuance of the site in its current condition, EGSC has considered the following actions towards longer term management;

9.1.1 Do Nothing Approach

East Gippsland Shire has considered the approach of 'do nothing'. This approach is considered inappropriate due to the following points;

Positives

- Very low cost option; and
- Low management inputs.

Negatives

- Continued impact on the Mitchell River environment and the lack of a continuous native riparian corridor to restore the appropriate function of the ecological systems;
- Repeated invasion of invasive species into revegetation sites, private tenure and into remnant native vegetation;
- Recognition of continued concern expressed by nearby residents as the presence of GHFF and their impacts on residents social wellbeing;
- Recognition of continued concern from the community over the health risks associated with the presence of the GHFF colony;
- Longevity of the roost site and the replacement provision of habitat for GHFF longer term given the senescing state of current roost site; and
- General amenity of the area.

9.1.2 One-off Replacement of Existing Non-native Vegetation

Complete removal of existing vegetation on site has been considered and is not considered to be appropriate due to the following:

Positives

- Alleviate residents concern over the presence of GHFF at the current roost site;
- Quick management response to immediately alleviate associated issues of safety and risk to the public.

Negatives

- This action will prompt immediate and complete dispersal of GHFF population with no prior indications of alternative appropriate roosting locations;
- Costs associated with complete removal and revegetation efforts over one year;
- Does not allow for adaptive management;
- Creation of stress on the GHFF population;
- Potential unexpected response from the GHFF population.

9.1.3 Staged Replacement of Non-Native Vegetation

Proposal of a staged approach is the EGSC preferred option to revegetate the area currently occupied by the invasive *P.alba*.

Positives

- Allows an adaptive management response with monitoring of the response of GHFF after Stage 1 and Stage 2 removals;
- Cost is spread across each Stage;
- Allows a staged revegetation effort which will provide habitat longer term for all faunal species;

- Allows development of key working relationships for management of GHFF longer term within the region.

Negatives

- Continued angst for local residents affected by presence of GHFF;
- Potential unexpected response from the GHFF population.

By conducting the revegetation works over a three year period, revegetation works can be implemented to begin appropriate replacement of invasive plant populations with native vegetation. The staged approach is proposed to limit stress levels on GHFF and allow suitable placement of the colony in surrounding vegetation. The three year period will allow GHFF time to select an appropriate new roost site. Stage One will prompt a response from the colony which will give an indication as to the reaction of GHFF.

Close consultation between EGSC and DEPI, and also the feasibility of this option is considered to be appropriate for implementation of revegetation actions.

10 PREFERRED MANAGEMENT ACTION AND IMPLICATIONS

EGSC has considered the options as highlighted in Section 9 and consider that staged removal and revegetation of the area is the preferable option for the long term management of the site and also of the GHFF colony.

10.1 Staged Replacement of Non-Native Vegetation

This proposal will involve the replacement of the existing non-native vegetation with native vegetation over a number of years. EGSC has developed a Revegetation Plan to rehabilitate the Mitchell River roost site incorporated the staged revegetation approach.

Local residents and a section of the wider community feel strongly that the poplars should be removed in one operation and that the GHFF population will simply find an alternative roost site. This one off approach does not take into account the fidelity of the GHFF population to a particular site and the likelihood that GHFF population will, upon their return, move to the nearest roost trees. A one off approach gives no opportunity to gauge the reaction of the GHFF population which would be essential to any adaptive management strategy.

The staged approach also incorporates measures to limit the impacts on the short and long term wellbeing of GHFF on site. Impacts to the population could potentially include:

- Fragmentation of the existing population into two or more populations;
- Disruption to breeding cycle with lactating females and 'crèche' for young;
- Increase distance of new roost site to feeding areas;
- Loss of roosting habitat; and
- Overcrowding.

These impacts and their mitigation are discussed in **Section 10.2**.

Works can only commence after confirmation from DEPI that GHFF are absent from the area. Provided GHFF are absent, works can be undertaken at any time of the year except between the period from 1 August to 30 September, as this corresponds with a particularly vulnerable part of the GHFF breeding cycle, when pregnant females in the third trimester can spontaneously abort their pregnancy under relatively low stress conditions. While records show that GHFF are not normally present at the site during this time, the possibility that they could return during this period cannot be discounted (**Appendix 1**).

Wherever possible, works will be timed to occur between 1 April and 31 July to avoid the breeding season. This flexibility takes advantage of the variable nature of GHFF occupancy at the site (**Appendix 1**).

Machinery works will be completed within 10 working days and timing of revegetation activities will be varied given plant availability and other factors but the Stop Work Triggers apply at all times. If at any stage during the works GHFF return to the site, all works must cease and cannot recommence until all GHFF depart.



Figure 7 – Proposed Removal and Revegetation Stages

The number of trees removed at each stage is different, however the percentage of habitat removed at each stage is approximately equal based upon the observed usage/distribution of the GHFF at the site in previous years. Each stage of removal represents a similar area of coverage being removed. Stage 2 removal is dominated by large trees, hence the removal of fewer trees for the same habitat value. Stage 3 comprises of smaller less significant habitat trees determining the removal of more trees to achieve approximately the same amount of potential habitat removal. **Figure 7** shows the removal areas of Stage 1-3 on the site. **Figure 8** provides an example of numbered trees in Stages 1 and 2.



Figure 8 - Numbered trees adjacent Mitchell River Walking Track part of Stage 1 and 2 Removal and Revegetation Areas

10.2 Potential Impacts to Grey-headed Flying Fox Colony

One of the aims of the proposed revegetation action is to minimise risks, threats and impacts to the community, environment and GHFF. It is recognised there are potential impacts on GHFF which need to be understood and mitigated.

10.2.1 Fragmentation of Colony

Risk

Case studies of documented dispersal techniques detail the effects of the action towards fragmentation of the existing colony into 2 or more sub populations. Undertaking proposed action may result in the colony splitting into 2 or more sub populations.

Mitigation

The staged approach allows monitoring of the colony and prompts a response from the GHFF population. Having an indication of where GHFF may potentially relocate allows implementation of the Response Plan in assessing the suitability of new sites.

Stages One and Two allow the GHFF colony to occupy the roost site within the remaining trees, with established revegetation areas surrounding providing some microclimatic requirements. The remaining area and surrounding vegetation will

support the population short term until a suitable site is selected. Stage Three removes the remaining invasive vegetation and GHFF can move into surrounding established vegetation. GHFF arrival on site during management actions is a stop work trigger, and works will be suspended until the population disperses.

10.2.2 Overcrowding

Risk

Removal of a proportion of *P.alba* at the site could increase the dependency on remaining poplar and other species within the immediate site, if population numbers are at the highest levels. Given the territorial nature of this species, overcrowding could occur when the number of selected defendable sites is reduced. Overcrowding could also result in a fragmentation of the colony.

Mitigation

Surrounding vegetation has been utilised by GHFF historically. It is expected that GHFF population will utilise the remaining poplar short term and extend into native vegetation until a suitable site is selected. This area will be sufficient to accommodate the population at high levels.

10.2.3 Disruption to the Breeding Cycle

Risk

Removal of roosting habitat is recognised as potentially having associated impacts through disruption of the breeding cycle of GHFF. This could result in a) limited breeding or b) no breeding. In times of stress, it has been reported that female GHFF can abort or abandon fledglings. It is expected that such reactions will cause impacts on population levels in future years.

Mitigation

EGSC proposes that the staged approach of vegetation removal is considered to be appropriate to manage this risk. With the assistance of the DEPI Wildlife Management Unit, any indicators of stress or restlessness will be reported and adaptive management measures developed by EGSC. Stages One, Two and Three will all have this monitoring process in place to determine appropriate actions in light of reactions from the GHFF colony.

Whilst GHFF is on site, no works will be undertaken to avoid added disturbance from noise and increased human interactions. This is required to prevent stress on pregnant and lactating females within the colony and timing of management actions will incorporate the expected occupancy periods of between November to May.

10.2.4 Loss of Roosting Habitat

Risk

Loss of available roosting habitat available for GHFF.

Mitigation

Past revegetation over the last decade has rejuvenated the Mitchell River riverbank to be a highly diverse riparian corridor which is preferred habitat of GHFF. Emergent mature trees such as Gippsland Red Gum along the riverbank have supported GHFF in previous years, and the shrubby surrounding vegetation would provide the microclimate required in times of higher temperatures in the short term. Other areas of intact vegetation could be potentially selected by GHFF and these sites will be assessed as to their suitability longer-term through implementation of the Response Plan.

EGSC proposes that the staged approach of vegetation removal is considered to be appropriate to manage this risk. With the assistance of the DEPI Wildlife Management Unit, any indicators of stress or restlessness will be reported and adaptive management measures developed. Stages One, Two and Three will all have this monitoring process in place to determine appropriate actions in light of reactions from the GHFF colony

10.2.5 Distance from Foraging Resources

Risk

GHFF could move into areas that will increase the distance from utilised foraging resources.

Mitigation

The areas selected by GHFF should the colony disperse will be assessed through implementation of the Response Plan. This plan will assess the suitability of the site with regards to longer term provision of ecological requirements such as distance from foraging resources. As East Gippsland is highly vegetated, and the exact preferred feeding locations of the GHFF colony are not currently determined, there are numerous resources available within the wider rural area for foraging opportunities.

10.2.6 Behavioural Changes

Risk

Stress levels of GHFF colony increase in response to management actions undertaken by EGSC resulting in distinct changes to expected behaviour.

Mitigation

Adoption of stop work triggers is considered to be sufficient to limit stress levels of GHFF at the site on commencement of occupation by GHFF. Irrespective of the proposed revegetation action, DEPI will respond to heat events when the GHFF are present at the roost site and if a sick or injured specimen is found. This response will continue during the period of the proposed works.

Potential options for reducing stress on the colony includes installation of signage asking people to not interact with GHFF, to reduce noise levels, ensure pets are on leash and as an extreme measure, temporary closure of the path under the colony.

10.2.7 Unexpected Responses from GHFF

Risk

Potential for an unexpected response from GHFF which is unknown, unanticipated or irreversible.

Mitigation

The reaction of the GHFF population post removal on site is unknown. The staged approach prompts a reaction from the GHFF colony, which will assist in determining a new suitable location through implementation of the Response Plan. Entire desertion of the camp is not expected after Stage One removal, but given the unpredictable nature of this species, cannot be unanticipated. The Response Plan allows for reaction to a complete dispersal of the campsite, incorporating this risk.

10.2.8 Increased Community Intolerance

Risk

Potential for unauthorised action and associated welfare issues against GHFF to displace from roosting site. Continued debate over management of site and colony longer term.

Mitigation

The methodology employed to manage the poplar site is anticipated to provide some immediate relief to adjacent property owners. Following Stage One removal, local residents will be consulted as to whether GHFF continue to affect their wellbeing. This will enable EGSC and DEPI to monitor attitudes towards the GHFF colony prior to undertaking Stages 2 and 3.

10.2.9 Inappropriate Site Occupation

Risk

Movement of GHFF into areas that are considered inappropriate for longer term residency.

Mitigation

EGSC has developed a Response Plan for appropriate methodology for determining when and if GHFF should be disturbed from new sites. Implementation of the Response Plan by EGSC will ensure EGSC, with cooperation from DEPI, work cohesively to determine the suitability of new sites to ensure the longer term provision of requirements for GHFF and also the risk to community.

10.3 Alternative Roost Sites and Dispersal of Flying Foxes

It is accepted by EGSC that undertaking these actions could promote dispersal of GHFF from the current roost site into alternative area(s). Undertaking the staged approach of site rehabilitation will allow alternative selection of appropriate roost sites by GHFF whilst maintaining a proportion of their original roost site. This allows for an indication of where the colony could potentially shift after roost tree removal, whilst still allowing occupation on site in remaining habitat (denoted as Stages Two and Three).

Prediction of where GHFF could potentially relocate is unachievable due to the unknown response from the GHFF population and a lack of information concerning their site selection. It is not fully understood what specifically attracts GHFF to a particular roost site so this plan cannot list all alternative roost sites. Assessment of each new site will commence in line with the Response Plan should GHFF relocate to another roost site.

EGSC has evaluated relocation case studies including the Victorian Botanical Gardens to Yarra Bend Park based around providing alternative roost sites. The associated difficulties and level of success with relocation of GHFF is recognised by EGSC.

10.4 Alternative Site Assessment

If possible it would be preferred to concentrate roosting of the GHFF either further along in native vegetation or potentially across the river (and this will hopefully be achieved by the proposed staged removal) however this as indicated by the poor level of success of projects specifically aimed at relocation cannot be guaranteed.

If upon arrival during the normal spring period after Stage One removal is completed, GHFF population relocate to another site that will result in some form of conflict or problem with the community, implementation of a Response Plan will assist in

determining the longer term acceptability of the site. EGSC and DEPI will evaluate the conflict based on the following criteria:

- Land use (primary production, recreation area, school or hospital);
- Size of the site in hectares;
- History/records of GHFF at the site;
- Foraging radius around site;
- Foraging radius around site;
- Adjacent land use;
- Proximity to a Waterway;
- Proximity to Established Sites;
- Land tenure; and
- Longer term provision of vegetation requirements required for GHFF.

If dispersal of the GHFF is required from a potential conflict site this will be undertaken in a coordinated manner in alignment with the documented Response Plan.

10.5 Monitoring of Colony at the Mitchell River Camp Site

Monitoring of the colony is currently occurring every month by the DEPI during the period of residency by GHFF. This is done by fly in/fly out counts and undertaken by experienced DEPI Wildlife Management Officers. These individuals are considered to have extensive local knowledge of the colony and can readily identify behavioural changes in relation to disturbance. If required, GHFF experts can be called upon to make additional judgement. Reports will also be provided to DE as required.

Monitoring will include the following;

- Any dispersal actions undertaken in line with the Response Plan as to methodology and results;
- Assessment of the welfare of GHFF in the region to determine a significant impact (i.e. increased reports of injury or death);
- Collation of information as to newly located and reported locations of GHFF occurrences and follow up consultation with land managers of these sites (reporting of impact and effects);
- Levels of conflict with humans arising from new site selection through number of contacts received;
- Any recorded reporting or monitoring undertaken to measure Key Performance Indicators.

10.5.1 Method

Commencement of staged vegetation removal will instigate changes in the current routine of observations. As removal will be undertaken whilst there are no GHFF on site, it can be expected that any changes observed in behaviour will be related to locating alternative territorial sites within the remaining poplars and surrounding vegetation.

When the GHFF are confirmed to be back on site after each stage of vegetation removal, DEPI Wildlife Management Officers and EGSC will be on site each day for 1 week after the bats return and then two times per week for 4 weeks to observe the reactions of GHFF in relation to the removed *P.alba* and will maintain records from each visit pertaining observations of the colony and reactions to the modified site.

This will not include population counts. The frequency of monitoring is considered sufficient to document the behavioural response of the population to the removal of the poplars. After the Stage 1 removal, if GHFF are believed to be showing distress, as determined by a qualified DEPI Officer, an immediate response will be initiated by DEPI to reduce stress levels which will include installation of temporary signage to encourage reduced noise levels and disturbance, possible temporary closure of the walking path under the colony to limit levels of human disturbance and continued monitoring of the colony. DEPI Officers will then review the continuation of Stage 2 in light of the response of the bats to removal of Stage 1 vegetation. Should Stage 2 removal continue as proposed, the method of monitoring will continue to determine the GHFF response to Stage 2 and Stage 3 will be reviewed in light of the results from monitoring.

During the period of works, an assessment in line with the Stop Work Trigger will be undertaken on a twice daily basis by EGSC. Once prior to commencing works on site to ensure GHFF are not present, and also during the period of work (i.e. upon recommencement of works post break). DEPI's monitoring program will not alter until GHFF are present or arrival is imminent.

10.5.2 Evaluation

Using the information gathered from the assessment of the response of GHFF to Stage 1 removal an assessment will be made on the continuation of the project to Stage 2. If DEPI considers that the response of GHFF to Stage 1 is negligible to the long term wellbeing of GHFF then Stage 2 will proceed. If DEPI considers that the effect on GHFF will impact on their long term wellbeing, they can decide that Stage 2 cannot proceed as proposed. Monitoring of GHFF after Stage 2 removal will inform decisions relating to the commencement of Stage 3 removal. DEPI may also require additional time to assess the reaction of GHFF which may delay the progression of Stages 2 and 3..

This method of monitoring will allow DEPI Wildlife Management Officers to make an informed judgement as to the longer term wellbeing of GHFF in relation to the proposed revegetation on site. Increased observations by both EGSC and DEPI to observe any movement further afield from the immediate site will occur and will include reports from the local community as to existence of new locations.

Newly reported locations will be assessed as to the suitability of longer term roosting (see Response Plan), and the wellbeing of GHFF longer term in the provision of appropriate resources. If DEPI identify an isolated negative effect (i.e. increased death and injury, abandoned fledglings) of initial vegetation removal, mitigation and adoption of an alternative strategy will be undertaken in consultation with DEPI and DE.

10.5.3 Reporting

Reporting will be undertaken by both DEPI and EGSC. Regular counts will be recorded on a two week basis during normal occupation and behavioural changes will be recorded at each alternative visit immediately after each stage of vegetation removal. The regular population counts will be recorded by the DEPI and maintained by the DEPI, and available to EGSC.

Reports of any dispersal activities will be submitted to DE at the end of each month where activities occur until advised otherwise. The Project Manager will be required to collate information pertaining to dispersal and submit this report to DE.

An Annual Report will be submitted to DE until Wildlife Management Officers from the DEPI decide that the colony has settled and established fidelity to the new site. As such reporting requirements as a condition of the Plan from EGSC will cease from this point.

10.5.4 Improvement

Indications of behavioural, physiological or reproductive cycle changes will prompt an adaptive management approach to the staged vegetation removal process and revegetation actions. Adaptive management strategies will need to be developed in accordance with risk that results from the action and interpreted from monitoring (See Section 10.7). This plan will need to be developed in consultation with DEPI, DE and the local community.

10.6 Key Performance Indicators

Key performance indicators allow evaluation of success in mitigating any negative impacts of the revegetation action on GHFF at the Mitchell River roost site. Measurement of the success will be through establishing a difference between expected behaviour and changes to expected behaviour at the Mitchell River site. Key performance indicators are listed below.

10.6.1 GHFF Continue Reproductive Cycle

There is potential for GHFF to abort fetuses in times of stress. Given the birthing period occurs before the expected arrival of GHFF at the Mitchell River revegetation site, abortions would not be expected on site.

Increased stress levels may cause interruptions to lactating females. This may influence abandonment of pups attached to the mothers. Monitoring of the colony will include assessment of presence of pups attached to their mothers and rate of abandonment by assessment through ground level searches using binoculars and around the perimeter of the colony. Assessment within the vegetation of the core camp area where the colony is situated would cause additional stress to the colony and may cause additional stress to lactating mothers. Advice will be sought from DEPI prior to any intensive searches being undertaken.

Monitoring of the colony across their period of occupation will include assessment of the key mating period between March and April. Increased stress levels could cease or limit breeding. Monitoring will allow observation whether mating continues throughout the key breeding period, which will indicate if the colony is stressed during this time.

10.6.2 GHFF Maintained as One Population

Isolated populations of GHFF would be occurring across the East Gippsland region during the period of occupation by GHFF at the Mitchell River roost site regardless of any actions undertaken by EGSC.

Collation of data will be influenced by the encouragement of the community to report information pertaining to the GHFF regarding feeding and roosting sites. Additional reports of populations will affect the validity of the data regarding measurements of

the maintenance of GHFF as one population. Extraordinary spikes in reports could potentially be attributed to revegetation actions undertaken by EGSC. This will be assessed as part of the Annual Report.

10.6.3 Foraging Distance Maintained or Reduced

Given that there is only a general indication of where GHFF feed in the local area, current measurements of distance of feeding resources are not confirmed. Assessment of any new sites are subject to the process in the Response Plan (**Appendix 9**) regarding foraging distance of occupied areas.

With increased community response regarding GHFF within the East Gippsland region there will be collation of information pertaining to the location of foraging resources utilised by GHFF in the area. The urban area would potentially be providing some foraging opportunities but detailed knowledge of such is unavailable at present.

10.6.4 Limited Behavioural Changes

Implementation of the Stop Work Triggers will result in limited significant stress on the GHFF colony. Effects of machinery noise and movement and potential injury to GHFF will be limited by adoption of Stop Work Triggers as detailed in the Revegetation Plan (**Appendix 7**) and Response Plan (**Appendix 9**).

Monitoring of the colony by EGSC and DEPI upon their arrival back on site will give some indication of the levels of stress that GHFF are experiencing as a direct result of any action taken on the Mitchell River site. As such adaptive management of the site will need to be undertaken. Such measures cannot be identified presently due to the unexpected response from GHFF in relation to any action on the Mitchell River site.

10.6.5 Response Plan Implemented

Successful implementation of the Response Plan mitigates a number of impacts that result from GHFF moving to an alternative site. Success will be measured through GHFF establishing a fidelity to another site that can cater to their ecological requirements with limited impacts to their wellbeing

10.7 Induction

At least 1 week prior to the commencement of any works on the site, all EGSC and contract staff involved in the vegetation removal program will be inducted at a toolbox talk to ensure they are familiar with the project and its implications to the GHFF colony. Items addressed in the induction will include:

- A background to the project;
- The staged approach to the removal of the vegetation;
- The significance of the Mitchell River camp site to GHFF;
- The identification of GHFF ;
- The listing status of the species under the EPBC Act and measures that must be implemented to protect it;
- Stop work procedures in the event that GHFF are observed on the site during the works.

A stop work trigger flowchart has been provided within the Revegetation Plan and Response Plan and all staff will be made familiar with these documents prior to the commencement of works. Copies of both the stop work trigger and the GHFF identification sheet will be displayed in a prominent location in the EGSC works depot.

Ensuring that staff and contracted personnel are aware of the project, its impacts and conditions will assist in limiting further impacts on GHFF through an understanding of the project and ecology of GHFF.

10.8 Adaptive Management

The potential risks to the GHFF colony and the mitigation measures for ameliorating these risks are outlined in **Section 10.2**. An adaptive management response has been developed as detailed in the Response Plan to deal with the different sites that the species could establish a colony at following the removal of the vegetation at the Mitchell River camp.

Should DEPI determine that GHFF are being negatively impacted on by the direct actions of EGSC as outlined within The Plan, an adaptive strategy will need to be developed to manage GHFF at the original Mitchell River site. This will delay the continuation of the project. This adaptive management strategy will need to be informed by the monitoring of the GHFF colony after Stage 1 and developed by EGSC, DEPI, DE and the local community. If the negative GHFF reaction occurs after Stage 1 removal, Stage 2 will need to be delayed and modified to consider the welfare of GHFF. If the negative GHFF reaction occurs after Stage 2 removal, Stage 3 will need to be delayed and modified to consider the welfare of GHFF.

11 POTENTIAL IMPACT AND THREAT MANAGEMENT

The following table highlights potential scenarios that could result from EGSC undertaking invasive plant management and revegetation works in the proposed area. The potential scenarios that could result from the staged removal process are documented below.

11.1 Potential Scenarios after Stage One Removal

SCENARIOS after STAGE ONE	RISK	RESPONSE TO RISK AND MITIGATION MEASURES TO BE ADOPTED	STAKEHOLDER RESPONSIBLE	KEY PERFORMANCE INDICATORS
1. GHFF Return and Reoccupy Roost Site at Low Population Levels	<ul style="list-style-type: none"> • Behavioural Changes 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes
2. GHFF Return and Reoccupy Site at High Population Levels	<ul style="list-style-type: none"> • Overcrowding; • Fragmentation of Colony; • Behavioural Changes. • Increased Community Intolerance • Behavioural Changes 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes

3. GHFF Return and Occupy Adjacent Vegetation in the Mitchell River Corridor	<ul style="list-style-type: none"> • Overcrowding; • Fragmentation of Colony • Behavioural Changes 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; • Implement Response Plan for Site Assessment. 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
4. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Appropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
5. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Inappropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources; • Fragmentation of Colony. • Inappropriate Site Occupation 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented

11.2 Potential Scenarios after Stage Two Removal

SCENARIOS after STAGE TWO	RISK	RESPONSE TO RISK AND MITIGATION MEASURES TO BE ADOPTED	STAKEHOLDER RESPONSIBLE	KEY PERFORMANCE INDICATORS
1. GHFF Return and Reoccupy Roost Site at Low Population Levels	<ul style="list-style-type: none"> • Behavioural Changes 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
2. GHFF Return and Reoccupy Site at High Population Levels	<ul style="list-style-type: none"> • Overcrowding; • Fragmentation of Colony; • Behavioural Changes; • Increased Community Intolerance 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented

3. GHFF Return and Occupy Adjacent Vegetation in the Mitchell River Corridor	<ul style="list-style-type: none"> • Overcrowding; • Fragmentation of Colony 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; • Implement Response Plan for Site Assessment. 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
4. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Appropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
5. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Inappropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources; • Fragmentation of Colony. • Inappropriate Site Occupation • Increased Community Intolerance 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented

11.3 Potential Scenarios after Stage Three Removal

SCENARIOS after STAGE THREE	RISK	RESPONSE TO RISK AND MITIGATION MEASURES TO BE ADOPTED	STAKEHOLDER RESPONSIBLE	KEY PERFORMANCE INDICATORS
1. GHFF Return and Occupy Adjacent Vegetation in the Mitchell River Corridor	<ul style="list-style-type: none"> • Overcrowding; • Fragmentation of Colony 	<ul style="list-style-type: none"> • Monitoring from DEPI and EGSC to determine stress levels of GHFF and implementing methods to limit additional disturbance i.e. install signage asking people to keep distance from the colony, keep quiet and possible temporary closure of paths nearby; • Implement Response Plan for Site Assessment. 	DEPI and EGSC	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
2. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Appropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources • Overcrowding 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented

3. GHFF Return and Abandon Modified Mitchell River Roost Site and Occupy Inappropriate Site	<ul style="list-style-type: none"> • Unexpected Response from GHFF; • Increased Distance from Foraging Resources; • Fragmentation of Colony • Overcrowding • Inappropriate Site Occupation • Increased Community Intolerance 	<ul style="list-style-type: none"> • Implement Response Plan for Site Assessment. 	EGSC and DEPI	<ul style="list-style-type: none"> • GHFF continue reproductive cycle • GHFF maintained as one population • Foraging distance maintained or reduced • Limited behavioural changes • Response Plan implemented
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12 SITE MANAGEMENT ACTIONS

Timing of any management action needs to be developed around the presence or absence from GHFF on the Mitchell River. Works will only be undertaken between October to July the following year, with the optimal timing being from the 1st of April until 31st of July to account for the reproductive cycle of GHFF. No works will be undertaken if GHFF are present on site during these periods. No works will be undertaken between 1st of August until the 30th of September to avoid key reproductive times in the biology of GHFF.

12.1 Management Actions Stage One, Year One

Action No	Proposed timing	Goal	Objective	Actions	Responsible
1	October–July (No works will be undertaken from 1 August – 30 September)	To continue revegetation actions along the Mitchell River riparian corridor.	Implement Stage One revegetation actions in line with Revegetation Plan	<ul style="list-style-type: none"> The first stage of tree removal to create 50m buffer (no roost opportunity) SSE of residential properties on Riverine Street. Stage One will be clear felled by EGSC Tree Crew or qualified contractors under supervision of Project Manager and Arborist. All trees in the designated Stage One area will be removed and taken off site. Implement Stop-work Triggers in line with Standard Operating procedure for Revegetation Plan. 	EGSC EGSC EGSC EGSC and DEPI
2	November - June	Determine response of GHFF colony to the first stage of tree removal.	Determine any behavioural, social and reproductive impacts on the GHFF colony.	<ul style="list-style-type: none"> Confirm presence of GHFF on site Assessment of colony response through site visit 2 times a week and document response; Population counts to be recorded every month whilst site is occupied. Implement Response Plan 	DEPI DEPI and EGSC DEPI EGSC

				<ul style="list-style-type: none"> • Provide measures to limit further disturbance on site if negative response from GHFF is observed (ie.signage, temp closure of path etc) 	EGSC
3	October – July	Improve site amenity and access.	Reduction in human interaction through reducing opportunities for conflict	<ul style="list-style-type: none"> • Close footpath that dissects current roost site. • Channel all recreational users to northern or southern walks. • Creation of footpath in cleared area to divert human traffic away from revegetation areas. 	EGSC EGSC EGSC
4	September – June	Increase community knowledge of GHFF.	Increase knowledge within community about GHFF biology, ecology and promote 'Living with Wildlife' theme.	<ul style="list-style-type: none"> • Commence implementation of EGSC Community Engagement Plan; • Provision of cohesive information from all departments. 	EGSC and DEPI EGSC and DEPI.

12.2 Management Actions Stage Two, Year Two

Action No	Proposed timing	Goal	Objective	Actions	Responsible
1	July – June	To determine any negative impacts on GHFF and develop alternative actions as required	To ensure that no negative impacts on GHFF on site as a result of Stage One actions	<ul style="list-style-type: none"> Utilise results from monitoring to interpret if negative effects have been observed on GHFF. Develop an alternative management strategy to limit exposure of GHFF to negative impacts associated with revegetation works. 	EGSC and DEPI EGSC
2	October – July (no works will be undertaken from 1 August – 30 September)	To continue revegetation actions along the Mitchell River riparian corridor.	Implement Stage Two revegetation actions in line with Revegetation Plan.	<ul style="list-style-type: none"> The site will be clear felled by EGSC Tree Crew under supervision of Project Manager and Arborist. All trees in the designated Stage Two area will be removed and taken off site. Implement Stop-work Triggers in line with Standard Operating procedure for Revegetation Plan. Undertake invasive plant control in Stage One revegetation area. 	EGSC EGSC EGSC EGSC
3	November – June	Determine response of GHFF colony to the second stage of tree removal.	Determine any behavioural, social and reproductive impacts on the GHFF colony.	<ul style="list-style-type: none"> Confirm presence of GHFF on site Assessment of colony response through site visit 2 times a week and document response Population counts to be recorded every month whilst site is occupied. Implement Response Plan 	DEPI DEPI and EGSC DEPI EGSC

4	July – June	Increase community knowledge of GHFF.	Increase knowledge within community about GHFF biology, ecology and promote 'Living with Wildlife' theme.	<ul style="list-style-type: none"> Continue implementation of EGSC Community Engagement Plan; Provision of cohesive information from all departments. 	EGSC and DEPI EGSC and DEPI.
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12.3 Management Actions Stage Three, Year Three

STAGE THREE REMOVAL OF POPLARS -					
Action No	Proposed timing	Goal	Objective	Actions	Responsible
1	October – July (no works will be undertaken from 1 August – 30 September)	To continue revegetation actions along the Mitchell River riparian corridor.	Implement Stage Three revegetation actions in line with Revegetation Plan.	<ul style="list-style-type: none"> The site will be clear felled by EGSC Tree Crew under supervision of Project Manager and Arborist. All trees in the designated Stage Three area will be removed and taken off site. Implement Stop-work Triggers in line with Standard Operating procedure for Revegetation Plan. Undertake invasive plant control in Stage One and Two revegetation areas. 	EGSC EGSC EGSC EGSC
2	July - June	Determine response of GHFF colony to the third stage of tree removal.	Determine any behavioural, social and reproductive impacts on the GHFF colony.	<ul style="list-style-type: none"> Determine presence of GHFF in region and site that they occupy (ie. adjacent vegetation, historical sites, new sites) Assessment of colony response through site visit 2 times a week 	DEPI DEPI and EGSC

				and document response; • Implement Response Plan;	EGSC and DEPI
3	July – June	Increase community knowledge of GHFF.	Increase knowledge within community about GHFF biology, ecology and promote 'Living with Wildlife' theme.	<ul style="list-style-type: none"> • Continue implementation of EGSC Community Engagement Plan; • Provision of cohesive information from all departments. 	EGSC and DEPI EGSC and DEPI.

13 ACKNOWLEDGEMENTS

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14 REFERENCES

Department of Agriculture, Fisheries and Forestry (DAFF). 2013. Animal Health and Diseases –Nipah Virus. Accessed on 18 November 2013 from <http://www.daff.qld.gov.au/animal-industries/animal-health-and-diseases/a-z-list/nipah-virus>

Department of Environment, Climate Change and Water .2009. *Draft National Recovery Plan for the Grey Headed Flying-fox (Pteropus poliocephalus)*. Prepared by Dr Peggy Eby. Department of Environment, Climate Change and Water, Sydney, NSW.

Department of Environment.2013. *Pteropus poliocephalus* in *Species Profile and Threats Database*, Department of Environment, Canberra. Accessed 19 November 2013 from http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=186

Department of Environment and Heritage 2003

Department of Sustainability, 2005. *Flying Fox Campsite Management Plan, Yarra Bend Park*. State of Victoria. Melbourne

Department of Sustainability and Environment. 2011. Managing Grey-headed Flying-foxes. Protocols for heat stress events at Yarra Bend Park. Department of Sustainability and Environment, Melbourne.

Eby, P. 1991. Seasonal movements of grey headed flying foxes, *Pteropus poliocephalus* (Megachiroptera) from two maternal camps in northern New South Wales. *Wildlife Research*, 18, 547-559

Eby. P and Law, B. 2008. Ranking the feeding habits of Grey-headed flying foxes for conservation management: A report for the Department of Environment and Climate Change NSW and the Department of Environment, Water, Heritage and the Arts. Accessed 23 April 2013 from

<http://www.environment.nsw.gov.au/resources/threatenedspecies/GHFFmainreport.pdf>

Hall, L.S. and Richards, G. 2000. *Flying Foxes: Fruit and Blossom Bats of Australia*. University of New South Wales Press, Sydney.

Grey-headed Flying-fox Alternative Campsite Task Force (GFACTF). 2001. *Options for the establishment of an alternative campsite for the Grey-headed Flying-fox Pteropus poliocephalus in Melbourne*. Published by GFACTF.

Martin, L. McIlwee, A.P. 2002. The reproductive biology and intrinsic capacity for increase of the Grey Headed Flying-fox *Pteropus poliocephalus*, and the implications of culling. In P.Eby and D.Lunney (Eds) *Managing the Grey-Headed Flying-fox as a Threatened Species in NSW*. pp 91-108. Royal Zoological Society of NSW, Mosman, NSW.

Nelson, J.E. 1965. Movements of Australian flying foxes (Pteropodidae: Megachiroptera) *Australian Journal of Zoology* (13) 53-73

Pallin, N. 2000. Ku-ring-gai Flying-fox Reserve: habitat restoration project, 15 years on. Ecological Management and Restoration

Ratcliffe, F.N. 1931. *The flying fox (Pteropus) in Australia*. CSIR Bulletin. (53), pp1-81

Roberts, B.J. 2005. Habitat characteristics of flying fox camps in south-east Queensland. BSc(Hons) Thesis, Griffith University, Brisbane.

Roberts, B.J. 2006. *Management of Urban Flying-fox Camps: Issues of Relevance to Camps in the Lower Clarence*. NSW. Valley Watch Inc, Maclean

Shilton, L. A., Altringham, J. D., Compton, S. G. and Whittaker, R. J. 1999. *Old world fruit bats can be long-distance seed dispersers through extended retention of viable seeds in the gut*. Proceedings of the Royal Society of London Series B 266, 219-223.

Spencer, H.J., Palmer, C, and Parry-Jones, K. 1991. Movements of Fruit-bats in Eastern Australia, Determined by using Radio-tracking. *Wildlife Research*, 18 pp 463-468

Tidemann, C.R. Nelson, J.E. 2004. Long-distance movements of the Grey-headed Flying-fox, *Pteropus poliocephalus*). *Journal of Zoology*, 263, pp141-146

Queensland Health, 2013. ABL – Australian Bat Lyssavirus. Accessed on 18 November 2013 from http://access.health.qld.gov.au/hid/InfectionsandParasites/ViralInfections/australianBatLyssavirus_fs.asp

15 APPENDICES

Appendix 1 - Grey-headed Flying Fox Occupation Counts at Bairnsdale Camp

Grey-headed Flying-fox Occupation and Counts at Bairnsdale Camp 1995-2011												
	1995	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
January			3500	>1000			(v**)	2800	4510	14700	6500	10000
February			(nc*)	1600		(v**)	200	3340	3730	20000	9000	5200
March			(nc*)	>2000		1250	>500	2070	280	5500	6500	4500
April	1870		738	(nc*)		11330	(v**)	3270	(v**)	3200	20000	7000
May			>3000	>1000		34110		120		1000	26000	(v**)
June			670	110		950		(v**)		560	525	
July			570	(v**)		(v**)				130	(v**)	
August			510							30		
September			420							(v**)		
October		(v**)	350									
November		<200	830					(v**)	(v**)	(v**)	(v**)	
December		(nc*)	750				(v**)	1250	17000	400	3000	

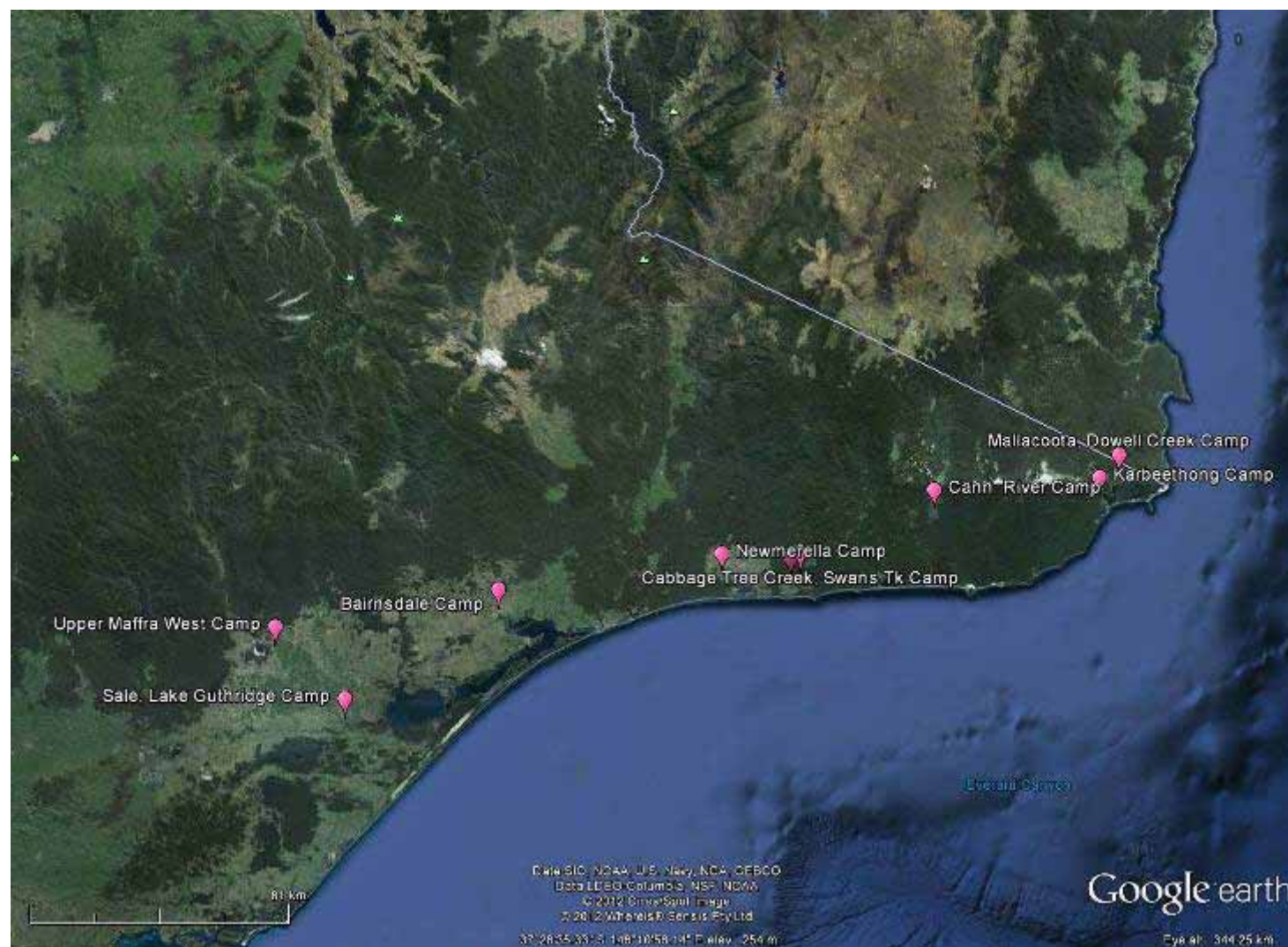
Source: DEPI, Gippsland

(nc*) No Count

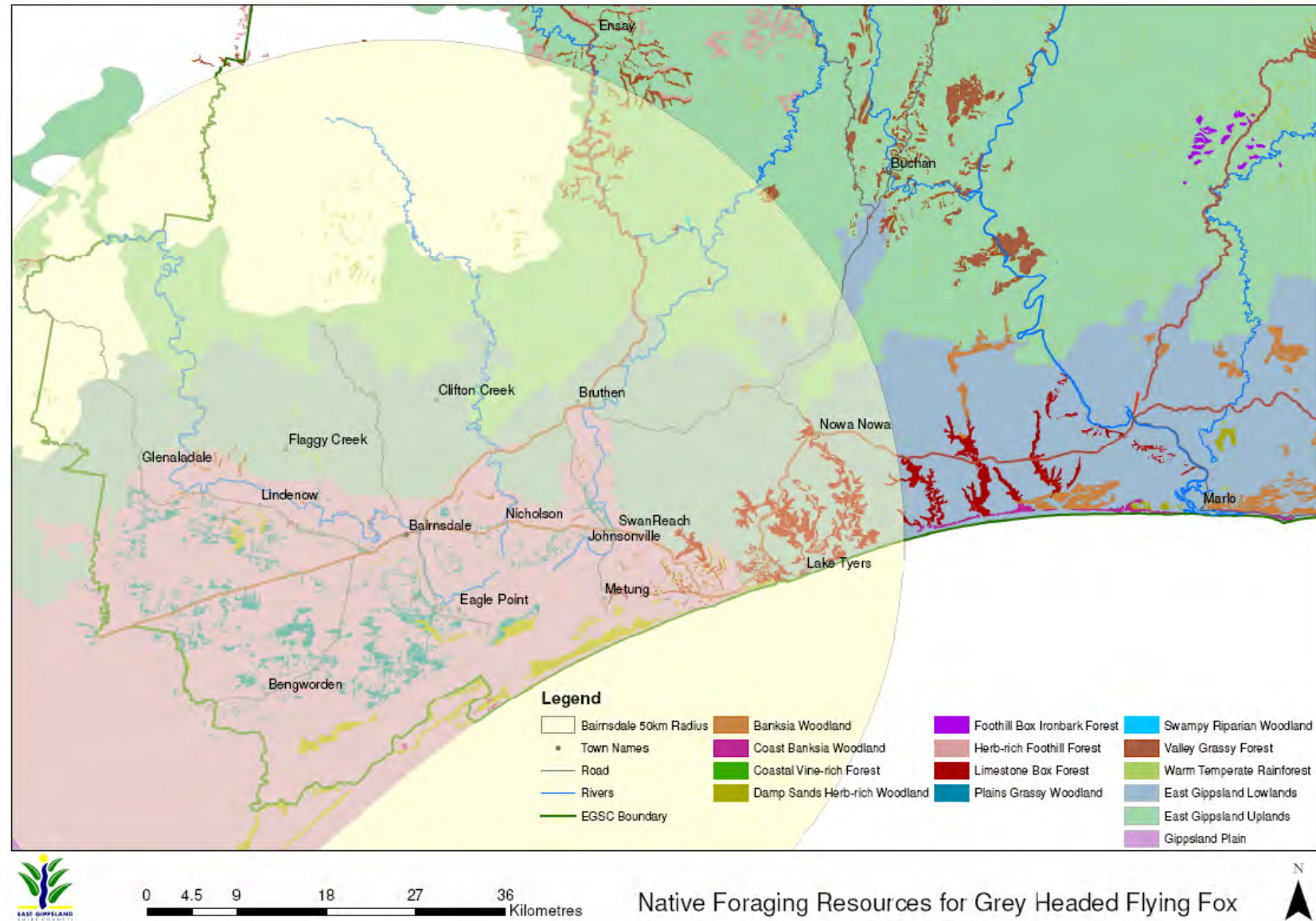
(v**) Vacant

Appendix 2 - Grey Headed Flying-Fox Camps Recorded in Gippsland (map included)

Grey-headed Flying-fox camps recorded in Gippsland 1998 - 2011				
Camp name	Location	Latitude (S)	Longitude (E)	Altitude (m)
Dowell Creek	South of David Creek Track, Croajingolong NP.	37.4693333	149.8003889	10
Karbeethong	Mullet Creek, upstream of Foreshore Rd Karbeethong.	37.5408611	149.8870833	5
Cann River	On north-west side of Cann River township.	37.5648611	149.1496111	80
Cabbage Tree Ck - Swans Tk	End of Swans Tk, Cabbage Tree Palms Reserve.	37.7336389	148.6795833	15
Cabbage Tree Ck - Palms Tk	Downstream of Palms Tk bridge, Cabbage Tree Palms Reserve.	37.7481944	148.6445278	15
Newmerella	Off Collis Rd, Newmerella.	37.7345278	148.4048889	30
Bairnsdale	Mitchell River, Bairnsdale city.	37.8217222	147.6212778	10
Sale	Island in Lake Guthridge, Sale city.	38.1137222	147.0695833	10
Upper Maffra West	Macalister River, east of Lake Glenmaggie	37.9085833	146.8327778	50



Appendix 3 - Grey-headed Flying Fox Vegetation and Feeding Areas within 50km Radius of Bairnsdale



ARBORICULTURAL REPORT

**East Gippsland Shire
Bairnsdale VIC 3875**

EAST GIPPSLAND



TREE SERVICES

**Re: Identification of Poplar trees that require
remedial works along Mitchell River
Walking Track**

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1.0 Terms of Reference:

- 1.1 To provide a detailed report on Poplar trees located along the Mitchell River walking track.
- 1.2 To identify trees to be removed for Buffer Zone along western boundary.
- 1.3 To advise on the recommended works.

2.0 Procedure:

- 2.1 On June 23rd, 2010 East Gippsland Tree services' Arborist, Mr. David Tarling carried out a ground inspection of poplars located along the southern side of the Mitchell River Walking Track.

3.0 Findings:

- 3.1 The following mature trees were found and have a direct impact on the safety of the site:

Populus alba (White Poplar)

- 3.2 All trees have been introduced to the area.
- 3.3 All trees are showing signs of stress, most likely caused by the impact of the Flying Foxes.
- 3.4 For the purpose of this report thirty two (32) trees have been assessed with the majority of them being grouped together .
- 3.5 Ivy was noted covering the ground and most Poplar tree trunks.
- 3.6 Tree #'s 1-3 details are as follows; (Fig. 1)

Botanical Name: ***Populus alba***

Common Name: White Poplar

3

Age:	Mature
Height:	Approx. 25m
DBH:	500mm to 650mm
LCR:	70% to 75%
Crown Diameter:	10m
Structure:	Poor
Overall Health:	Fair to Poor
ULE:	5 to 10 years
Tree Status:	Exotic

3.6.1 All trees are carrying a high amount of deadwood.

3.6.2 Tree #'s 1-3 are located along the western boundary and will impact on private property if failure occurs.

3.7 Tree #'s 4-29 details are as follows; (Fig. 3)

Botanical Name:	<i>Populus alba</i>
Common Name:	White Poplar
Age:	Semi Mature to Mature
Height:	Approx. 25m
DBH:	300mm to 650mm
LCR:	70% to 75%
Crown Diameter:	Up to 10m
Structure:	Poor

Overall Health: Fair to Poor
ULE: 5 to 15 years

Tree Status: Exotic

3.7.1 All trees are carrying a high amount of deadwood.

3.7.2 As well as deadwood, tree #'s 10,16,19,20,23,26-28 have heavily weighted branches extending over the walking track.

3.8 Tree #'s 30-31 details are as follows; (Fig. 3 & 4)

Botanical Name: *Populus alba*

Common Name: White Poplar

Age: Semi Mature to Mature

Height: Approx. 15m to 25m

DBH: 300mm to 400mm

LCR: 70% to 75%

Crown Diameter: Upto 8m

Structure: Poor

Overall Health: Fair to Poor

ULE: 5 to 15 years

Tree Status: Exotic

3.8.1 Both trees are located along the McCulloch Street Access track.

- 3.8.2 Both trees are carrying a high amount of deadwood.
- 3.8.3 Both trees have heavy leans over the McCulloch St access track with tree #31 on an extreme angle.
- 3.8.4 Only trees directly impacting on the western boundary, the Mitchell River Walking Track and the McCulloch St Access Track have been included in the report.

3.9 Tree #32's details are as follows; (Fig. 5)

Botanical Name:	?
Common Name:	?
Age:	Dead
Height:	Approx. 20m
DBH:	400mm
LCR:	0%
Crown Diameter:	
Structure:	Very poor
Overall Health:	Dead
ULE:	Unsafe
Tree Status:	?

4.0 Comments:

- 4.1 *Populus alba* is an introduced species originating in Spain and Morocco through central Europe to Central Asia.

- 4.2 Over the years the extensive removal of Poplars around the Mitchell River walking Track has been carried out.
- 4.3 The small area of Poplars included in the report has been protected due to the annual pilgrimage of the *Pteropus poliocephalus* (Grey Headed Flying Fox) in which they use these trees to roost in. (Fig. 5)
- 4.4 The Mitchell River Walking Track is a highly used.
- 4.5 All trees included in the report have been marked with a number.
- 4.6 Photos are limited due to the close proximity of trees and the location in which pictures could be taken from, deeming most photos unusable.
- 4.7 It's hard to determine the useful life expectancy for the majority of trees as the health of these trees will most likely be determined by the number of Flying Foxes that frequent the area.

5.0 Conclusion:

- 5.1 Thirty two (32) trees have been assessed.
- 5.2 Tree #'s 1-3 are located and impact on the western boundary.
- 5.3 Tree #'s 4-29 are located and impact on the Mitchell River Walking Track.
- 5.4 Tree #'s 30-32 are located and impact on the McCulloch St Access Track.
- 5.5 All trees are carrying high amounts of deadwood.
- 5.6 Along with deadwood, tree #'s 10,16,19,20,23,26-28 have heavily weighted branches extending over the Mitchell River Walking track.
- 5.7 Tree #'s 30 and 31 have heavy leans over the McCulloch St access track with tree #31 on an extreme angle.

5.8 Tree #32 is dead.

6.0 Recommendation:

- 6.1 Removal of Tree #'s 1-3 to allow a Buffer Zone between Crown and Private land.
- 6.2 Tree #'s 4-9, 11-15, 17-18, 21-22, 24-25 and 29 require the removal of deadwood.
- 6.3 Tree #'s 10,16,19,20,23,26-28 require deadwooding and weight reduction.
- 6.4 Tree #'s 30-32 require removal.
- 6.5 Deadwooding could be carried out in other trees located along the McCulloch St Access Track.
- 6.6 Removal of ivy.

7.0 References:

Harris, R.W., Clark, J.R. and Matheny, N.P. (1999)
Arboriculture- Integrated Management of Landscape Trees,
Shrubs, And Vines, Prentice Hall, Inc

8.0 Appendices:

Appendix 1: Data collection Definitions

The information collected on each specimen was based on the assessors experience and opinion of each of the trees. Included are the descriptions for each of the listed categories. The following information was collected on each tree.

1.1 Botanical name:

The genus, species and common name.

1.2 Canopy dimensions

Height (approximate) and width (measured) of the canopy in metres.

1.3 DBH

Diameter at breast height (measured at 1.3m above ground level).

1.4 Health

- Excellent
- Good
- Fair
- Poor
- Very Poor
- Dead

1.4.1 Excellent

The tree is demonstrating excellent or exceptional growth. The tree should exhibit a full canopy of foliage and be free of pest and disease problems.

1.4.2 Good

The tree is demonstrating good or exceptional growth. The tree should exhibit a full canopy of foliage, and have only minor pest or diseases problems.

1.4.3 Fair

The tree is in reasonable condition and growing well. The tree should exhibit an adequate canopy of foliage. There may be some deadwood present in the crown. Some grazing by insects or possums may be evident.

1.4.4 Poor

The tree is not growing to its full capacity; extension growth of the laterals is minimal. The canopy may be thinning or sparse. Large amounts of deadwood present in the crown. Significant pest and disease problems may be evident or symptoms of stress indicating tree decline.

1.4.5 Very Poor

The tree appears to be in a state of decline. The tree is not growing to its full capacity. The canopy may be very thin and sparse. A significant volume of deadwood may be

present in the canopy or pest and disease problems may be causing a severe decline in tree health.

1.4.6 Dead

The tree is dead.

1.5 **Structure**

- Good
- Fair
- Poor
- Very Poor
- Failed

1.5.1 Good

The tree has a well defined and balanced crown. Branch unions appear to be strong, with no defects evident in the trunk or the branches. Major limbs are well defined. The tree is considered a good example of the species.

1.5.2 Fair

The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance, and some branch unions may be exhibiting minor structural faults. If the tree has a single trunk, it may be on a slight lean or exhibiting minor defects.

1.5.3 Poor

The tree may have a poorly structured crown. The crown may be unbalanced or exhibit large gaps. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. The tree may have suffered root damage.

1.5.4 Very Poor

The tree has a poorly structured crown. The crown is unbalanced or exhibit large gaps with possibly large sections of deadwood. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. Branches may exhibit large cracks that are likely to fail in the future. The tree may have suffered major root damage.

1.5.5 Failed

The tree has a very poorly structured crown. A section of the tree has failed or is in imminent danger of failure.

1.6 **Useful Life Expectancy (ULE) Rating**

- Unsafe
- Less than 5 years
- 5-10 yrs
- 11-20 yrs
- 20-40 yrs
- Greater than 40 years

Useful Life Expectancy is approximately how long a tree can be retained safely and usefully in the landscape.

1.6.1 Unsafe

The tree is considered dangerous in the location and has no significant amenity value.

1.6.2 Less than 5 years

The tree, under normal circumstances and without extra stresses being imposed on it, should be safe and have value for up to five years, but will need to be replaced. During this period, normal inspections and maintenance will be required. If possible, replacement trees should be planted.

1.6.3 5-10 years

The tree, under normal circumstances and without extra stresses being imposed on it, should be safe and of value for up to ten years. During this period, normal inspections and maintenance will be required.

1.6.4 10-20 years

The tree, under normal circumstances and without extra stresses being imposed on it, should be safe and of value for up to twenty years. During this period, normal inspections and maintenance will be required.

1.6.5 20-40 years

The tree, under normal circumstances and without extra stresses being imposed on it, should be safe and of value for up to forty years. During this period, normal inspections and maintenance will be required.

1.6.6 Greater than 40 years

The tree, under normal circumstances and without extra stresses being imposed on it, should be safe and of value for greater than forty years. During this period, normal inspections and maintenance will be required.

1.7 Tree Status

- Exotic
- Native
- Indigenous

1.7.1 Exotic

The species originates in a country other than Australia

1.7.2 Native

The species originates within Australia

1.7.3 Indigenous

The species originates within the local environs.

1.8 Contribution to the Landscape Rating

- High
- Medium
- Low

1.8.1 High

The tree may be significant in the landscape, offer shade and other amenities such as screening. The tree may assist with erosion control, offer a windbreak or perform a vital function in the location (Eg. Habitat, shade, flowers or fruit)

1.8.2 Medium

The tree may offer some screening in the landscape or serve a particular function in the location.

1.8.3 Low

The tree offers very little in the way of screening or amenity.

This report is for use by the client, and no responsibility will be taken for use by any other parties. All recommendations are based on visual ground observations at the time of inspection. The influence that environmental and physical conditions may have on trees may change from day to day, for any given site.

David Tarling
Hort IV. Arb (Melb Uni)

Appendix 5 - List of Weed Species and Coverage at Roost Site

COMMON NAME	SCIENTIFIC NAME	PERCENT COVER*
English Ivy	<i>Hedera helix</i>	51-100%
White Poplar	<i>Populus alba</i>	51-100%
Kikuyu	<i>Pennisetum clandestinum</i>	11-50%
Broad Leaf Privet	<i>Ligustrum lucidum</i>	11-50%
Blackberry	<i>Rubus fruticosus spp agg</i>	1-10%
English Oak	<i>Quercus roba</i>	1-10%
Peppercorn	<i>Schinus molle</i>	1-10%
Panic Veldt Grass	<i>Erharta erecta</i>	1-10%
Wild Tobacco Tree	<i>Solanum mauritianum</i>	1-10%
Cotoneaster	<i>Cotoneaster glaucophyllus</i>	1-10%
Purple Top Verbena	<i>Verbena bonariensis</i>	1-10%
Cocksfoot	<i>Dactylis glomerata</i>	1-10%
Mirror Bush	<i>Coprosma repens</i>	1-10%
Bridal Creeper	<i>Asparagus asparagoides</i>	1-10%
Blue Periwinkle	<i>Vinca major</i>	1-10%
Dock	<i>Rumex spp</i>	1-10%
Japanese Honeysuckle	<i>Lonicera japonica</i>	1-10%
Silky Oak	<i>Grevillea robusta</i>	0-1%
Banana Passionfruit	<i>Passiflora mollissima</i>	0-1%
Cleavers	<i>Galium aparine</i>	0-1%
Canary Island Palm	<i>Phoenix canariensis</i>	0-1%
Sow Thistle	<i>Sonchus oleraceus</i>	0-1%
Agapanthus	<i>Agapanthus praecox</i>	0-1%
Dutch Elm	<i>Ulmus procera</i>	0-1%

*National Core Attributes for Weed Mapping, Australian Weeds Committee

Appendix 6 - List of Native Species in Adjacent Vegetation

COMMON NAME	SCIENTIFIC NAME
Drooping She Oak	<i>Allocasuarina verticillata</i>
Black She Oak	<i>Allocasuarina littoralis</i>
Black Wattle	<i>Acacia mearnsii</i>
Silver Wattle	<i>Acacia dealbata</i>
Boobialla	<i>Myoporum insulare</i>
Austral Bracken	<i>Pteridium esculentum</i>
Gippsland Red Gum	<i>Eucalyptus tereticornus</i> subsp <i>mediana</i>
Tree Violet	<i>Hymenanthera dentata</i>
Seaberry Salt Bush	<i>Rhagodia candolleana</i>
Sweet Pittosporum	<i>Pittosporum undulatum</i>
Mat-Rush	<i>Lomandra longifolia</i>
Common Tussock	<i>Poa labillardieri</i>
River Bottlebrush	<i>Callistemon sieberi</i>
Swamp Paperbark	<i>Melaleuca ericifolia</i>
River She-Oak	<i>Casuarina cunninghamiana</i>
Yellow Box	<i>Eucalyptus melliodora</i>
Coast Grey Box	<i>Eucalyptus bosistoana</i>
Hazel Pomaderris	<i>Pomaderris aspera</i>
Rough Barked Manna Gum	<i>Eucalyptus viminalis</i>
Golden -Tip	<i>Goodia lotifolia</i>
Common Reed	<i>Phragmites australis</i>
Kangaroo Apple	<i>Solanum aviculare</i>



REVEGETATION PLAN

MITCHELL RIVER ROOST SITE

EAST GIPPSLAND SHIRE COUNCIL

<i>Draft Version</i>	<i>Date</i>	<i>Updated</i>
1.0	Oct 2012	April 2013
1.1	April 2013	Sept 2013
1.2	Sept 2013	Nov 2013

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ACRONYMS

The Plan - The Grey Headed Flying Fox Strategic Management and Action Plan
 EPBC Act 1999 – *Environment Protection and Biodiversity Conservation Act 1999*
 DEPI – Department of Environment and Primary Industries
 DE – Department of Environment
 EGSC – East Gippsland Shire Council
 GHFF – Grey Headed Flying Fox

1. Purpose

The Revegetation Plan for the Mitchell River Roost Site has been developed as part of the Grey-Headed Flying Fox Strategic Direction and Action Plan. This plan sets out the design and implementation of revegetation actions on this site and provides methodology for the process.

A wider scale revegetation program is in place to rehabilitate the Mitchell River corridor to enhance the conservation value of this area and provide a safe environment for increasing recreational activities. This project is in addition to other revegetation sites within this corridor.

2. Aims of Revegetation

Revegetation at this site aims to incorporate the following objectives;

2.1 Minimisation of future management issues

By carefully selecting canopy and mid strata species within revegetation works, the balance between creating future management issues such as tree health and dropping limbs, footpath maintenance and creation of a dense vegetation structure is carefully considered

2.2 Provision of ecosystem services within the riparian corridor

Riparian corridors are known to provide significant environmental benefits through filtering of rainwater, acting as a wildlife corridor and nutrient retention.

2.3 Provision of longer term habitat resources for native fauna through structure and diversity

The species selection listed considers the habitat and feeding requirements for all species that currently use the Mitchell River corridor.

2.4 Incorporation of aesthetic values

Continuation of the native vegetation corridor along the Mitchell River corridor will provide aesthetic value and benefit to the local community and residents.

2.5 Replacement of invasive floral species with native floral species

Invasive species continue to have an impact on environmental, agricultural and social values within the local environment. Native species will enhance the existing values of the area and provide valuable ecological characteristics for all faunal species.

2.6 Restoration of the area to be representative of pre-European condition with consideration of current utilisation of the area

Restoration of the area with consideration of the pre-European condition of the site and how it is currently used for recreation and aesthetic amenity.

3. Current Site Condition

This revegetation site is currently populated by a high diversity of invasive species which are impacting on native regeneration, and a source of weed spread within the local area. This isolated stand of White Poplar (*Populus alba*) is surrounded by revegetation works with a view to returning the Mitchell River corridor to native vegetation.

The canopy trees currently on site are utilised as a temporary roost site for Grey-headed Flying-fox over the Summer and Spring period. These roosting trees are in varying stages of senescence and were determined to have a useful life expectancy of between 5 and 15 years in 2010 (see **Appendix 4** in The Plan).

The vegetation consists of a canopy of White Poplar (*P.alba*) with an understorey dominated by Privet (*Ligustrum lucidum*) and English Ivy (*Hedera helix*) (See **Figure 1**). A species list of invasive plants is included in **Section 7.1**. The high coverage of invasive species on site is limiting the regeneration and establishment of native species through competition.

Analysis of the vegetation with Habitat Hectare scoring through Victoria's *Native Vegetation Framework 2002* cannot be undertaken due to lack of native vegetation cover across the entire site.



Figure 1 - Current vegetation on the Mitchell River Roost Site



Figure 2 - Invasive understorey along the Mitchell River Walking Path

4. Proposed Site Design

The proposed revegetation site is dissected by a walking path which can potentially relocate to the western edge of the site. This relocation will allow safe access from Riverine Street to the Mitchell River Walking path. Creation of this path and buffer will assist in relieving adjacent residents concerns of health issues associated with presence of *Pteropus poliocephalis*, create an aesthetically pleasing outlook onto the Mitchell River, and limit public access to the centre of the revegetation area.



Figure 3 - Areas proposed for Staged Revegetation of the Mitchell River Roost Site

This selected area highlighted complements the existing revegetation area that surrounds the current site and also extends across the Mitchell River, where revegetation efforts have almost entirely been completed.

Retention of some large established deciduous trees will be essential on site. The proposal includes retention of a very large English Oak (*Quercus robur*) as this tree is held in high regard to the local community despite the non indigenous characteristics and appropriateness to the site.

Retention of two mature Peppercorn (*Schinus molle*) along the private land and public land interface will provide some screening to local residents during revegetation activities. These trees are proposed to be removed at a later date when revegetation has established enough to provide privacy to landowners west of the site.

These trees will act as an invasive seed source for a period of years and will require additional management on an annual basis to ensure that seedlings of these species cannot establish.

4.1 Revegetation Species Selection

Floral species that could form part of the revegetation could include the following species;

Canopy

- Gippsland Red Gum (*Eucalyptus tereticornus* subsp *mediana*);
- Coastal Grey Box (*E.bosistoana*)
- Blue Box (*E.baueriana*);
- Yellow Box (*E.melliodora*);

Sub-canopy

- Lilly Pilly (*Syzygium smithii*)
- Silver Wattle (*Acacia dealbata*)
- Blackwood (*A.melanoxylon*)
- Coastal Banksia (*Banksia integrifolia*)
- Kangaroo Apple (*Solanum aviculare*)
- Limestone Blue Wattle (*A.caerulescens*)
- River Bottlebrush (*Callistemon sieberi*)
- Sweet Pittosporum (*Pittosporum undulatum*)
- Swamp Paperbark (*Melaleuca ericifolia*)
- Sweet Bursaria (*Bursaria spinosa*)
- Woolly tea-tree (*Leptospermum laevigatum*)
- Tree Violet (*Hymenanthera dentata*)
- Common Boobialla (*Myoporum insulare*)
- White Elderberry (*Sambucus gaudichaudiana*)
- Mat Rush (*Lomandra longifolia*)
- Tall Sedge (*Carex appressa*)
- Tussock Grass (*Poa labillardieri*)
- Black-Anther Flax Lily(*Dianella tasmanica*)
- Tussock Grass (*Poa labillardieri*)
- White Milk Vine (*Marsdenia rostrata*)
- Old Man's Beard (*Clematis aristata*)
- Wonga Vine (*Pandorea pandorana*)
- Purple Coral-pea (*Hardenbergia violacea*)

These species are suited for the riparian corridor and adjoining slope and have formed part of previous revegetation efforts along the Mitchell River corridor. The canopy species will provide structure for many species that could currently and potentially utilise the corridor into the future. The variety of species will provide extensive foraging resources for many urban species including Grey-headed Flying-Fox, microbats, aboreal mammals and avifauna.

5. Summary of Staged Approach

A staged approach as highlighted in **Figure 3** separates the proposed area into three sections allowing removal of invasive species and complementary revegetation actions to be expanded over three years. The benefits of this approach allow;

- Differing age classes of developing vegetation;
- Allows observation of a response from faunal species utilising the site;

- Decreases sedimentation into the Mitchell River in an unexpected rain event;
- Spreads funding requirements over a three year period.

Stage 1 is designed around creation of lower vegetation to provide some microclimatic conditions and marry ecological benefit with personal safety concerns. Planting of lower species next to the proposed pathway will allow management of paths without impacting on surrounding revegetation. This design will also discourage entry into revegetation area through dense swards of grass and sedges.

Stage 2 will consist of a variety of species, with any canopy species planted closer to the centre of the site to mitigate safety concerns such as dropping limbs and to provide a core canopy area. Areas closest to paths will be densely planted with Silver Wattle, Swamp Paperbark, Boobialla, and Mat Rush. This arrangement will deter public access and protect the centre plantings and also provide some ecological requirements for different faunal species on site.

Stage 3 will replicate the principles applied in Stage 2 to ensure continuation of revegetation works that are species and structurally diverse.

6. Expansion of Revegetation Area

Previous revegetation works will be supplemented with additional structure and diversity to enhance their ecological attributes through nutrient cycling, soil stabilisation and habitat provision.

The extended revegetation area will incorporate adjacent vegetation to the site and also across the Mitchell River where previous revegetation efforts have taken place. The Mitchell River restoration project will continue in additional areas up and downstream of the current roost site.

7. Weed Control

Initial weed control over each revegetation stage will be required after tree removal and prior to planting. Treatment will occur across the area to manage existing weeds, and secondary treatment will be applied to treat regenerating weeds. Installation of geotextile fabric will limit the capacity of invasive species to recolonise the area and promote the success of planted seedlings.

Application of glyphosphate biactive across the site will manage invasive plants for a limited time and will be used to ensure minimal impact on the surrounding riparian environment. Utilisation of this herbicide will require many subsequent applications to be effective at controlling the understorey weeds. Secondary weed control will be required once plantings are installed to ensure their survival and to limit competition between weeds and planted vegetation.

7.1 Invasive Species

An assessment of invasive species on site and their abundance was undertaken in 2011 and are listed in **Table 1** below.

Table 1 - Invasive species located within the proposed revegetation areas

COMMON NAME	SCIENTIFIC NAME	PERCENT COVER*
English Ivy	<i>Hedera helix</i>	51-100%
White Poplar	<i>Populus alba</i>	51-100%
Kikuyu	<i>Pennisetum clandestinum</i>	11-50%
Broad Leaf Privet	<i>Ligustrum lucidum</i>	11-50%
Blackberry	<i>Rubus fruticosus spp agg</i>	1-10%
English Oak	<i>Quercus roba</i>	1-10%
Peppercorn	<i>Schinus molle</i>	1-10%
Panic Veldt Grass	<i>Erharta erecta</i>	1-10%
Wild Tobacco Tree	<i>Solanum mauritianum</i>	1-10%
Cotoneaster	<i>Cotoneaster glaucophyllus</i>	1-10%
Purple Top Verbena	<i>Verbena bonariensis</i>	1-10%
Cocksfoot	<i>Dactylis glomerata</i>	1-10%
Mirror Bush	<i>Coprosma repens</i>	1-10%
Bridal Creeper	<i>Asparagus asparagoides</i>	1-10%
Blue Periwinkle	<i>Vinca major</i>	1-10%
Broad-leaf Dock	<i>Rumex obtusifolius</i>	1-10%
Japanese Honeysuckle	<i>Lonicera japonica</i>	1-10%
Silky Oak	<i>Grevillea robusta</i>	0-1%
Banana Passionfruit	<i>Passiflora mollissima</i>	0-1%
Cleavers	<i>Galium aparine</i>	0-1%
Canary Island Palm	<i>Phoenix canariensis</i>	0-1%
Sow Thistle	<i>Sonchus oleraceus</i>	0-1%
Agapanthus	<i>Agapanthus praecox</i>	0-1%
Dutch Elm	<i>Ulmus procera</i>	0-1%

*National Core Attributes for Weed Mapping, Australian Weeds Committee

7.2 Invasive Plant Management Methods

The current limitations on chemical application include the site being located in an Agricultural Chemical Control Area (ACCA) which has been designated by *Agricultural and Veterinary Chemicals (Control of Use) Act 1992* and also in close proximity to waterway.

Any chemical selected will have the following considerations;

- Registered for use in Australia;
- Registered for use on target species as written on chemical label;
- Allowed for use in an ACCA;
- Desired Mode of Action;
- Risks of off-target damage and toxicity to the environment.

Species will be treated in a method that is suitable for each species, as directed in **Table 2**.

Table 2 - Invasive species treatment methods

English Ivy (<i>Hedera helix</i>)	
This species is highly prevalent across the site	Control will be required through severing tap root and application of herbicide. Ground level biomass can be sprayed on the ground.
White Poplar (<i>Populus alba</i>)	
This species is highly prevalent across the site.	Removal of standing timber and poisoning and treatment of root suckers will be required annually.
Kikuyu (<i>Pennisetum clandestinum</i>)	
This species has a high distribution across the site	Spraying this species will require additional management due to a creeping underground rhizome.
Broad Leaf Privet (<i>Ligustrum lucidum</i>)	
High distribution across site and excellent coloniser with high seed numbers.	Removal of standing timber and application to herbicide to the stem of taller individuals. Spraying of smaller level plants on the lower level.
Blackberry (<i>Rubus fruticosus</i> spp agg)	
Low distribution across site.	Herbicide application and follow up. Removal of dead canes from site will be required and herbicide application on regrowth.
English Oak (<i>Quercus roba</i>)	
Low distribution across the site.	Removal of seedlings and application to herbicide to the stem of taller individuals. Spraying of smaller level plants on the lower level. Ensure protection of mature established English Oak.
Peppercorn (<i>Schinus molle</i>)	
Low distribution across site. Some larger mature trees.	Removal of seedlings and application to herbicide to the stem of taller individuals. Spraying of smaller level plants on the lower level. Ensure retainment of 2 mature trees along the western boundary at the private public land interface.

Panic Veldt Grass (<i>Erharta erecta</i>)	
Low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Wild Tobacco Tree (<i>Solanum mauritianum</i>)	
Low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Cotoneaster (<i>Cotoneaster glaucophyllus</i>)	
Low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Purple Top Verbena (<i>Verbena bonariensis</i>)	
Low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Cocksfoot (<i>Dactylis glomerata</i>)	
Low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Mirror Bush (<i>Coprosma repens</i>)	
Low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Bridal Creeper (<i>Asparagus asparagoides</i>)	
Low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Blue Periwinkle (<i>Vinca major</i>)	
Low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Dock (<i>Rumex spp</i>)	
Low distribution across site.	Spray mature individuals, retreat if needed.
Japanese Honeysuckle (<i>Lonicera japonica</i>)	
Low distribution across site.	Sever taproot and apply herbicide. Remove biomass from structure.
Silky Oak (<i>Grevillea robusta</i>)	
Very low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Banana Passionfruit (<i>Passiflora mollissima</i>)	
Very low distribution across site.	Sever taproot and apply herbicide. Remove biomass from structure.
Cleavers (<i>Galium aparine</i>)	
Very low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Canary Island Palm (<i>Phoenix canariensis</i>)	
Very low distribution across site.	Cut and paste of mature individuals and application of herbicide to smaller plants.
Sow Thistle (<i>Sonchus oleraceus</i>)	

Very low distribution across site.	Application of herbicide to patches. Retreatment prior to laying weed matting.
Agapanthus (<i>Agapanthus praecox</i>)	
Very low distribution across the site.	Remove from ground and destroy. Ensure all tubers have been located and removed.
Dutch Elm (<i>Ulmus procera</i>)	
Low distribution across the site	Cut and paste of mature individuals and application of herbicide to smaller plants.

8. Process

8.1 Stage One

Stage One is proposed to remove 40 *P.alba* from site and remove the understorey invasive biomass. All native vegetation on site will remain. The process of works is highlighted below;

1. Identify and tag established native canopy species on site to remain.
2. Removal of numbered invasive trees from Stage One area. Poison stumps. Stockpile removed from site.
3. Treat understorey weeds through removal of larger woody weeds and herbicide application to the ground level biomass.
4. Install paths and structure required for new linking footpath from Riverine Street to Mitchell River Walking Path if required.
5. Closure of current footpath further down through the site. Removal of infrastructure relating to this footpath.
6. Apply herbicide to areas requiring installation of geotextile matting.
7. Install geotextile matting and commence revegetation surrounding footpath.
8. Continue revegetation efforts to include entire area.
9. Enhance surrounding vegetation by supplementing previous revegetation areas to increase the diversity and structure of the vegetation.

8.2 Stage Two

Stage Two entails removal of 28 *P.alba* trees from site and also removal of the understorey invasive biomass. All native vegetation on site will remain.

1. Identify and tag established native canopy species on site to remain.
2. Removal of numbered invasive trees from Stage Two area. Poison stumps. Stockpile removed from site.

3. Treat understorey weeds through removal of larger woody weeds and herbicide application to the ground level biomass.
4. Apply herbicide to areas requiring installation of geotextile matting.
5. Install geotextile matting and commence revegetation surrounding footpath.
6. Continue revegetation efforts to include entire area.

8.3 Stage Three

Stage Three entails removal of 77 *P.alba* trees from site and also removal of the understorey invasive biomass. All native vegetation on site will remain.

1. Identify and tag established native canopy species on site to remain.
2. Removal of numbered invasive trees from Stage Three area. Poison stumps. Stockpile removed from site.
3. Treat understorey weeds through removal of larger woody weeds and herbicide application to the ground level biomass.
4. Apply herbicide to areas requiring installation of geotextile matting.
5. Install geotextile matting and commence revegetation surrounding footpath.
6. Continue revegetation efforts to include entire area.

9. Inspection and Maintenance Schedule

Each area rehabilitated will require ongoing maintenance. This revegetation project incorporates a 4 year maintenance program to ensure on-going management of the site.

Table 3 - Maintenance schedule after revegetation activities commence

	TIMING	ACTION
Surrounding Path Network	Every 3 months	<ul style="list-style-type: none"> Inspect for integrity of network and repair as necessary.
Revegetation	Every 6 months	<ul style="list-style-type: none"> Assess survival rate of seedlings and replant if necessary.
Weed Control	Every 6 months	<ul style="list-style-type: none"> Treat emerging weeds within revegetation area.

10. Standard Operating Procedures (SOP)

10.1 Purpose

This document outlines the process and procedure for implementation of the Revegetation Project within the Grey-headed Flying-fox Strategic Action and Management Plan 2012. This document has been developed to contribute to the long term implementation of the Plan.

Background

East Gippsland Shire Council submitted a referral under the *EPBC Act 1999* to remove a number of invasive White Poplars (*Populus alba*) from the Mitchell River riparian corridor. The application was on the basis that the stand of *P.alba* is habitat for Grey-headed Flying-fox (*Pteropus poliocephalus*) which is classified as Vulnerable under Commonwealth legislation. Part of the approval process was compilation of a Management Plan that details the proposed actions and mitigation strategies that EGSC need in place prior to approval of the action. This document will be utilised as part of the broader Management Plan.

10.2 Scope

SOP for the Mitchell River Revegetation Program must be utilised at any time during revegetation actions along the Mitchell River corridor. This is to ensure safety of public and also incorporate the requirements for the wellbeing of the GHFF.

10.3 Planning Process

10.3.1 Location

All works that these SOP apply to are within the Mitchell River corridor and only applicable to areas under East Gippsland Shire Council management.

10.3.2 Timing of Works

Works can only commence after confirmation from DEPI that GHFF are absent from the area. Provided GHFF are absent, works can be undertaken at any time of the year except between the period from 1 August to 30 September, as this corresponds with a particularly vulnerable part of the GHFF breeding cycle, when pregnant females in the third trimester can spontaneously abort their pregnancy under relatively low stress conditions. While records show that GHFF are not normally present at the site during this time, the possibility that they could return during this period cannot be discounted (See **Appendix 1** of The Plan).

Wherever possible, works will be timed to occur between 1 April and 31 July to avoid the breeding season. This flexibility takes advantage of the variable nature of GHFF occupancy at the site (See **Appendix 1** of the The Plan).

All staged works will be completed Works will be completed within 10 working days. If at any stage during the works bats return to the site, all works must cease and cannot recommence until all GHFF depart.

Vegetation management works will only be undertaken on weekdays and between the hours of 7am and 4pm. Volunteer activities may be scheduled on weekends to assist with revegetation and management activities.

10.3.3 Risk Assessment

Risk assessment must be undertaken in accordance with EGSC Occupational Health and Safety Policy. Compilation of Job Safety Analysis (JSA) worksheets is mandatory prior to commencement of any activities on site. The Project Manager is responsible for ensuring that these are compiled and updated daily.

10.3.4 Daily Monitoring

Assessment of the location regarding public and staff safety is continuous throughout the period of works. Assessment of the presence of GHFF must be undertaken 2 times per day, on arrival at site and also during the day. Refer to Daily Checklist for Commencement of Works in **Appendix 1**. This must be completed by the Project Manager.

10.3.5 Signage

The local footpath and walking track network must be temporarily closed to facilitate safety of the public and all staff on site during the following actions;

- Felling of any trees;
- Transporting felled trees off site through access points along this network;
- Application of herbicide to treat existing and emerging weeds.

10.4 Additional Activities

See **Section 8** for detailed process for implementing revegetation actions.

10.4.1 Tree Removal

Trees to be removed as part of the *EPBC Act 1999* referral have been numbered on site. These trees have been allocated into Stages, to allow for easier identification in line with the staged revegetation program.

Each stage will be marked out and trees assessed as to the safest method of removal from the area. These trees have been assessed by an independent arborist. EGSC Arborist will also be available at any point for additional assessments. All staff must be appropriately qualified for their allocated tasks.

10.4.2 Herbicide Application

All personnel and contractors undertaking herbicide application must have passed Chemical Users training and possess a current Agricultural Chemical Users Permit (ACUP). Appropriate OH&S requirements must be in place and risk assessments undertaken prior to commencement of activities.

Any herbicide application must be in line with applicable legislation, best practice principles and in accordance with on label chemical requirements.

10.5 Reporting

This document, as part of the Strategic Management Plan, is subject to approval by the Department of Sustainability, Environment, Water, Population and Community (DE). Any changes to the procedure must be approved by DE.

The Daily Checklist (**Appendix 1**) assessment prior to commencement of any activity must be retained and submitted as part of an annual report to DE (**Appendix 2**).

Appendix 1

DAILY CHECKLIST FOR COMMENCEMENT OF WORKS

DATE:..... TIME:.....

NAME:.....

POSITION:.....

WORKS REQUIRED:

[illegible]

ASSESSMENT STEPS:

1) Has DEPI confirmed arrival of GHFF?

.....

2) Has DEPI confirmed works can go ahead prior to commencement of works?

.....

3) Are any Grey-headed Flying Foxes present in the canopy within or around the worksite?

.....

4) Are there any Grey-headed Flying-foxes present in surrounding vegetation?

.....

5) Is there any evidence of Grey-headed Flying-fox recent occupation? ie scats or scent?

.....

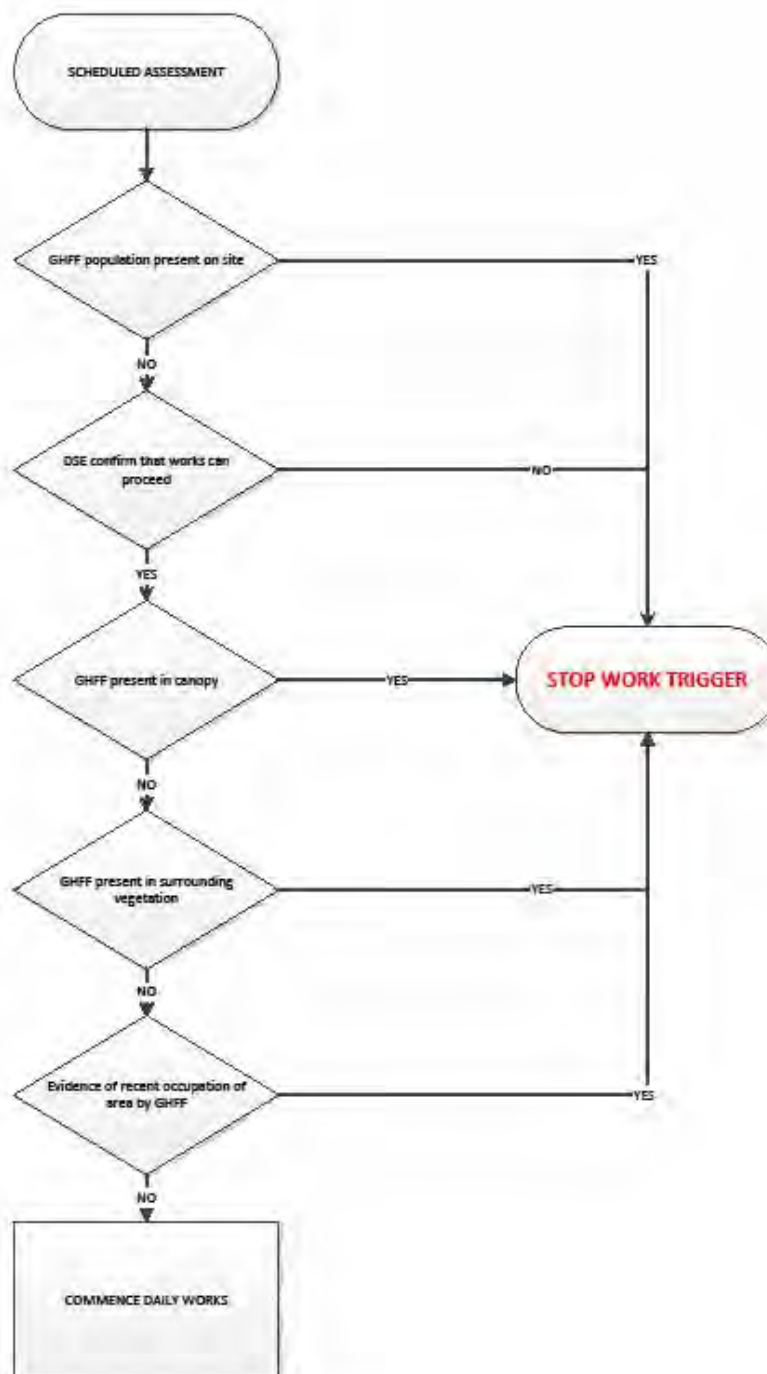


Figure 1 – Basic Steps for Daily Scheduled Assessment

Grey-headed Flying-fox Identification

Species Information

Grey-headed Flying-foxes are a native faunal species that occur along the eastern coast of Australia. They are usually seen at dusk exiting the camp to gather nectar and fruit nearby, and return before dawn to settle into the larger trees for the day.

Key identification characteristics that assist in identifying GHFF are;

- Animal is larger than average bats, up to 1kg in weight and a wingspan of 50cm;
- Has an orange and brown circle of fur around the neck;
- A grey head with greyish fur along the belly ;
- Fur continues along legs to the toes.



*Grey-headed flying fox Photo: L Lumsden
(Source:DEPI Website)*

Identifying presence of GHFF on the Worksite

When in the area these key questions will assist in determining if GHFF are present in your work area.

1. NOISE

Is there any noise overhead or around the perimeter from where you are standing?

Can you hear shrieking or unfamiliar noise surrounding you?

2. SIGHT

Are there any black moving shapes in the canopy above you?

3. SMELL

Can you smell unfamiliar odour or 'musk'?

If you have answered yes to any of the above questions, please refer to your Supervisor immediately.

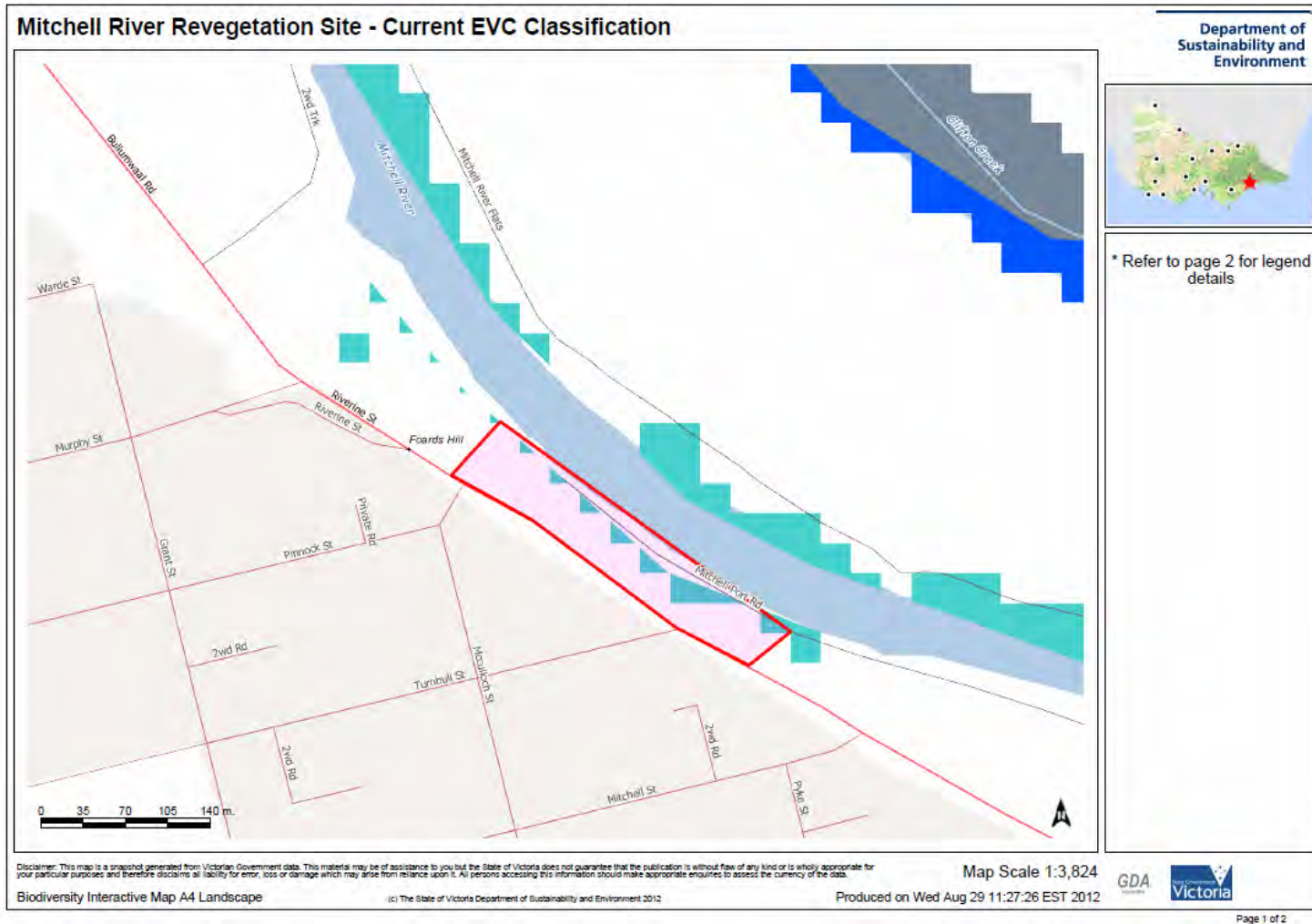
Appendix 2

OPERATING PROCEDURES - MITCHELL RIVER REVEGETATION PROGRAM

REPORT – IMPLEMENTATION OF STOP WORK TRIGGERS on Mitchell River Roost Site

Date of Activity	Daily Checklist Completed	Stop Work Action Triggered	Response to Stop Work Action
<i>Example 01/01/2001</i>	Yes	Yes	<i>No works undertaken</i>

Appendix 3





Community Engagement Guidelines

Introduction

These Community Engagement Guidelines have been developed to ensure a consistent and effective approach to community engagement within Council. They provide the steps and processes to achieve good community engagement outcomes.

The Guidelines are part of a Toolkit for community engagement. The other parts of the Toolkit are:

- Community Engagement Policy. Articulates the strategic direction and Council's public commitment to community engagement.
- "Undertaking a Project – Process Flowchart". This flowchart aligns engagement with the Initiation Approval Form process and ensures that good internal engagement is undertaken. Internal engagement is essential to ensure that all projects meet the Strategic Fit of Council. Thorough and consistent internal engagement will help to build a culture of engagement.

Purpose

The purpose of these Community Engagement Guidelines is to:

- implement the strategic direction detailed in the Community Engagement Policy;
- ensure a consistent approach to community engagement throughout the organisation;
- ensure community engagement activities are consistent with relevant Objectives in the Integrated Communications Strategy, Council's Strategic approach to community planning through *OurPlace*, *OurPlan*, *OurFuture* and the Council Plan; and
- provide a framework around which targeted training can be delivered to Council Officers.

Legislative Basis

Council's commitment and approach to community engagement is guided by the *Local Government Act 1989* and the *Local Government (Best Value Principles) Act 1999*.

Local Government Act 1989 – the role of a Council includes taking into account the diverse needs of the local community in decision making and fostering community cohesion and encouraging active participation in civic life.

Local Government Act (Best Value Principles) Act 1999 – It is a requirement of Local Government to be responsive to the needs of its community, develop a program of regular consultation with its community in relation to the services it provides and report regularly to its community.

Definitions

Consultation and engagement are often used interchangeably. They are different but connected:

Engagement: We can consult by simply putting an ad in the paper and asking for feedback, but when we engage we invite a deeper contribution and strengthen our relationship with others.

Consultation: A two-way flow of information. It allows Council to be informed of community attitudes and opinions and communities to be informed of Council directions, services and activities. It is a way of giving information and a way of obtaining feedback. Consultation is what you do. Engagement is how you do it.

Community: Communities include people who live and/or work in the area (for example residents, business people and volunteers) and people who share the values, interests and concerns of people living and working in the area (for example non-resident rate-payers, community groups and organisational representatives). These two groups are not mutually exclusive.

Community Engagement

Successful community engagement relies on good facilitation and governance skills, self awareness, and a willingness to support, challenge and inspire people and communities to be the best they can be, reaching for common understanding and common good. Authentic, not tokenistic, engagement of communities is central to creating meaningful, sustainable and shared outcomes.

A sound engagement process is¹:

Respectful: Each community is unique. Each person is unique. Everyone has skills, talents, qualities and wisdom to contribute. Respectful behaviour includes listening and acknowledging differing points of view and contributions.

Inclusive: An inclusive process provides opportunities to participate while respecting an individual's choice to participate or not. An inclusive process takes into account that communities are diverse and that diversity is an asset.

Appreciative: Great things have already been achieved, some things are working really well and there is plenty to build on.

Collaborative: A collaborative process acknowledges that working together strengthens relationships, organisations, communities and places and achieves better outcomes.

Empowering: Processes encourage leadership, promote knowledge and skill development and provide opportunities for participation in decision making.

Realistic: Change takes time and that can be challenging. Processes that are inclusive can be slow moving and often resources are limited. Action and adequate discussion/debate need to be thoughtfully balanced. Stage the implementation of plans with short term wins and long term projects.

Flexible: Have plans and be open to opportunities.

Transparent and communicative: Telling the ongoing story, letting people know where the process is at and being honest about achievements and challenges.

Celebratory: Celebrate the journey, contributions and achievements.

¹ Village Well, *Place Making & the Art of Authentic Engagement*, pg 4.

Community Engagement Steps

How do you know when you need to engage the community?

- When there is a legal reason for doing so (for example: planning applications).
- When you want to hear a range of views before you make a decision.
- When you want the community to understand your rationale for change.
- When you want input to help make a decision.

1. Determine Outcome, Benefit and Strategic Fit

An outcome is an actual impact, benefit or change for the stakeholders. Be clear about what you are trying to achieve. For example, you may need to explain a new local law, obtain park user input to upgrade a local park or find out what people think of a current service.

Refer to the Council Plan, Community plans, strategies or Policies that might impact on your project. Are there any relationships to other Council projects?

There might be an opportunity to link your community engagement activities so that communities do not suffer from "consultation fatigue". It is highly likely that a combined project or engagement activity would result in a more comprehensive and strategic outcome.

2. Determine The Scope And Proposal Of Your Engagement Activity

Scoping a project means identifying what is included in your project and what is not included in your project.

Important factors to be identified during the scoping stage include:

- what is your budget for community engagement for example, for advertising, hall hire?
- what is your timeframe for completing the project?
- what is the level of risk around this project? For example, are people supportive, is the community divided on the matter, is it high profile, is it politically sensitive?
- are there other issues, not related to this project that the community is focussed on?
- is there a legislative requirement to engage with people on the matter? For example, some planning applications have legislative requirements to place notices on site or for information to be mailed to landowners who may be affected;
- will your project outcome be inclusive and accessible (refer to "Participation and Partnership Guide" on the Hive)?

3. Who Will Your Engagement Activity Impact On (Internal And External Stakeholders)?

- who will the project affect, for example will it only affect one or two people, people in the immediate township area or the whole Shire?
- who are the stakeholders? For example, residents, other agencies, absent ratepayers, businesses?
- who are the internal stakeholders, for example other Business Units or Council Officers?
- are there any special interest groups that need to be engaged eg disabled, businesses, youth, etc?

4. Determine Level Of Engagement And Methods

You are now ready to identify the level of engagement most suited to your project. The International Association of Public Participation (IAP2) Spectrum will assist you in determining this.

The Spectrum depicts five levels of engagement. The levels of engagement, ranging from Inform to Empower, allow for varying ranges of community input. Each level has a promise to public relevant to the level and type of engagement you are undertaking. Refer to Appendix 1.

Some examples specific to East Gippsland Shire Council have been included at the bottom of the table. For further information on IAP2, please refer to the website: <http://www.iap2.org.au/>

5. Facilitation

Most community engagement activities that are at a level beyond Inform require some form of facilitation. Appropriate facilitation can make or break the community engagement process. You need to think about:

- whether you have the skills and confidence to be the facilitator yourself;
- whether you ask someone else in the organisation to help you; or
- whether you appoint an external facilitator

You may choose to appoint an external facilitator if you need a 'neutral' person to front an event.

When appointing an external facilitator, the following will need to be undertaken:

- preparation of a project brief;
- project management – supervision of facilitator; and
- contracts (in some cases) – refer to Council's Contracts Co-ordinator for advice.

6. Resources

You will need to consider the resources you need to support your community engagement activity. This could include:

- the number of staff required to be involved;
- any special equipment needed eg microphone, data projector, whiteboard, pens;
- facilities such as a meeting room (please ensure it is accessible for people with disabilities) and catering (consider any dietary requirements);
- background information/supporting documentation to be provided in advance or at the time; and
- any specific funding needed to facilitate engagement.

7. Communication

This is when you will let people know about your engagement activity.

At the start of any engagement activity it is important for all stakeholders to have an understanding of their role in the decision making process and also an understanding of the project and its background and constraints.

Some engagement activities will be undertaken purely to advise of a decision that has already been made and some will allow for stakeholders to directly influence the decision.

Use the beginning of the process to inform stakeholders of:

- the nature of the project, including background, constraints and relevant strategies and/or legislation;
- the level of participation intended;
- the engagement activities that will be undertaken (public meeting, workshops);
- who will be involved – Council Officers, agencies, community groups;
- how decisions will be made and who will make them;
- what is and what is not negotiable; and
- when and how feedback will be given.

Many engagement activities will require you to maintain an information flow throughout the process. Identify ways to develop and maintain an information flow with your stakeholders throughout your engagement activity.

Ways to present information include:

- as a project brief for consultants or stakeholders
- Discussion Paper
- Fact Sheet
- FAQ's about ...

Refer to the Integrated Communications Strategy and the Corporate Communications and Strategy Team to assist you with Communication methods. Appendix 2 also provides some examples of how communication tools link with, and support, an engagement activity.

8. Action

To keep you on track you will need to develop a plan to implement your engagement activity. Create a list and identify each task that needs to be done, who is responsible and when it has to be finalised by.

9. Monitoring

Ongoing monitoring of the process will be required to ensure that your expected outcome is being achieved.

Closely monitoring the process will allow for continuous improvement and help you to identify and address issues that may arise, such as:

- low levels of participation and actions in response to this;
- identify further opportunities that may exist within the scope of the activity;
- additional stakeholders who can be engaged; and
- whether any additional activities are required.

10. The End Result and Feedback

Once your engagement activity is complete you will need to take steps to inform stakeholders of the outcome.

Ask yourself:

- has the outcome been conveyed to stakeholders?
- do you need to maintain an information flow and how will this be done?
- does a report need to be prepared for a Council meeting? If so, consider the relevant approval steps prior to the report being considered at the Council meeting.
- do actions to achieve the outcome need to be incorporated into Council's processes?

11. Evaluation

The evaluation process provides an opportunity to reflect on the success of your engagement activity and to determine some important factors surrounding it:

- did the engagement activity successfully achieve your desired outcome?
- what can you learn from the process and what can be improved, or would you do differently, next time?
- is there an opportunity for you to share your experience with your colleagues?

An Evaluation Checklist is provided for completion at the end of the project. Completing this form will allow the organisation to monitor its success with engagement activities. The Checklist is available at Appendix 3 and also electronically on the Hive Community Engagement page.

APPENDIX 1

IAP2 Public Participation Spectrum

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:
We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decision to the maximum extent possible.	We will implement what you decide.
Example techniques to consider:	Example techniques to consider:	Example techniques to consider:	Example techniques to consider:	Example techniques to consider:
<ul style="list-style-type: none"> • Fact Sheets • Web Sites • Displays 	<ul style="list-style-type: none"> • Focus groups • Surveys* • Public meetings • Community Events 	<ul style="list-style-type: none"> • Forums or Workshops • Advisory Group 	<ul style="list-style-type: none"> • Local Community Planning Group • Expert Committees 	<ul style="list-style-type: none"> • Citizen juries • Council elections • Delegated decisions
East Gippsland Shire Council example:	East Gippsland Shire Council example:	East Gippsland Shire Council example:	East Gippsland Shire Council example:	East Gippsland Shire Council example:
<ul style="list-style-type: none"> • Road Closure • Rubbish collection dates • Display of waterwise garden techniques 	<ul style="list-style-type: none"> • Council Plan • Budget • Planning Permit Applications 	<ul style="list-style-type: none"> • Health and Wellbeing Strategy • Designing the Paynesville Community Centre • Raymond Island Access • A new Waste Management Strategy for the Shire 	<ul style="list-style-type: none"> • Community Plans • New or upgraded Recreation Facilities 	<ul style="list-style-type: none"> • Raymond Island Blitz • Opening of a new community garden

**Conducting Citizen Surveys:*

Please refer to dataworks document 4004580 – "Conducting Citizen Surveys" for more detailed information on Council requirements when conducting certain types of surveys.

***Additional engagement techniques:*

There are numerous engagement techniques available for use, in addition to the ones listed in this table. For information on additional techniques talk to staff in the Strategic Planning Business Unit or refer to:

Department of Sustainability and Environment "Effective Engagement Toolkit"
<http://www.dse.vic.gov.au/effective-engagement/toolkit>

APPENDIX 2

Communication Tools

Good Communication supports an engagement activity. Council's Integrated Communications Strategy lists a number of communications methods that can be utilised when engaging with stakeholders. These methods will assist you to communicate with stakeholders and maintain an information flow throughout and after your engagement activity. This matrix provides some examples of how activities link with communication tools.

Legend:

- 1 Always
- 2 Sometimes
- 3 Not appropriate

Engagement Activity	Advise of a new or amended service (Inform)	Advise of activity that will impact on certain groups (Inform)	Provide opportunity to comment on strategic project (Consult)	Provide opportunity to comment on a proposed change that may impact a community (Consult)	Work with stakeholders to include their ideas in a project outcome (Involve)	Gather ideas on how to manage a program (Involve)	Create a partnership and share resources to develop and identify solutions (Collaborate)	Develop ongoing dialogue to receive input, advice and determine solutions (Collaborate)	Allow stakeholders to implement their decisions (Empower)
(example)	Rubbish collection rates	Road Closure for Events	Local Streetscape Project	New footpath location	Raymond Island Access	New Waste Management Strategy	Upgrading a Recreation Facility	Community Plans	Paynesville Ferry Shelter
Communication Tool									
Direct Mail	2	1	2	2	2	2	2	2	2
Email (if addresses available)	2	2	2	2	2	2	2	2	2
Local Newspaper/ Shire Weekly Advertisement	1	1	1	1	1	1	1	1	2

Local Newspaper/ Quarterly Community Connect/ Shire website	2	3	2	2	2	2	2	1	2
Online engagement portal	3	3	2	2	2	2	2	2	2
Social Media e.g. Twitter/ Facebook/ Blog	2	2	2	2	2	2	2	2	2
Media Release	2	2	1	2	1	1	1	1	2
Factsheet/ Brochure	2	2	1	1	1	1	2	1	3
On-hold message	3	3	3	3	3	2	3	3	2
Public Display/ Meeting	2	3	1	2	1	2	2	2	2
Local community newsletter/ Targeted Stakeholder Meeting	2	2	1	1	1	2	2	2	2
	3	2	1	2	1	2	1	1	1

APPENDIX 3

Internal Evaluation Checklist

Project Title:	
Business Unit:	
Project Manager:	
Date:	

✓ (copy and paste this tick into the appropriate boxes)

1. Did your engagement activity help to successfully complete the project?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No (please identify the reasons...)

2. What level of engagement did you use?

<input type="checkbox"/>	Inform	<input type="checkbox"/>	Collaborate
<input type="checkbox"/>	Consult	<input type="checkbox"/>	Empower
<input type="checkbox"/>	Involve		

3. What method/s of engagement did you use e.g. workshop, survey, community event, formed a Reference Group?

4. What communication method/s did you use e.g. direct mail, Shire website, local newspaper, community newsletters?

5. How did you provide feedback on the completion of the project?

6. Do you need to provide further or on-going feedback? How will this be done?

<input type="checkbox"/>	Yes – how will this be done?
<input type="checkbox"/>	No

7. Was your project Shire wide or place based?

<input type="checkbox"/>	Shire wide
<input type="checkbox"/>	Place Based (please name place/s):

8. What other Business Units did you work with on this project?

9. What were the benefits of working with the other Business Units?

	Able to utilise additional resources and knowledge
	Improved outcome e.g. additional elements were able to be included in project outcome due to combined funding/resources
	Avoided over-consultation of community
	Other:

10. How did your engagement activity improve the outcome of your project?

	Created community discussion
	Discovered information didn't previously know
	Was able to utilise community expertise
	Resolved conflict
	Other:

11. Would you do anything differently to improve the process next time?

12. Has your project increased the capacity of the community eg to sustain an activity/event, utilise resources, build and retain knowledge?

Note: Once completed please submit this page to the "Tell us How your Engagement Activity went" section on the Hive Community Engagement page. This information will only be used to help monitor the organisations engagement activities.

Case Study

This case study illustrates each of the steps provided in the guidelines.

1. Determine the Outcome, Benefit and Strategic Fit

Council has known for some time that the people in Swan Reach would like to have their park upgraded. There is evidence that there are a lot of families moving to the area and providing play equipment for children is important. The current playground equipment is old and no longer meets safety standards. Money has been allocated in the current financial year budget to upgrade the equipment and improve the facilities in the park.

Council would like the input of the local community in upgrading the park to ensure it meets their needs.

There is no current community plan for the area but Council is currently working on an Urban Design Framework for Swan Reach. This will provide an opportunity to combine community engagement activities.

2. Scope and Proposal of your Community Engagement

A portion of the funding that has been allocated to upgrade the park can be used to support community engagement.

This project is looking at upgrading the local park and construction of a new toilet block, not the access roads into the park or the health of the river next to the park.

You have four months to complete the project so you will need to structure your engagement activities within this timeframe.

Swan Reach residents have begun writing to Council over a few months asking for the park to be upgraded so you think most are supportive of the upgrade.

The park upgrade will include the construction of a new toilet block. Legislation requires this to be advertised to allow for objections.

Cultural heritage issues will need to be considered as the proposed works are within 200m of a waterway. Waterways and the 200m buffer on either side are automatically classed as sensitive cultural heritage areas and therefore require consultation with the appropriate organisations. The relevant Registered Aboriginal Party (RAP) will be contacted.

You might also consult with Gippsland Ports as the park is located next to the river where this is a Gippsland Ports jetty and with Council's Rural Access Project Officer in regard to accessibility of the park for people with disabilities.

3. Who will your engagement activity impact on (Internal and External Stakeholders)?

The following stakeholders will need to be involved in the project as it directly affects them: Swan Reach residents, Lower Tambo Landcare Group, Business and Tourism Association, Registered Aboriginal Party (RAP), Gippsland Ports and Council Officers who are responsible for playgrounds and maintenance of Council infrastructure.

4. Determine level of engagement and methods

The upgrade of the Swan Reach Park fits into the Collaborate column of the Spectrum. You have decided to have some conversations with some of the identified stakeholder groups to suggest the formation of a local group (Park Upgrade Group) to provide advice and help formulate ideas for the upgrade with Council. You expect that the Park Upgrade Group will help confirm the style and positions of the playground equipment within the budget restrictions you have. The Park Upgrade Group may also advise on the location of the toilet block in relation to the playground, plus seats and tables for parents and carers of children using the playground.

A number of the stakeholders identify people who should be on the Park Upgrade Group.

5. Facilitation

Officers in the Asset Maintenance area have a good technical understanding of how to upgrade a park and they have identified a Council Officer from their area who will meet regularly with the Park Upgrade Group to provide advice and discuss options.

6. Resources

The following resources are required:

- Asset Maintenance Council Officer time;
- other Council Officers time as required (for example Strategic Projects Planner, Rural Access Project Officer);
- Park Upgrade Group;
- venue to meet that is central and comfortable; and
- background paper so that Park Upgrade Group have a clear understanding of their role and the scope of the upgrade.

7. Communication

You have contacted the people who were suggested to be on the Park Upgrade Group to invite them to an initial meeting to discuss the intent and scope of the park upgrade. Use this meeting to clearly advise the Group of their role and what level of input they will have in the decision making process.

The Asset Maintenance Council Officer will prepare a background paper on the park upgrade, land use constraints, relevant sections of the Urban Design Framework and what budget Council has available for this project to provide in advance of the first meeting of the Park Upgrade Group.

8. Action

You have prepared a checklist for the Park Upgrade Group meetings including the meeting dates, room bookings, agenda items, responsible Council Officers and tasks. Timelines for the implementation of subsequent actions (steps 9, 10 and 11) are identified.

9. Monitoring

Two issues have been identified during the Park Upgrade Group Meetings:

- Park Upgrade Group members have suggested that as a lot of teenagers use the park as a meeting place and for sport, they should be asked for their ideas. Local sporting groups were targeted and as a result young people joined the Park Upgrade Group.
- After realising there are some very diverse views about how the available funds should be spent on the upgrade, the Park Upgrade Group suggested a workshop to help prioritise ideas.

Steps 5, 6, 7 and 8 will now need to be re-visited to organise the workshop:

5: The Assets Maintenance Area has decided to engage an external facilitator to run a two hour workshop to help prioritise ideas.

6: The local primary school hall has been booked to hold the workshop. This venue is suitable in size and has good heating, lighting and acoustics. A whiteboard, markers and a microphone will need to be booked for the meeting.

7: The workshop will be promoted via Community Connect, an article in the local newsletter, posters being placed in local shops, schools, kindergartens and businesses. Attendees will be provided with the background briefing paper prior to the meeting (via email or hardcopy once they have RSVP'ed).

8: Checklist for planning workshop prepared and timelines for implementation of subsequent actions identified (steps 9, 10 and 11) prepared. Allocates tasks to relevant Council Officers and when the tasks need to be completed.

10. The end result and Feedback

A report detailing the upgrade plan was presented to Council and adopted with some minor amendments. These and the reasons behind the changes were communicated to the Park Upgrade Group and the outcome communicated to the broader community and workshop attendees via articles in the local newspaper and local newsletter and plans being placed in local shop windows.

Implementation of the plans and budget allocation has been allocated to the relevant Business Unit of Council.

11. Evaluation

The engagement activity achieved the desired outcome – plans for the upgrade of the park have been developed with the input of the local community.

The Park Upgrade Group and workshop were successful ways of obtaining input, although next time seeking nominations for the Park Upgrade Group would be considered more carefully to ensure a wider representation from the outset.

You will complete the Internal Evaluation Checklist and recommend the process you used to upgrade the park as a useful one to colleagues who are working on similar sized projects that are not highly controversial.

Appendix 9 - Response Plan



RESPONSE PLAN

GHFF MANAGEMENT PLAN

EAST GIPPSLAND SHIRE COUNCIL

<i>Version</i>	<i>Date</i>	<i>Updated</i>
1.0	Sept 2012	May 2013
1.1	May 2013	Sept 2013
1.2	Sept 2013	Nov 2013

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1 Introduction

1.1 Purpose

The purpose of this Response Plan is to manage GHFF populations impacted by revegetation of the Grey Headed Flying Fox Roost site on the Mitchell River as part of referral 2009/5017 by the East Gippsland Shire Council under the *EPBC Act 1999*.

1.2 Objectives

This Response Plan has been developed as part of the GHFF Management and Strategic Directions Plan to provide continued guidance on management of the GHFF within the East Gippsland Shire. The key objectives of the Response Plan are to minimise the potential impacts of any disturbance actions to GHFF and to ensure any impacts are identified and mitigated.

1.3 Application

This Response Plan will be utilised by East Gippsland Shire Council (EGSC) with assistance from Department of Environment and Primary Industries (DEPI) to respond appropriately to GHFF management in a rapid, consistent and effective manner.

As no GHFF are to be disturbed from the Mitchell River roost site, a Stop Work Trigger has been incorporated into planning of any revegetation works on this site to ensure identification of the physical presence and signs of occupation prior to any works commencing on each day of the revegetation project.

1.4 Timeframe

This Response Plan is effective subject to approval from the Department of Sustainability, Environment, Water, Populations and Communities regarding referral **2009/5017** made by East Gippsland Shire Council under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999)*.

This document will be utilised in line with the staged approach of revegetation as documented in the GHFF Management Plan.

1.5 Background

East Gippsland Shire Council submitted an referral under the *EPBC Act 1999* to remove a population of invasive White Poplars (*Populus alba*) from the Mitchell River riparian corridor. The application was on the basis that the stand of *P.alba* is habitat for Grey-headed Flying-fox (*Pteropus poliocephalus*) which is classified as Vulnerable under this Commonwealth legislation. Part of the approval process was compilation of a Management Plan that detailed the proposed actions and mitigation strategies that EGSC need in place prior to approval of the action. The Response Plan will be utilised as part of the broader Management Plan.

1.6 Definitions and Acronyms

Camp – Area(s) currently being used by a significant number of GHFF.

DE – Department of Environment

Dependant Young –

- *Newborn* – totally dependant and carried by the mother
- *Flightless dependant young* – dependant upon mother, but no longer carried large distances, unable to move easily around the Camp; and
- *Flying dependant young* – dependant on mother, but able to move around the camp, can fly short distances

DEPI – Department of Environment and Primary Industries

EGSC – East Gippsland Shire Council

EPBC Act 1999 - *Environmental Protection and Biodiversity and Conservation Act 1999*

Heat Stress Event – A heat stress event can be defined as hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before December 31 or at or over 38°C.

Hot Day – days when the ambient temperature is predicted to reach 30°C before 10am, or reach greater than 35°C over the day.

Significant Stress – GHFF experiencing significant stress as identified by the discretion of DEPI Wildlife Management Staff but can include sickness, malnutrition, abnormal flight, disorientation, injury, aggression, evidence of abandoned or aborted young, death.

Site – The location of the GHFF colony

SOP – Standard Operating Procedure

The Plan – Grey-headed Flying-fox Strategic Action and Management Plan 2013

1.7 Roles and Responsibilities

Determination of the roles and responsibilities will assist in implementation of the Response Plan

ROLE	RESPONSIBILITIES
<i>Department of Environment</i>	<ul style="list-style-type: none">• Regulate the implementation of the Response Plan, the Plan and authorise changes to the Plan and Response Plan
<i>East Gippsland Shire Council</i>	<ul style="list-style-type: none">• Public Land Manager.• Responsible for implementation of the Plan. Implement dispersal actions in line with the

	Plan. <ul style="list-style-type: none"> • Assist DEPI in monitoring GHFF Colony • Respond to community issues regarding GHFF • Provision of Communication actions in line with the Plan
<i>Department of Environment and Primary Industries</i>	<ul style="list-style-type: none"> • Wildlife Manager. • Assist with dispersal actions as required. • Monitor GHFF Colony. • Respond to community issues regarding GHFF
<i>Project Manager</i>	<ul style="list-style-type: none"> • Implement the Plan. • Manage the Plan and assist with monitoring. • Responsible for Report Compilation and reporting to DE and DEPI.
<i>Participants</i>	<ul style="list-style-type: none"> • Implement any activity as directed by DEPI and/or Project Manager.
<i>Residents and Community</i>	<ul style="list-style-type: none"> • Notify DEPI and EGSC of issues with dispersal and GHFF management.

2 Planning

This section highlights the planning process for implementation of any response to GHFF management after commencement of the staged removal of vegetation on the Mitchell River Site.

2.1 Detection

Detection of new populations of GHFF emerging after commencement of revegetation activities will rely largely on reports from the community and through liaison with other agencies.

2.2 Verification

All reports from the community will need to be verified as to the exact location and population levels. Co-ordinates in GDA94 (UTM) will be taken at each site and an assessment of population levels at that time. The assessment process will commence as to whether the site will be acceptable or unacceptable in accordance with Step 1 of the assessment process as listed in **Section 3**.

2.3 Notification

The DEPI, EGSC and landowner or land manager will be notified as to the confirmed location of GHFF populations.

2.4 Assessment

Assessment process will commence in line with **Section 3** of this Response Plan. If a dispersal is required due to the site being unsuitable, the assessment will incorporate identification of the presence of lactating females or flightless dependant young.

2.5 Surveillance

Monitoring of new sites will need to be conducted daily to measure population level fluctuations. If the site is not subject to an emergency dispersal, this will give an indication of whether the GHFF population will establish a fidelity to the site.

2.6 Response

The appropriate response will be in line with documented Disturbance Procedures if required which could result in dispersal from new site. All dispersal actions will be implemented in line with the level of incident hierarchy, documented in **Section 4** on this Response Plan.

3 Site Assessment

Assessment of any site will be essential in determining the suitability for the longer term presence of GHFF in meeting their ecological requirements and limiting opportunity for conflict with the community.

Any assessment will incorporate use of multi-criteria decision analysis (a decision support tool) which will allow a consistent approach to new site assessments.

3.1 Site Analysis

Using the information available from existing methods for analysis of suitability of new sites and also documented research of GHFF ecology, a scoring system has been developed to provide a consistent approach to assessment of new sites.

Using the factors as described in **Section 3.2** a scoring system is applied where each factor scored in line with the importance of each factor for GHFF ecology.

Factor	Reasoning	Measure
3.2.1 Land Use	Given the risks associated with the presence of GHFF on public health, it is considered that areas where risk to the public is high automatically disqualifies the suitability of the site for short and long term presence of GHFF.	Qualitative -1 to 1 Scale of Suitability (1 being the best)
3.2.2 Size	The highest population count at the Bairnsdale site of over 34,000 individuals needs to be accommodated at a new site. Five hectares is considered to be average for other camps.	Quantitative Area in Hectares (ha) 0-4 Scale of Suitability (4 being the best)
3.2.3 Foraging Radius around Site	The further the colony shifts away from the roosting site will alter the distance from the original foraging resources.	Quantitative Distance (km) 0-4 Scale of suitability (4 being the best)
3.2.4 History of GHFF Use	If GHFF have been recorded using the site previously it indicates that it provided a resource that the utilised, and as such may be able to provide resources should GHFF return to the site.	Qualitative 0-2 Scale of suitability (2 being the best)
3.2.5 Adjacent Land Use	A measure of suitability to minimise conflict with community and wellbeing through noise, odour or other impacts, minimise impact to agricultural areas and recreational areas.	Qualitative 0-4 Scale of suitability (4 being the best)
3.2.6 Proximity to Waterway	GHFF are known to select camps nearby to watercourses. General habitat characteristics of GHFF highlight roosting in close proximity to waterways.	Quantitative Distance (km) 0-2 Scale of Suitability (2 being the best)
3.2.7 Proximity to Established Sites	Other sites that accommodate GHFF during the season could potentially support increases population sites.	Quantitative Distance (km) 0-4 Scale of Suitability (4 being the best)
3.2.8 Land Tenure	Public land is considered to be appropriate for assessment as to the longer term occupation of the site. Private land could potentially be suitable but assessment will only commence on consent from the landowner.	Qualitative 0-1 Scale of Suitability (1 being the best)

3.2.9 Vegetation Structure	Long term acceptance by GHFF will require sufficient ecological resources to support an extended population and exhibit preferential characteristics. These include structure, canopy dynamics, location, foraging resources and nearness to water. Given the research highlighting preferential characteristics of GHFF in other established camps, increased numbers of characteristics can potentially be more suitable for the longevity of the site to establish a campsite.	Qualitative 0-4 Scale of Suitability (4 being the best)
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3.2 Assessment Factors

3.2.1 Land Use

The use of the land in the immediate vicinity of where the population has relocated will be assessed to ensure it does not require an **emergency dispersal** (see **Section 4**). Such locations are areas where;

- Public health and safety is at immediate risk (eg. Hospitals, Medical Centres, Educational Institutions, Aged Care Facilities, Daycare Centres, Airports);
- There is potential for spread of disease through vectors (eg. Racecourses, Horse Stud properties, perceived risk to domestic livestock);
- Colony has relocated near to susceptible individuals where health is of concern;
- Where physical contact with humans is imminent.

Should the site be deemed inappropriate and subject to an emergency dispersal, it will not be assessed by any other factors in the assessment process. All other areas that are deemed not to be subject to an emergency dispersal will be assessed for suitability in line with this Response Plan.

LAND USE	Public health not at risk	1
	Further Assessment	0
	Public health at risk	-1

3.2.2 Size

The size of any new potential site will need to accommodate a population of up to 34,000 individuals as counted in May 2006 at the Mitchell River site. Roberts (2005) suggests that a minimum of 1ha is sufficient to accommodate GHFF populations at an alternative site. A size of 5ha or above of continuous vegetation is considered to be sufficient to accommodate a population size at the highest levels recorded. A larger site also allows regeneration of defoliated trees by reduction of roosting site pressure.

The assessment that supported the relocation of GHFF from the Botanic Gardens in Melbourne suggest that most camps are between 5-6ha, and contain a core area of between 0.5 to 2 ha. As such areas that are under 5 hectares in size are regarded as unsuitable as they will not support a GHFF at its maximum size as counted at the Bairnsdale site.

SIZE	Greater than 5 hectares on continuous vegetation	4
------	--	---

	Greater than 5 hectares of fragmented vegetation	3
	Less than 5 hectares but can sustain lower population levels	2
	Less than 1.5ha size of Mitchell River Site	1
	Less than 1 hectare	0

3.2.3 Foraging Radius around Site

Given that GHFF typically habitat within a 20km area of the roosting site, distance of food source will limit the longer term acceptance of the site by GHFF. Locations closest to the original site are considered to be better suited for long-term occupation as this decreases the foraging distance from their original food source.

DISTANCE FROM ORIGINAL SITE	Less than 5 km from original site	4
	between 5 and 10 km from original site	3
	between 10 and 15 km from original site	2
	between 15 and 20 km from original site	1
	over 20+ km	0

3.2.4 History of GHFF Use

If GHFF have been recorded using the site previously it indicates that it provided a resource that the utilised, and as such may be able to provide resources should GHFF return to the site.

HISTORY OF USE BY GHFF	GHFF known to have utilised site previously in more than one instance	2
	GHFF known to have utilised site previously in one instance	1
	GHFF not known to have utilised site previously	0

3.2.5 Adjacent Land Use

Adjacent land use will be assessed as to whether there is opportunity for justified conflict to arise with the community. Such areas could include recreational parks or visitor nodes, impacts on agricultural production, or proximity to residential areas and be considered to impact on health or wellbeing through noise, odour or other impacts.

Acceptable adjacent land use could be tracts of forest or areas of no public interface

ADJACENT LAND USE	Adjacent land use will not impact on or be impacted on by GHFF (0%)	4
	Some adjacent land use will be impacted on (25% or less)	3
	Some adjacent land use will be impacted on by GHFF (25%-75%)	2
	Adjacent land use will be impacted in by GHFF (75% and over)	1
	Adjacent land will be impacted on by GHFF(100%)	0

3.2.6 Proximity to Waterway

GHFF preferentially select sites that are in close proximity to a waterway. This allows GHFF to drink locally and also to use the water source to cool during heat events. A distance of 500m from a waterbody is considered unacceptable for a roosting site given the species requirements for a water source

PROXIMITY TO WATERWAY	Less than 500 m from fresh waterbody	2
	Less than 500 m from an estuarine waterbody	1
	Greater than 500 m from a waterbody	0

3.2.7 Proximity to Established Sites

Established GHFF sites will be able to accommodate additional individuals should the population relocate. Assessment of these sites will be undertaken as to the longevity and suitability for increased population levels.

DISTANCE TO ESTABLISHED SITES	Less than 5 km from original site	4
	between 5 and 10 km from original site	3
	between 10 and 15 km from original site	2
	between 15 and 20 km from original site	1
	over 20+ km	0

3.2.8 Land Tenure

Land tenure is an important consideration in determining the acceptability of any alternative sites. EGSC is land manager for a number of areas of Public Land, typically associated with urban areas. Other public space will be considered and appropriate land managers will be consulted as to the long-term acceptability and security of the site. Private landholders will need to be consulted as to their acceptance of the GHFF roosting population should they relocate to private land tenure. Private land will not be considered as suitable within the initial assessment due to the inability to assume acceptance by the landowner.

LAND TENURE	Public Land Tenure	1
	Private Land Tenure	0

3.2.9 Vegetation Structure

Vegetation selected by GHFF as a roosting site is considered to have some similar characteristics across all sites as highlighted in **Section 4.1.5** in The Plan.

- Closed canopy;
- Continuous canopy area > 1 ha;
- Within 50km of the coast and at less than 65 asl;
- Close proximity to waterways (<500m);
- Level topography;
- Canopy height 8m and above; and
- Positioned with a nightly commuting distance of generally less than 20km of sufficient food resources.

Given the damage that a GHFF colony can do to existing vegetation, assessment of the vegetation type and categorising in line with Ecological Vegetation Classification

(EVC) (under *Native Vegetation Framework 2002 or successor*) will assist in determination of impacts from GHFF roosting on potentially endangered vegetation communities.

VEGETATION TYPE	Site contains predominantly riparian vegetation	4
	Site contains some riparian vegetation or preferential vegetation for GHFF	3
	Site contains assorted vegetation types mixture of preferential and non-preferential	2
	Site contains some roost trees, lacks microclimatic requirements	1
	Site contains unsuitable vegetation	0
CLOSED CANOPY	Site has closed canopy	1
	Site has open canopy	0
CONTINUOUS CANOPY	Site has continuous canopy greater than 1 ha	1
	Site does not have continuous canopy greater than 1 ha	0
CANOPY HEIGHT	Canopy height 8m and above	1
	Canopy height below 8m	0
LOCATION	Site located within 50km of coast	1
	Site located further than 50km of coast	0
	Site under 65m asl	1
	Site above 65m asl	0
FORAGING DISTANCE	Sufficient resources less than 20km from new site	1
	Sufficient resources greater than 20km from new site	0

3.3 Results of Assessment

If the assessment of Land Use denotes that the site is unsuitable and should be subjected to an emergency response (see **Section 5**), disturbance actions shall be implemented as soon as practicable.

Assessment of each remaining site within the given criteria will allow determination if the population can roost temporarily to avoid impacts on the breeding cycle of the colony or remain on site longer term. The assessment results and appropriate actions for each scenario are discussed further in **Section 4**.

4 Contingency and Mitigation

Three situations can result as part of the assessment process;

- GHFF occupy an inappropriate site
- GHFF occupy a temporarily acceptable site
- GHFF occupy an acceptable longer term suitable site.

Each situation will be assessed through the Site Assessment method (**Section 3**) to determine if the site is acceptable for occupation. This assessment will determine if dispersal is appropriate at each site. To reduce and where possible eliminate impacts on GHFF Stop Work triggers will be utilised to determine if disturbance actions should be implemented.

4.1 GHFF occupy an inappropriate site

It cannot be determined or predicted where GHFF will occupy if they abandon the Mitchell River Roost site. Should GHFF relocate to an area of immediate risk to health and wellbeing or where risk of disease transmission is heightened, an emergency response will be implemented in line with **Section 5**.

4.2 GHFF Occupy a Temporarily Acceptable Site

Temporary sites would be considered to not meet the longer term ecological requirements of GHFF but provide enough to temporarily host the population for the season and allow continuation of the breeding cycle at that site. As such, dispersal from these sites would only be implemented at the end of the key breeding period (May-June), if required at all. Modification of vegetation may be all that is required to prevent re-occupation in following years.

4.3 GHFF Occupy an Acceptable Long-Term Site

If the site is determined to be suitable for longer term occupation (ie seasonally every year), EGSC will provide stewardship for the welfare of the local GHFF population and roost vegetation and aim towards permanent protection of the site. Undertaking any action regarding land stewardship will be negotiated with each landholder and cannot be determined at present.

5 Emergency Response

An **emergency response** will be undertaken should GHFF relocate to an area where;

- Public health is at immediate risk (ie Hospitals, Medical Centres, Educational Institutions)
- Potential for spread of disease through vectors (ie Racecourses, Horse Stud properties, perceived risk to domestic livestock);
- Located near to susceptible individuals;
- Where contact with humans is imminent.

An emergency response is considered to be an immediate reaction where a report of GHFF presence is confirmed and determined to present a risk to public health. These sites have priority over other sites for dispersal actions. The disturbance actions will be the same for each site and are detailed in **Section 7**.

Timing of arrival and occupation within the East Gippsland area is usually limited to between November and May as seen in recent years. Given that GHFF normally birth between September to October, with a lactation period of up to 12 weeks, dispersal actions need to account for the presence of lactating females in an emergency situation and limit the amount of stress caused to the animals.

6 Dispersal Team Structure

The structure will be dependent upon the level of incident. EGSC utilise the Australasian Inter-service Incident Management System

To ensure that GHFF welfare is accommodated, DEPI Wildlife Management personnel will be available to assist.

Key Points

- All personnel involved in dispersal operations must operate under the chain of command and reporting arrangements established by the AIIMS structure. Any person operating outside of these structures will be asked to cease involvement immediately.
- All volunteer communication queries will be put through to the Incident Co-ordinator via the Project Manager in the field (except in an emergency where human safety is at risk).
- Dispersal Team Leaders will have no more than five personnel reporting to him/her at any one time, as per AIIMS requirements.

6.1 Level 1 Incident

A **Level 1** Incident will involve an Incident Controller and one dispersal team (including the Project Manager).



Figure 1 - Level 1 Incident Reporting Structure

A Level 1 Incident is considered to be able to be managed by 3 personnel. This situation would result from an isolated population occurrence at another location after vegetation removal. Assessment would take place to determine if an emergency dispersal is required from a confirmed site. The Incident Controller will determine if additional resources will be required to implement a Level 1 Incident Response.

6.2 Level 2 Incident

A Level 2 Incident will involve an Incident Controller, Project Manager and a dispersal team for each site up to 5 sites. Within the reporting structure, the Incident Controller will be responsible for the Project Manager. The Project Manager will be responsible for the deployment and management of dispersal teams, with each team having a nominated Dispersal Team Leader.



Figure 2 - Level 2 Incident Reporting Structure

A Level 2 Incident is considered to be managed by multiple staff and volunteers. This situation would result from up to 5 scattered populations occurring across the region and requiring substantial increased resourcing. Assessment would take place to determine if an emergency dispersal is required from each confirmed site.

6.3 Level 3 Incident

A Level 3 Incident will involve an Incident Controller, Operations Officer (s), Project Manager and multiple dispersal teams with each team having a nominated Dispersal Team Leader.



Figure 3 - Level 3 Incident Reporting Structure

A Level 3 Incident will be managed by multiple staff from multiple agencies and volunteers. This situation would result from over 5 scattered populations occurring across the region and potentially also triggered in times of extended heat events. This would involve a multiple agency and welfare group response and require substantial co-ordination from the Incident Management Team. Additional Operations Officers and associated Team Leaders and Assistants can be recruited if the number of sites involved increases beyond 10 sites.

6.4 Documentation

To ensure that information is current, a weekly Situation Report will be compiled by the Project Manager during the works program to ensure that all agencies involved have current information for distribution. The template for this Report is included in Appendix 2.

7 Disturbance Procedures

7.1. Personnel Induction

All personnel involved with any disturbance procedures need to be aware and involved in the following

- The Occupational Health and Safety Policy of the East Gippsland Shire Council and associated requirements of all personnel involved in disturbance actions ;
- Any hazards and risks that have been identified and entered into Safe Work Method Statements (SMWS) that are applicable to the task;
- The necessity to report all actions to their Supervisor and Project Manager;
- Only DEPI personnel that have been vaccinated against Australian Bat Lyssavirus and trained in animal welfare are able to handle GHFF;
- The procedures for implementing each disturbance level;
- The key reasons behind the action and the necessity for accurate reporting; and
- Understand that confrontation with the public may be experienced and not to aggravate the situation, and to report immediately to the Project Manager.

These points will be covered at every pre-dispersal meeting and prior to commencement of any disturbance action.

7.1.1 Occupational Health and Safety Requirements

GHFF are carriers of some diseases that are considered to be harmful to human health. These include Australian Bat Lyssavirus, Nipah virus and Hendra virus. Any potential contact with GHFF needs to be controlled and mitigated.

The Project Manager is responsible for the safety and wellbeing of all individuals on site. The Project Manager will be First Aid Level II qualified and will have First Aid requirements onsite at all times.

No animal is to be handled at any point during the dispersal actions by another other than authorised officers from the DEPI.

During dispersal actions all personnel involved will be required to wear Personal Protective Equipment (PPE) including approved safety glasses, wide brimmed hats, long pants and long sleeved shirts, earplugs during times of excessive noise levels and also gloves when walking through areas of vegetation. Additional personal safety items will be required also including sunscreen and additional drinking water.

Volunteers involved with the activity will be subject to the following requirements;

- All staff and volunteers attend a pre-dispersal brief with the Project Manager prior to participating in dispersal operations to ensure they are familiar with the procedure and protocols;
- If driving a 4x4 vehicle off road, all staff or volunteers must have 4WD Accreditation;
- Wear approved PPE;
- Participate in only one incident role at any given time; and
- Read and understand these protocols, register their attendance at the beginning and end of each shift, and sign the Self Declared Health Checklist (**Appendix 1**).

7.2 Communication of Activities

Effective communication is imperative to ensure the success of dispersal actions. Prior to dispersal the following steps should be implemented within the Emergency Reporting Structure detailed in **Section 6**.

- Affected residents and the local media should be informed prior to the dispersal attempt to minimise unexpected disturbance to the community (e.g. pamphlet drops, notice to residents, notification in newspaper, radio announcement).
- All persons involved in the operation must be briefed about their role and responsibility during the operation. This includes the instructions in occupational health and safety requirements in **Section 7.1.1**.
- Tasks should be delegated to personnel according to their experience and their responsibility

All points of contact in both DEPI and EGSC will be provided with a summary of the process and frequently asked questions relating to undertaking dispersal activities.

7.3 Dispersal Procedure

Each staged tree removal on the Mitchell River Roost Site may precipitate movement of GHFF to other sites in the region. Planning for potential movement to inappropriate sites must be put in place each spring to ensure that if monitoring by the community, EGSC or DEPI detects any new roosting sites are being selected by GHFF in the East Gippsland region. Prompt dispersal actions are important to prevent GHFF developing fidelity to an inappropriate site.

When it is determined that GHFF are roosting in a site it will be necessary to make a decision promptly as to whether it is a site requiring an emergency response or a site where temporary or permanent residence may be appropriate taking into account disruption of the breeding cycle.

Given the inability to predict where GHFF will select for a roost site, dispersal could occur on any land tenure, be it public or private land. All land managers will be consulted and involved as their cooperation is critical to accessing the site and implementing dispersal actions. Permits to disperse will be sought from DEPI under the *Wildlife Act 1975*.

7.3.1 Adaptive Management Actions to Minimise Impacts to GHFF from Dispersals

Inappropriate Sites

It is recognised that in the event GHFF reside in an area that poses a risk to public safety as a result of the staged removal of the poplars on the Mitchell River, the camp will need dispersed as soon as possible until the GHFF are settled in an appropriate location. Therefore, there will be different approaches to dispersal of GHFF from sites, depending on the time of the year.

Time of year: May-July

Stage in the breeding cycle: early pregnancy

Dispersal conditions: GHFF have been present at the Mitchell River camp during this period and large numbers of bats have been recorded historically in the month of May. During this period, pre-dawn and evening disturbances will be used to encourage bats to leave the site. To minimise stress, a limit of three dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.

Time of year: August-September

Stage in the breeding cycle: late pregnancy

Dispersal actions: It is recognised that abortion during the later stages of pregnancy may occur. Bats will not be dispersed from any sites during this period..

Time of year: October-February

Stage in the breeding cycle: non-flying, dependent young and independent but flightless pups

Dispersal actions: DEPI Officers will conduct pre-dispersal evening fly-out surveys of the colony to determine if there are any independent but flightless pups. If any young are observed that are no longer being carried by their mother but are incapable of sustained flight are observed, no dispersal activity will occur. If mothers are carrying dependent young, evening and pre-dawn disturbance will be used to encourage the bats to leave the area. Disturbance will cease if flightless young are found during the disturbance. To minimise stress, a limit of two dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.

Time of year: March-April

Stage in the breeding cycle: mating and conception

Dispersal actions: To prevent disturbances to mating events, which occur during the day at the camp site, only evening and pre-dawn disturbances will be used to disperse the colony during this period dawn and evening disturbances will be used to encourage bats to leave the site. To minimise stress, a limit of three dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.

Temporarily Acceptable Sites

Wherever possible, dispersal actions at temporarily appropriate sites will be restricted to the period May-June, but given that the species is often absent in the Bairnsdale area during this period, an adaptive management response will need to be implemented, so that EGSC can disperse the colony from temporarily appropriate sites when the bats arrive, with the exception of the period August - September. Therefore, the adaptive management response for inappropriate sites will be implemented. Modification of vegetation will be implemented when bats are absent

as another means to discourage the colony from re-establishing at temporarily appropriate sites.

Acceptable Long-term Sites

Management of colonies which establish at sites deemed to be temporarily acceptable will be carried out in accordance with the contingencies outlined in **Section 4** of the Response Plan.

Re-Dispersals

It is impossible to determine cumulative impacts on GHFF from re-dispersals and therefore re-dispersals will be limited. In the event that a colony establishes at an inappropriate site as defined in the Response Plan, re-dispersals can occur until the colony settles in a site that is either temporarily acceptable or acceptable in the long term. In this case of a colony settling in a temporarily acceptable site, only one re-dispersal will occur in any 12 month period to limit cumulative impacts.

7.3.2 Behavioural changes

It is acknowledged by EGSC that the disturbance activities associated with dispersals may cause stress to GHFF. This has been minimised by restricting dispersals from temporarily acceptable sites to the period May-July, which is has the least impact in terms of the disruption to the reproductive cycle. Heat stress during dispersal will be managed in accordance with the protocols set out in **Section 7.4 Stop Work Triggers**

7.3.3 Levels of Intensity

Increasing levels of intensity will be required should GHFF ignore or be unaffected by the lowest intensity disturbance created on the dispersal site.

Level 1 disturbance is aimed at creating the minimal amount of disturbance to create discomfort on the immediate return of GHFF to the selected roosting site. This can be created through use of spotlights and noise generated by swishing branches underneath and around the roosting trees to discourage settling in the trees.

Level 2 disturbance is aimed in creating increased noise levels in the event GHFF ignore or are unaffected by Level 1 intensity. This will be achieved by banging together metal objects to increase noise levels and discouraging GHFF to move away from the noise or leave the site all together.

Level 3 disturbance is aimed at creating further increased noise levels and potentially emitting louder and higher frequency noise through the use of amplifiers to play sounds that can be directed at GHFF.

7.3.4 Disturbance Actions

The Dispersal Team(s) should be placed to cover the entire campsite. People should be placed directly beneath roost trees. Three intensity levels are considered so that increasing levels of noise and disturbance, which may disturb local residents and are only strictly necessary to prevent roosting by GHFF, are only used if required.

<i>Intensity Level</i>	<i>Escalation Trigger</i>	<i>Actions Undertaken</i>
Level 1	Undertaken for 45 minutes. No effect on GHFF, remain undisturbed.	Proceed to Level 2 intensity, if no Stop Work Trigger has been identified.

Level 2	Undertaken for 45 minutes. Limited effect on GHFF, remain undisturbed	Proceed to Level 3 intensity, if no Stop Work Trigger has been identified.
Level 3	Undertaken for 45 minutes. Limited effect on GHFF, remain undisturbed	The activity will cease and further efforts will need to be made on subsequent days as required.

If a site is repeatedly used by GHFF over time where disturbance is unsuccessful it may also be appropriate to consider using non-lethal automated systems using lights or noise devices triggered by GHFF visits such as that which are used to prevent GHFF from raiding fruit trees. Individual systems would need to be designed for any one site and may be sourced from appropriate suppliers of such equipment. Any such systems would be implemented through a permit from DEPI and with consultation of Department of Sustainability Environment Water Populations and Community.

7.3.5 Modification of Selected Sites

If appropriate for the circumstances of the site and it is determined to be an effective and necessary, a site might be modified to reduce the attractiveness of the site for GHFF roosting.

Actions may include:

- Pruning horizontal branches large enough for roosting;
- Removing shrubs or groundstorey to reduce the humidity of the site and increase access for sunlight.

Any vegetation modification work would only occur when the site is unoccupied in daylight hours and after GHFF have been dispersed from the site. Consultation with DEPI in relation to State vegetation removal requirements under the *Native Vegetation Framework 2002* will also be undertaken.

7.3.6 Monitoring and Reporting on Disturbance Actions

Each Dispersal Team Leader will be required to collate and provide information for every site and every occurrence of disturbance. Collection of information is highly important to influence future activities and to determine any detrimental impacts on GHFF. The template for reporting is included at **Appendix 3**.

Monitoring of sites that have been subjected to dispersal actions will be monitored on a daily basis by either EGSC or the land manager to ensure that dispersal actions have been successful and to implement further immediate action should GHFF return after dispersal actions have ceased. A dispersal will be considered successful is GHFF do not return to the site after actions are implemented and do not return to the site in following seasons.

Monitoring will include collation of information of GHFF movement and camp size fluctuations before and after any dispersal actions. Collation of information about the fluctuations of camp sizes and behaviour at new sites may be an indicator of whether GHFF establish a fidelity to the site.

7.3.7 Responsibility for new colonies

It is possible that colonies establish camps at new sites during and after the staged removal of the vegetation at the Mitchell River camp site. Without tagging, it will be impossible to distinguish which new camps are the formed as a result of the disturbance to Mitchell River camp and which are new colonies whose establishment is not related to the revegetation works at the Mitchell River site. Given this uncertainty, EGSC accepts the responsibility for the management of any and all colonies that establish within a 5 year period following Stage 3 of the revegetation program. New colonies that establish after 5 years will not be the responsibility of EGSC to manage as part of any approval conditions stipulated under the EPBC Act.

7.4 Stop Work Triggers

7.4.1 Revegetation of Mitchell River Roost Site

To mitigate stress levels on potentially pregnant and lactating females within the colony, adoption of Stop Work Triggers and appropriate timing of works will be essential in ensuring GHFF welfare on the Mitchell River revegetation site.

The DEPI will be consulted and approval sought prior to commencement of any scheduled works onsite to ensure GHFF are not occupying the roosting site.

No works are to be undertaken on site whilst GHFF are present or within the vicinity of the site. Works have been timed to facilitate limited interaction with the GHFF during their usual period of absence from the Bairnsdale site.

Twice daily checks will be undertaken and recorded by the Project Manager and staff to ensure that works do not commence if GHFF are present or surrounding the site and that works will cease if any GHFF arrive on site whilst works are being undertaken. The Stop Work Trigger template for Revegetation activities is included in Appendix 5.

7.4.2 Dispersal of GHFF

The following Stop Work Triggers for dispersal actions was developed as part of the Yarra Bend Standard Operating Procedure and can be utilised as part of dispersal actions undertaken by EGSC with assistance from DEPI. This stop work trigger was developed to limit the impacts on the behaviour and to limit potential impacts on breeding and lactating females on site

A stop work trigger will apply if the following are determined by EGSC and DEPI;

- Any female GHFF are giving birth in the area(s) subject to the dispersal activity;
- More than 5% of dependant young subject to the dispersal activity are Flightless dependant young;
- The day of the proposed activity is a Hot Day, predicted to reach 30°C before 10am or reach greater than 35°C over the day
- A Heat Stress Event have been declared by a Senior DEPI Manager either the day of or within two days on the proposed dispersal activity
- More than 5% of GHFF subject to the dispersal activity are showing signs of Significant Stress; or

- Anything else at the discretion of the Project Manager or the DEPI Wildlife Management Unit.

The Stop Work Trigger is assessed in the Pre-planning Phase of the Daily Activities Report as attached in Appendix 3.

8 Data Collection and Reporting

Data collection will be paramount in determining the appropriateness of dispersal actions at each site. Collection of information about the population characteristics of each satellite community will enable identification of any applicable stop-work triggers prior to any actions commencing.

Reporting will be undertaken by EGSC to fulfil the requirements of the proposed actions regarding GHFF management and will incorporate statistics and information on GHFF dispersal activities.

To ensure currency of information, all aspects of the project including potential dispersal will be recorded and utilise the following documents:

- Stop Work Trigger – Revegetation (Daily)
- Nudging Activities Daily Report – Dispersal (Each Site)
- Dispersal Actions Summary – (Monthly and Annually)

Reports of dispersal activities will be submitted to SEWPAC at the end of each month where activities occur until advised otherwise. The Project Manager will be required to collate information pertaining to dispersal and submit this report to SEWPAC.

An Annual Report will be submitted to SEWPAC until Wildlife Management Officers from the DEPI decide that the colony has settled and established fidelity to the new site. As such reporting requirements from EGSC will cease from this point.

9 Review and Updating

This Response Plan is subject to review at any point given feedback on the positive or negative effects of any dispersal activities. Such advice can be given by involved agencies including the DEPI and SEWPAC.

The Project Manager will assess the currency and validity of the Response Plan and The Plan annually and propose changes. Such changes will need to be assessed as to whether the proposed change is classified as a 'significant change' and is subject to approval by SEWPAC and other applicable authorities.

Advice can be obtained by the Monitoring and Approvals Section with SEWPAC at post_approvals@environment.gov.au. All Response Plan changes must also be registered internally and the current copy distributed to applicable staff and departments.

Appendix 1 – Volunteer Registration

VOLUNTEER Self-Declared Health Checklist

It is important for people working with GHFF who have been diagnosed with certain medical conditions to advise their supervisors of their condition. Some conditions may need special arrangements to be made or certain precautions to be taken to ensure safe working conditions are implemented and that the best medical history be provided to first-aid or ambulance officers, in the event of an incident.

Volunteers who require additional confidential advice regarding an existing medical condition may be referred to their treating doctor or to the Fire Agency medical advisors for further assessment.

The following list of medical conditions may impact on your safety in the bush and you should seek further clarification regarding your involvement and safe management.

Please tick where relevant:

- ☐ Severe allergies, for example bees, wasps, plants, pollens, foods etc.
- ☐ Any heart condition including angina, valvular heart disease, high blood pressure, palpitations or arrhythmias.
- ☐ Respiratory problems including asthma requiring regular treatment or any other chronic lung disease.
- ☐ Any history of fits, faints or blackouts.
- ☐ Any chronic neurological disease.
- ☐ Joint or muscle problems that may affect your mobility or balance.
- ☐ Diabetes, especially if there is a history of hypoglycaemia or insulin reactions.
- ☐ Acute infections including respiratory, soft tissue and urinary tract infections.
- ☐ Any other medical condition for which you are receiving on-going medical treatment or medication.

If you have ticked any of the above, please describe your condition:

Please note that the above list is indicative of conditions that may affect a person's safe working practice in certain locations. It is not exclusive. If you have concerns about your medical history, please seek further advice before commencing your involvement in volunteer wildlife activities.

I declare that the information I have provided is true and correct, and consent for it to be utilised, under the circumstance where it may assist in my treatment in the event of an incident.

Signed:

First Name: _____ Surname: _____

Date: _____

EGSC and DEPI commits that the information provided will be managed in accordance with the Information Privacy Act 2000, Health Records Act 2001 or the (Cth.) Privacy Act 1988 and where relevant, the Freedom of Information Act 1982 and the OH&S Act 2004

Appendix 2 – Situation Report

Grey-headed Flying-fox SITUATION REPORT

Incident Name: Mitchell River Revegetation Site

District:

Region:

Date:

Report Number:

Works undertaken on site:

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Stop Work Trigger Action:

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1 Monitoring of Colony

Eg. Have GHFF Arrived on site
Eg. Current population levels

2 Communications

Eg. Distribution of Information to Community
Eg. On-site Signage installed

3 Community Response

Eg. Number of responses received from the community

4 Incident Organisation and Management Framework

Eg. Task Force Meetings Dates and Actions
Eg. Emergency Response

GHFF Situation Report

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Appendix 3 – Dispersal Activities Daily Report

Grey Headed Flying Fox DISPERSAL REPORT

Phase 1: Pre Planning	PROJECT MANAGER:	DATE:
Temperature on Date of Dispersal:	Predicted at 10am:	Predicted at 12pm:
Site Information:	Population Levels:	Proportion of 'Flightless Dependant Young':
Stop Work Trigger if 'Yes' to any of the below the Stop Work Trigger is activated		
Are any female GHFF in the area(s) subject to the disturbance activity giving birth?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Of the dependent young subject to the nudging activity, are more than 5% 'Flightless Dependant Young'		Yes <input type="checkbox"/> No <input type="checkbox"/>
Is the day of the proposed nudging activity a Hot Day (predicted to reach 30°C before 10am or reach greater than 35°C over the day?)		Yes <input type="checkbox"/> No <input type="checkbox"/>
Has a Heat Stress Event been declared by a Senior DEPI Manager either for the day of the disturbance activity or the day either side?		Yes <input type="checkbox"/> No <input type="checkbox"/>
Are more than 5% of GHFF subject to the activity showing signs of Significant Stress?		Yes <input type="checkbox"/> No <input type="checkbox"/>
Are there any other reasons preventing activities from taking place? If Yes:		Yes <input type="checkbox"/> No <input type="checkbox"/>
Any Other Information:		
STOP WORK TRIGGER ACTIVATED		Yes <input type="checkbox"/> No <input type="checkbox"/>

Phase 2: Dispersal Survey	Pre-dispersal Meeting Held?:	No of Personnel:	
Has OHS been discussed?	Have SWMS been revised and distributed?	Issues Raised:	
Dispersal Activity Commence:	Dawn:	End of Activity:	
Length of time at each intensity?	Level 1: Reason for implementing Level 2:	Level 2: Reason for implementing Level 3:	Level 3: Reason for ceasing activities:
Additional Stop-work Triggers encountered during dispersal activity? Yes <input type="checkbox"/> No <input type="checkbox"/>	If so, which was triggered?		
Are any GHFF showing signs of Significant Stress: Yes <input type="checkbox"/> No <input type="checkbox"/> Number of GHFF? Percentage of population? Signs for Significant Stress? Actions taken?			

Phase 3: Post Dispersal Survey		
Were any deceased GHFF located on the dispersal site? Yes <input type="checkbox"/> No <input type="checkbox"/>	Number of Deceased:	Presumed cause of death:
Did GHFF return to the dispersal site? Yes <input type="checkbox"/> No <input type="checkbox"/>	Number returned:	
Where did the GHFF go (if known) or what direction did they head off?	New location:	Direction flown:
Costs of Dispersal Actions:	Hours of personnel involved:	Equipment utilised:

Appendix 4 – Dispersal Report Template

SUMMARY REPORT ON DISPERSAL ACTIONS

Date of Report:

Compiled By:

Dispersal Summary.

Number of dispersals undertaken:

Number of sites that were subject to dispersal:

Number of sites subject to repeated dispersal:

Numbers of GHFF subject to dispersal (max, min and average):

Time spent undertaking dispersal actions (max, min and average):

Time spent undertaking dispersal actions at each intensity level (max, min and average):

Summary of any Stop-work Triggers prior to and during the dispersal:

Summary of Significant Stress observed, actions taken and results:

Summary of GHFF injury and deaths as result of dispersal actions:

Data Analysis:

Brief outline of how the dispersal actions were implemented and the success of implementation given the outcomes regarding number of GHFF experiencing signs of Significant Stress.

Recommendations:

Discuss any changes to the Response Plan for approval.

Appendix 5 – Stop Work Trigger Mitchell River Revegetation Site

DATE:..... TIME:.....

NAME:.....

POSITION:.....

WORKS REQUIRED:

ASSESSMENT STEPS:

1) Has DSE confirmed arrival of GHFF?

.....

2) Has DSE confirmed works can go ahead prior to commencement of works?

.....

3) Are any Grey-headed Flying Foxes present in the canopy within or around the worksite?

.....

4) Are there any Grey-headed Flying-foxes present in surrounding vegetation?

.....

5) Is there any evidence of Grey-headed Flying-fox recent occupation? ie scats or scent?

.....

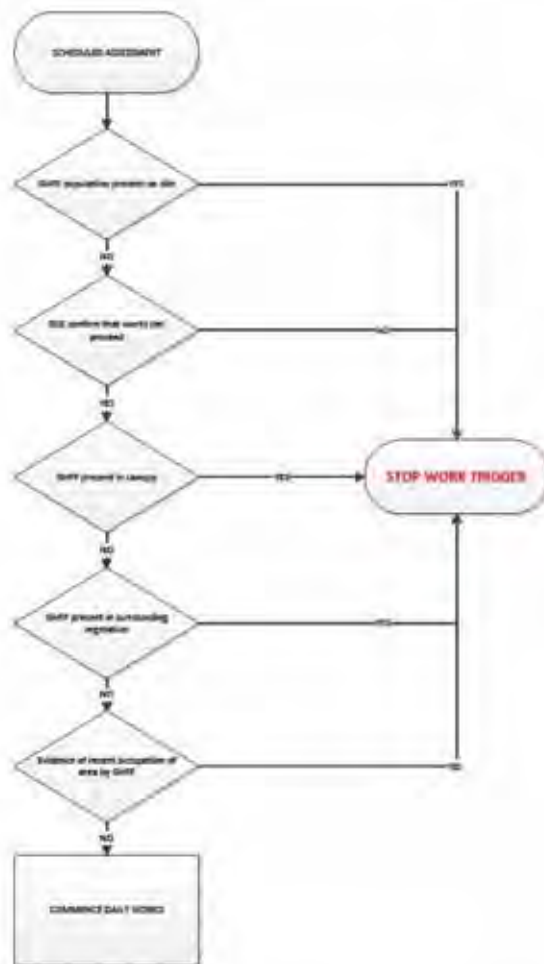


Figure 1 – Basic Steps for Daily Scheduled Assessment

Grey-headed Flying-fox Identification

Species Information

Grey-headed Flying-foxes are a native faunal species that occur along the eastern coast of Australia. They are usually seen at dusk exiting the camp to gather nectar and fruit nearby, and return before dawn to settle into the larger trees for the day.

Key identification characteristics that assist in identifying GHFF are:

- Animal is larger than average bats, up to 1kg in weight and a wingspan of 50cm;
- Has an orange and brown circle of fur around the neck;
- A grey head with greyish fur along the belly ;
- Fur continues along legs to the toes.



*Grey-headed flying fox Photo: L. Lumsden
(Source DEPI Website)*

Identifying presence of GHFF on the Worksite

When in the area these key questions will assist in determining if GHFF are present in your work area.

1. NOISE

Is there any noise overhead or around the perimeter from where you are standing?

Can you hear shrieking or unfamiliar noise surrounding you?

2. SIGHT

Are there any black moving shapes in the canopy above you?

3. SMELL

Can you smell unfamiliar odour or 'musk'?

If you have answered yes to any of the above questions, please refer to your Supervisor immediately.

Appendix 10 - Addressed Public Comments

Addressing Public Comments – Referral 2009/5017, East Gippsland Shire Council

Addressing Public Comment on Preliminary Documentation on Referral 2009/5017

East Gippsland Shire Council

Acronyms

DEPI – Department of Environment and Primary Industries (State)

EGSC – East Gippsland Shire Council

EPBC Act 1999 – Environmental Protection and Biodiversity Conservation Act 1999

FFG Act 1988 – Flora and Fauna Guarantee Act 1988

GHFF – Grey-headed Flying-fox

DE – Department of Environment (Commonwealth)

The Plan – Draft Grey-headed Flying-fox Strategic Action and Management Plan

Submission	Key Points	EGSC Response to Submission
1	1.1 It is my preference that GHFF and its habitat is not removed.	1.1 This comment is regarding the action, as opposed to commenting on the The Plan. Thankyou for your comment.
2	2.1 Please do not relocate them and destroy their habitat.	2.1 This comment is regarding the action, as opposed to commenting on the The Plan. Thankyou for your comment.
3	3.1 Recreation of rainforest to suit the species.	3.1 There is an extensive program proposed to reinstate vegetation along the Mitchell River which will include some rainforest species as stated in the Revegetation Plan and this list has been expanded to include additional species. EGSC is aware of other revegetation programs historically to enhance rainforest gullies, and it is hoped that these programs have been successful.

Submission	Key Points	EGSC Response to Submission
	<p>3.2 Community groups in revegetation activities of different land tenures to enhance habitat.</p>	<p>3.2 The Mitchell River revegetation program has been driven by community groups and government agencies throughout its lifespan and this is anticipated to continue. EGSC do not have funding to extend to revegetation activities on land other than what they are the responsible land manager but will support programs that aim to revegetate GHFF habitat in appropriate locations.</p>
4	<p>4.1 'I must strong oppose this illegal action' and 'the action you are proposing is liable to fines and jail'.</p>	<p>4.1 East Gippsland Shire Council submitted a referral under the <i>EPBC Act 1999</i> to remove the stand of White Poplar and revegetate the proposed site with the knowledge that this was a summer campsite of GHFF. As such EGSC are aware any management works or action needed to be referred under the Act for approval by the Commonwealth. EGSC has not undertaken any illegal activity regarding the roost site. EGSC has sought permission through the <i>EPBC Act 1999</i> to undertake revegetation of the area. EGSC understands that if works commenced without permission under the <i>EPBC Act 1999</i> the action is illegal and liable to fines.</p>
	<p>4.2 This is a breeding colony of endangered mammals.</p>	<p>4.2 The roost site can be considered as a breeding site for GHFF given the period of occupation on site as stated in Section 6.1.1 of The Plan. GHFF are not currently listed as Endangered under any legislation, they are listed as Vulnerable under the <i>EPBC Act 1999</i> and Threatened under Victoria's <i>Flora and Fauna Guarantee Act 1988</i>.</p>
	<p>4.3 People who want all wildlife eradicated from urban areas.</p>	<p>4.3 EGSC has been methodically revegetating the Mitchell River corridor over an extended period of time with assistance from community groups and government agencies. As such the vegetation is in different aged stands and is currently able to provide habitat requirements to a range of species that choose to utilise the area. GHFF have been observed using the resources in these revegetated areas.</p>
5	<p>5.1 EGSC has a moral and statutory responsibility to respect threatened species.</p>	<p>5.1 EGSC is not responsible for enforcing environmental legislation pertaining to listed threatened species (such as the <i>EPBC Act 1999</i> or <i>FFG Act 1988</i>). As a land manager, EGSC refers to legislation to undertake land management works. EGSC referred the proposed action to the Federal Government to ensure that all legislation applicable to this project has been considered and the process followed accordingly.</p>

Submission	Key Points	EGSC Response to Submission
	<p>5.2 The Poplars provide the habitat that GHFF requires that would have been part of their original habitat prior to destruction for human settlement.</p>	<p>5.2 EGSC recognises that the current roost site provides requirements that are preferred by GHFF. The condition of the vegetation on the proposed site is considered to be unsafe and in varying stages of senescence. If no action is to occur, the roost site will continue to 'fall over' thus creating a public safety risk and also further restrict the roosting opportunities for GHFF on site. Revegetation of the area is considered as the best option to reduce risk and also to replace vegetation on site that all faunal species can utilise. Existing revegetation stands close by will be able to provide some of the resources that are preferred by GHFF.</p> <p>It cannot be predicted where GHFF will occupy if they abandon the Mitchell River camp site. EGSC has developed a Response Plan which responds to the possibility that the dispersed GHFF will reside in an inappropriate site following the removal of the poplars. Three scenarios are possible: (1) the colony establishes at a site that is acceptable in the longer term, in which case EGSC will provide stewardship for the welfare of the local GHFF population and camp site vegetation including the permanent protection of the site; (2) the colony establishes at sites that are acceptable in the short term, but are unlikely to be suitable in the longer term and (3) the colony relocates to a site that is considered inappropriate (a risk to the welfare of bats and people).</p> <p>The appropriateness of each site will be assessed a Site Assessment as described in the Response Plan. This assessment includes a determination on whether dispersal is appropriate for the site where the bats ultimately reside. If after this assessment the bats are deemed to have moved to an inappropriate site, an emergency response will be implemented. The emergency response will involve dispersing the colony from the site. EGSC have developed dispersal protocols that take into account the welfare of the bats. These are outlined in the Response Plan.</p>
	<p>5.3 In some other places, flying foxes and bats provide a feature of tourism to their areas with guided</p>	<p>5.3 EGSC are not aware of any business conducting tours that incorporate the Mitchell River camp site as part of a guided educational observation, however acknowledge that informal tours may occur without our knowledge. Should GHFF move to an area that is suitable where tourism opportunities present, we will investigate such opportunities. As</p>

Submission	Key Points	EGSC Response to Submission
	educational observation of GHFF	<p>established GHFF educational opportunities exist in existing colonies elsewhere in Victoria, persons wishing to learn more about the species can visit these areas to see GHFF in their habitat.</p> <p>The Naturally Magic campaign promotes the entirety of East Gippsland and specifically its natural outlooks and beauty. The GHFF will still be present in the region, and we would consider that the presence of Poplars along the riverbank is not in keeping with the Naturally Magic tourism campaign.</p>
	<p>5.4 The private residence that is closest to the colony should be purchased and used for scientific purposes or tourism.</p>	<p>5.4 The purchase of the private residence adjacent to the site has not been considered. Given the cost of purchasing said property and renovating to meet standards for the tourist public or scientific groups would be expected to be more expensive than revegetating the area proposed. EGSC is not aware of any scientific programs specifically interested in researching the Bairnsdale summer colony of GHFF and as such purchase for this reason is unfounded.</p>
	<p>5.5 The current proposal does not meet the requirement of no or minimal impact.</p>	<p>5.5 EGSC is aware that this action does not meet the requirement of 'no or minimal impact'. As such the action has been referred through the <i>EPBC Act 1999</i> with reference to Matters of National Environmental Significance : Significant Impact Guidelines 1.1</p>
	<p>5.6 In no circumstances should the poplars be removed until alternative habitat of suitable height is grown.</p>	<p>5.6 Existing revegetation within the Mitchell River corridor has the capacity to provide resources to the GHFF. Given the unpredictability of the GHFF population regarding movement and habitat selection, EGSC cannot anticipate that GHFF will choose to utilise other revegetated areas nearby. EGSC commits through The Plan to assist GHFF locate a suitable area should they decide to depart the area completely.</p>
6	<p>6.1 EGSC has a moral and statutory responsibility to respect threatened species.</p>	<p>6.1 See 5.1</p>
	<p>6.2 The Poplars provide the habitat that GHFF requires</p>	<p>6.2 See 5.2</p>

Submission	Key Points	EGSC Response to Submission
	that would have been part of their original habitat prior to destruction for human settlement.	
	6.3 In some other places, flying foxes and bats provide a feature of tourism to their areas with guided educational observation of GHFF	6.3 See 5.3
	6.4 The private residence that is closest to the colony should be purchased and used for scientific purposes or tourism.	6.4 See 5.4
	6.5 The current proposal does not meet the requirement of no or minimal impact.	6.5 See 5.5
	6.6 In no circumstances should the poplars be removed until alternative habitat of suitable height is grown.	6.6 See 5.6
7	7.1 EGSC use your power to change attitudes and encourage awareness of GHFF.	7.1 This comment is regarding the action, as opposed to commenting on the The Plan. However, EGSC has committed to assist in the education about 'Living with Wildlife' for a number of species that utilise urban areas.
8	8.1 No work has been done to	8.1 EGSC acknowledges that little work has been done to date to manage the GHFF habitat

Submission	Key Points	EGSC Response to Submission
	ensure that these rare wildlife are properly managed at this site	on the Mitchell River. Given that once the referral has been submitted (in 2009), any works on site need approval from DE. Works have not been undertaken for this reason. See 4.1
	8.2 The action will likely cause stress to the colony and they may not be able to find an alternative site with the right shade and temperature.	8.2 EGSC's proposed staged action is expected to prompt a response from the GHFF colony. Possible actions that the GHFF may undertake is movement into surrounding vegetation, fragmentation across a wider area or abandonment of the camp. EGSC will receive assistance from DEPI in gauging the reaction of the GHFF colony to determine increased stress levels that can be attributed to the action. EGSC has also developed a Response Plan to be able to respond to the movement of GHFF into other areas and facilitate their occupation at a suitable site. EGSC acknowledges that the roost site on the Mitchell River provides the correct conditions for the species in regards to location, roost tree species and microclimate. However, given the senescing state of the poplar trees, revegetation is the only long term strategy for the camp site. EGSC has therefore opted for a staged replacement of the non-native vegetation at the camp site with native species. A Revegetation Plan has been developed to guide this process. This plan sets out the design and implementation of proposed revegetation actions on this site and provides methodology for the process. EGSC acknowledges that it will be some time before the revegetated overstorey species will reach the size of the poplars currently on the site and therefore suitable for occupation by GHFF. However, the life expectancy of these poplar trees is thought to be 5-15 years so the habitat is expected to decline, even in the absence of intervention. A staged habitat removal and revegetation program is the best hope for the long viability of the Mitchell River camp site.
	8.3 If there was a more suitable summer camp for them, they'd have moved to it.	8.3 GHFF develop a familiarity with roosting sites as part of their annual migration and are able to return to these stopover sites as it suits. As such, GHFF would not be looking for new sites to occupy if their existing roost and its location is stored in their memory. Undertaking a third of the removal is anticipated to prompt a response from GHFF to locate another site which will provide their habitat requirements, whether the alternative

Submission	Key Points	EGSC Response to Submission
		<p>site is immediately adjacent or a small distance away.</p> <p>EGSC acknowledges that it is impossible to predict with certainty the response of the colony to the proposed habitat removal program. EGSC has evaluated relocation case studies involving the Royal Botanic Gardens, Melbourne. The difficulties and risks associated with the relocation of GHFF colonies is acknowledged by EGSC. Sites to which the colony relocates will be assessed using the Site Assessment process in the Response Plan and site-specific contingencies have developed for the establishment of a roost at an inappropriate site.</p>
	<p>8.4 We hope the biological and ecological details of these animals are well known to Council staff who make decisions on their future management</p>	<p>8.4 EGSC is well aware of the ecology and habitat requirements of GHFF and has developed a Strategic Management and Action Plan to guide the management of the colony into the future. This document has been developed in consultation with DEPI experts and has drawn upon knowledge gained from the management of colonies in Melbourne and elsewhere in Australia.</p>
	<p>8.5 The Shire could, for less cost, provide noise abatement measures for the few houses that are affected.</p>	<p>8.5 Noise is not the only consideration for management of the GHFF colony. The Plan documents a number of issues that have been raised regarding presence of GHFF camps and amelioration of all these issues would cost excessively. It is important to recognise that a number of issues exist on site, and not all specifically relating to residents concerns. Key issues include risk to public safety through unsafe falling limbs, completion of the revegetation of the Mitchell River corridor and providing a safe environment for the community.</p>
	<p>8.6 Signs to prevent people from deliberately disturbing the Flying-foxes would also help to reduce daytime noise (they are out feeding at night).</p>	<p>8.6 There have been observations of people deliberately disturbing GHFF at the Bairnsdale site, which are handled by the DEPI. EGSC do not support disturbance of GHFF at any time and incidences of wildlife disturbance are reported to DEPI as the responsible wildlife manager.</p> <p>EGSC has previously installed temporary signage relating to health concerns after</p>

Submission	Key Points	EGSC Response to Submission
		detection of disease in a deceased GHFF collected from the Bairnsdale site. Altering individuals to the presence of GHFF is considered to heighten fears regarding disease (which is well publicised) and attract more negative connotations to the GHFF colony.
	8.7 The public walkway could be detoured around the colony to avoid complaints about the droppings.	8.7 The Mitchell River Walking path is a highly important recreational asset and is utilised by many members of the community for its physical attributes, and absence of vehicular traffic. Realignment of this path would incur high costs given development of a new path network and discourage local community members from using the path given the increased incline, distance and exposure to high traffic volumes.
	8.8 Plans by the Shire to remove roosting cover is contrary to objectives of the Action Plan for Australian Bats, including population stabilisation, and development of non-destructive methods for camp management.	8.8 EGSC is aware of the Action Plan for Australian Bats and the objectives. Regarding stabilisation of the population, there is no published information regarding the current population level of GHFF within Australia and EGSC does not anticipate the action influencing population levels but measurement of such broad information is impossible to obtain given this. The action proposed in Referral 2009/5017 outlines a staged removal and revegetation for the area to minimise risk and stress to the colony. If no action were to take place on site, the roost site will continue to senesce and degrade highly restricting available roosting space in a short period of time, forcing GHFF to relocate. Camp management at the Bairnsdale site needs to consider public safety risks along with providing alternative habitat through revegetation of the Mitchell River corridor for all species.
9	9.1 A further management option exists, involving progressive restoration of the whole site.	9.1 The current proposal of the three year staged removal was developed to provide a balanced approach to management of the site given the interests of involved departments and individuals. This option is considered to incorporate concerns over public safety, GHFF conservation and management and also logistics of operations regarding revegetating the site and the methodology proposed to be used.
	9.2 An alternative roost site could be established away from residential areas upstream along the Mitchell and quickly revegetated.	9.2 Given the unpredictable nature of GHFF, investment in establishing a roost site without knowing if GHFF will relocate is a risky expense. Relocation attempts undertaken from the Royal Botanic Gardens in Melbourne shows the unpredictability and expenses incurred from the presumption that GHFF would relocate to the preferred Ivanhoe site, when the GHFF selected Yarra Bend as their new campsite. The staged approach

Submission	Key Points	EGSC Response to Submission
		proposed by EGSC will prompt a response from GHFF which may include the population seeking a new campsite which can then be enhanced to provide additional resources that the GHFF may require at the new site and encourage annual occupation.
10	10.1 Removing species of trees to plant others. Invasive species still provide habitat.	10.1 EGSC acknowledge that invasive species do provide habitat for native and introduced wildlife. Replacing the Poplar with a wider suite of species is anticipated to provide more ecological niches for all fauna.
	10.2 Removing an animal habitat.	10.2 See 5.2
	10.3 Why is EGSC establishing new habitats?	10.3 The Mitchell River revegetation program has created a significant corridor of native flora of different stages that provides some habitat characteristics for native fauna and will develop further.
	10.4 The disease issue.	10.4 The Plan specifically states at Section 7.2 the low risk of transmission to human population of all three diseases listed for GHFF to be vectors of.
	10.5 Have all residents of Bairnsdale been canvassed to discover if they find the colony disturbing?	10.5 EGSC has not canvassed local residents to determine if they find the GHFF colony 'disturbing'. Community consultation is outlined in Section 8 of the draft Strategic Management and Action Plan. Consultation has been undertaken by DEPI and EGSC to engage local residents regarding the issues of managing a GHFF campsite and the necessity to provide a carefully planned approach to continue the poplar removal program and revegetation efforts. <ul style="list-style-type: none"> • Media (radio and newspaper) statements and interviews with DEPI; • Key stakeholder meetings to present possible management options and associated issues; • Establishment of a working group of regulatory authority officers; • Meetings with technical experts including biologists and ecologists (Tony Mitchell, Lindy Lumsden, William Peel) on site to discuss habitat requirements and site issues; • Regular briefing and update of process and progress of the management of the site to residents significantly impacted on by the site;

Submission	Key Points	EGSC Response to Submission
		<ul style="list-style-type: none"> • Ongoing consultation with the Department of Environment, Water, Population and Communities to develop the management plan; • On site signage providing information regarding interaction with GHFF; • Ongoing involvement (4 years) with the Bairnsdale Urban Landcare Group in relation to GHFF site management; • DEPI website FAQ's used as a reference for resident requests of information; and • Evaluation of other GHFF management sites in other states to ensure up to date information in management trends. <p>Initial involvement has been limited and undertaken separately by both EGSC and DEPI up to this stage. Exact dates of occurrences of each process is difficult to obtain, but has been ongoing since 2007.</p> <p>Community consultation is an ongoing process and will continue and increase as management options are implemented to ensure that available information is current and collation of shared information to manage the roost site into the future.</p> <p>Given that the revegetation program is the focus of the application, community consultation on GHFF has not been undertaken to a large extent. The referral process is the opportunity for comment on the action and The Plan. It is anticipated that the majority of residents would not find the colony disturbing but do not live in the immediate vicinity of the camp and as such only local residents are affected.</p>
	10.6 Are the residents of Bairnsdale informed about all things pertaining to GHFF?	10.6 EGSC are not wildlife managers and provision of information pertaining to GHFF are handled by the DEPI or enquirers are directed to the website of the DEPI. See Section 8.1 of The Plan. EGSC has committed to provide information on GHFF as part of The Plan.
	10.7 Has anyone researched how many people actually go to see GHFF at the site.	10.7 EGSC has not undertaken any visitor number research pertaining to the GHFF colony and its visitation rate.
11	11.1 There will be impact on the	11.1 The staged approach has been developed to allow GHFF time to adjust and/or find

Submission	Key Points	EGSC Response to Submission
	GHFF population as death will occur with no roosting area. This is not 'no or minimal impact' as stated in The Plan.	<p>another roost site that can support the summer population. The surrounding revegetation will be able to provide some temporary roost while GHFF adjust.</p> <p>EGSC agrees that, due to familiarity, the bats will return to the Mitchell River site for as long as roosting suitable habitat remains. EGSC also agrees that removing the poplar trees will progressively reduce the area and therefore the carrying capacity of the habitat.</p> <p>EGSC's proposed staged action is expected to prompt a response from the GHFF colony. Possible scenarios are that the GHFF colony may undertake is movement into surrounding vegetation, fragmentation across a wider area or abandonment of the camp. Protocols have been established to ensure that the action presents an acceptable risk to the species by timing actions to avoid sensitive periods in the species reproductive cycle.</p> <p>There is no evidence to suggest that "thousands of these animals will fly around until they are totally exhausted and will die". The species is highly mobile and is able to move vast distances to find suitable camp sites throughout the year in response to food availability, climate and stages of the reproductive cycle. Therefore, it is likely that most GHFF have roosted in multiple camps and know of their locations and will reside in these camps or settle at a new camp site (Tidemann and Nelson 2004).</p>
	11.2 Why wasn't the problem with the Poplars acknowledged in the early stages of the revegetation work?	11.2 It has been acknowledged in <i>Mitchell River Environs Local Structure and Development Plan 1998</i> and also in <i>Riparian Management Guidelines: Lower Mitchell and Lower Tambo Rivers 2004</i> that the Poplars needed to be removed as part of revegetation effort along the corridor.
	11.3 Why wasn't planting native trees amongst the Poplar instigated in 2003 allowing growth prior to the proposed action?	11.3 Revegetation within the stand of Poplar would have been ruined when works commenced to fell mature Poplars. The vegetative characteristics of White Poplar and other invasive species would outcompete any native species that could be utilised.
	11.4 Research into the Mitchell	11.4 Given the senescing nature of the vegetation at the camp site, it is not likely to be a

Submission	Key Points	EGSC Response to Submission
	River roost site.	<p>suitable roost site for GHFF in the longer term. EGSC has assessed management options for the colony at the site. While detailed research into noise levels and the option for buffers between residents and the colony has not been undertaken, these studies are not deemed to be of high value due to the limited lifespan of the roost site and the incompatibility of the camp's predominant vegetation with Council's strategy for revegetating the Mitchell River riparian zone.</p> <p>It is not the concern of residents in relation to disease, noise and smell that is the main driver for the proposal to relocate the camp. The main concern of EGSC is the condition of the existing roost trees which are deemed a public safety risk and the inappropriate nature of the vegetation from the perspective of revegetation of the Mitchell River with indigenous plant species.</p>
	11.5 Arborist report advice is not heeded given a ULE of 5-10 years	11.5 Vegetation is declining in health on site. EGSC agrees that the Arborist report undertaken in 2010 highlights a minimum of 5 ULE for all trees assessed. The report also highlights at the time of the report all trees were stressed, most likely due to presence of GHFF. The report also states "It's hard to determine the useful life expectancy for the majority of trees as the health of these trees will most likely be determined by the number of Flying Foxes that frequent the area". Given that the ULE is still very low at 5 years in 2010, EGSC expects that the decline of the site will be ongoing and require management before 2015.
	11.6 Was any consideration given to or research carried out with regard to the GHFF campsite and how it could be replaced with minimal disturbance?	11.6 It is considered that the staged approach takes into account consideration of all factors relating to the campsite. See Sections 5.6, 9.1 and 11.3
12	12.1 An assessment of how the Bairnsdale colony fits in with	12.1 EGSC are land managers and rely on other organisations to research and monitor native wildlife. EGSC consider that assessment of the ecological characteristics of the GHFF

Submission	Key Points	EGSC Response to Submission
	<p>the social order of GHFF across their range should have been undertaken.</p> <p>With consideration to</p> <p>a) reduction in size of GHFF at Mitchell River affect viability of other GHFF colonies</p> <p>b) forced cohabitation with Black Flying-fox</p> <p>c) competition with other GHFF within the range cause decline of other species</p> <p>d) increased incidence of mortality from disease with constriction of sites amongst GHFF</p>	<p>population should be undertaken by persons qualified to undertake scientific research. EGSC are happy to work in with any research by qualified scientific professionals.</p> <p>a) GHFF camps are comprised of many individual bats which regularly move between camps throughout their national distribution. Broadscale movement of individuals between camps is a feature of the species' spatial ecology. The count data collected for the Mitchell River camp demonstrates the highly variable nature of the numbers within the camp over time. For this reason, the permanent loss of or reduction in the size of the Mitchell River GHFF camp is unlikely to threaten the species at a national level or even at a state level. Similarly, the habitat removal program is not likely to affect the viability of GHFF camps elsewhere in the species' range. The fluid nature of the composition of colonies and the highly mobile nature of the species suggests that the bats will either find an alternative existing camp and reside there or establish a camp at a new location.</p> <p>b&c) Grey-headed Flying-foxes frequently occur in mixed-species camps with Black Flying-foxes. The two species have probably coexisted in this way for millennia where their ranges overlapped in central Queensland. However, Black Flying-foxes are increasing their distribution through a southward range extension and there is evidence that they may now be competing and displacing GHFF. The dispersal of GHFF from the Mitchell River site is not likely to lead to a marked increase in competition with Black Flying-foxes over what is already occurring due to processes such as climate change that is facilitating the southward migration of Black Flying-foxes (DECC 2009).</p> <p>d) There is no evidence to suggest that the loss or diminishment of the Mitchell River camp will result in increased disease prevalence in the GHFF population. It is important to note that within their distribution, GHFF occur as one large, highly mobile population with a high degree of exchange of individuals between camp sites. Dispersal of animals from the Mitchell River camp to these new locations is therefore not likely to lead to increase in disease prevalence or mortality over and above what is already occurring.</p>

Submission	Key Points	EGSC Response to Submission
	<p>e) importance of large colonies for the survival of the species?</p> <p>f) total numbers needed for survival of the species</p> <p>g) the trend towards increasing urbanisation threaten the species or the associated dependant flora</p> <p>h) chemical pollution in urban areas where GHFF locate affect their mortality, vulnerability to disease or reduce breeding success</p>	<p>e&f) Large colonies (camps) are clearly important to the survival of GHFF. Camps are used as daytime refugia for the bats, for socialisation, conception, birth and rearing young. The EGSC acknowledges that the camp site on the Mitchell River is important habitat for GHFF, although identification of critical habitat for this species has not been defined under the EPBC Act or in any approved or finalised National Recovery Plan for the species. The effect that fragmentation of this colony such that it splits up and establishes several new, smaller colonies or joins other existing colonies is unknown but it is important to bear in mind that the latter already occurs as (i) GHFF are not always present at the Mitchell River camp (therefore the individuals must be at another colony or colonies in their range) and (ii) the number of bats at the Mitchell River camp varies significantly both monthly and annually suggesting that the bats are adapted to having variable numbers within the camp site and hence this is not considered likely to affect the survival of the species. An assessment of the importance of the Mitchell River camp relative to other camps within the species' range has not been undertaken but it is unlikely that its removal is likely to result in a decline of the species at a national scale.</p> <p>g) EGSC are not sure of the context of this question and its relevance to the proposal. This is philosophical question relating to the species changing ecology and it is not appropriate to address it here.</p> <p>h) EGSC are not sure of the context of this question and its relevance to the proposal. This is philosophical question relating to the species changing ecology and it is not appropriate to address it here.</p>
	<p>12.2 None of the options have been costed.</p>	<p>12.2 All options have been preliminarily costed for a comparison of each option against one another. The staged replacement option is preferred with consideration to cost and GHFF welfare</p>

Submission	Key Points	EGSC Response to Submission
	<p>12.3 The effects of the staged removal may be more detrimental than a one-off replacement.</p>	<p>12.3 The staged removal was developed in response to concern about the effects of one-off revegetation to GHFF upon their return to the Bairnsdale site regarding their welfare. This option does consider the possible effects of the proposed action on GHFF.</p> <p>EGSC acknowledges that the bats may settle at a new site that is inappropriate from the perspective of the welfare of the bats and local residents. An assessment will be made as to the appropriateness of the site or sites in which the colony establishes. A site analysis will be undertaken using a scoring system based on previous assessments of GHFF camp sites as outlined in the Response Plan. If a site is deemed to be inappropriate, the bats will be dispersed until they settle at a site that is deemed to be appropriate. All dispersal activities have been developed with the welfare of the bats in mind and include stop work triggers and protocols to ensure the health and wellbeing of the bats is monitored. Protocols for site assessments and dispersal are outlined in the Response Plan.</p>
	<p>12.4 No matter where the GHFF go, people will always perceive these to be a problem</p>	<p>12.4 EGSC has committed to assisting with education pertaining to GHFF as part of the Plan through the Living with Wildlife theme to contribute towards a more positive image for GHFF. EGSC cannot influence how information on GHFF is provided by the media.</p> <p>EGSC reiterates the stance of the DEPI regarding provision of information pertaining to GHFF through referring individuals to the DEPI website and contacting DEPI directly.</p> <p>Please see Sections 8.2 and 8.3 of The Plan for more detail.</p>
	<p>12.5 There is no need for the walking path to go through the colony.</p>	<p>12.5 See 8.5.</p>
	<p>12.6 Poplars are one of many invasive species allowed to persist on private and public</p>	<p>12.6 EGSC agrees that Poplars are an issue in other areas, as are many invasive species. The revegetation program for the Mitchell River corridor has been undertaken over many years and removed a variety of species. This program is driven by the community and</p>

Submission	Key Points	EGSC Response to Submission
	land.	has involved many other organisations and continuation of the program will protect previous investment of grant funding, and immeasurable hours of community input into revegetating the riparian corridor.
	12.7 Remove the houses on the river side of Riverine Street.	12.7 This proposal would cost a significant amount on money, and does not provide an effective solution to the issues.
	12.8 Harassment of GHFF in the Response Plan does not seem consistent with caring for the species well-being	<p>12.8 The Response Plan has detailed methods for issuing disturbance to GHFF should they choose to occupy an unacceptable site after revegetation commences at the Mitchell River site. Disturbance to any GHFF will occur should the area be considered to be unacceptable for a new roost site. Disturbance of GHFF will not occur on the revegetation site at any point and no revegetation works will be undertaken in August-September to remove any risk to females that are in the later stages of pregnancy should they arrive at the Mitchell River Camp. Stop-work triggers will allow assessment of the surrounding environment for presence of GHFF prior to any works being undertaken during their residency.</p> <p>The welfare of the species has been addressed in the dispersal protocols outlined in the Response Plan as follows:</p> <p>Adaptive Management Actions to Minimise Impacts to GHFF from Dispersals</p> <p>Inappropriate sites</p> <p>It is recognised that in the event GHFF reside in an area that poses a risk to public safety as a result of the staged removal of the poplars on the Mitchell River, the camp will need dispersed as soon as possible until the GHFF are settled in an appropriate location. Therefore, there will be different approaches to dispersal of GHFF from sites, depending on the time of the year.</p> <p>Time of year: May-July</p>

Submission	Key Points	EGSC Response to Submission
		<p>Stage in the breeding cycle: early pregnancy</p> <p>Dispersal conditions: GHFF have been present at the Mitchell River camp during this period and large numbers of bats have been recorded historically in the month of May. During this time, pre-dawn and evening disturbances will be used to encourage bats to leave the site. To minimise stress, a limit of three dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.</p> <p>Time of year: August-September</p> <p>Stage in the breeding cycle: late pregnancy</p> <p>Dispersal actions: It is recognised that abortion during the later stages of pregnancy may occur. Bats will not be dispersed from any sites during this period..</p> <p>Time of year: October-February</p> <p>Stage in the breeding cycle: non-flying, dependent young and independent but flightless pups</p> <p>Dispersal actions: DEPI Officers will conduct pre-dispersal evening fly-out surveys of the colony to determine if there are any independent but flightless pups. If any young are observed that are no longer being carried by their mother but are incapable of sustained flight are observed, no dispersal activity will occur. If mothers are carrying dependent young, evening and pre-dawn disturbance will be used to encourage the bats to leave the area. Disturbance will cease if flightless young are found during the disturbance To minimise stress, a limit of two dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.</p>

Submission	Key Points	EGSC Response to Submission
		<p>Time of year: March-April</p> <p>Stage in the breeding cycle: mating and conception</p> <p>Dispersal actions: To prevent disturbances to mating events, which occur during the day at the camp site, only evening and pre-dawn disturbances will be used to disperse the colony during this period dawn and evening disturbances will be used to encourage bats to leave the site. To minimise stress, a limit of three dispersal periods of up to 20 days duration will apply. Within each 20 day period disturbance events will occur at evening and pre-dawn/early morning periods. Each dispersal period will be separated by a 5 day period.</p> <p>Temporarily acceptable sites</p> <p>Wherever possible, dispersal actions at temporarily appropriate sites will be restricted to the period May-June, but given that the species is often absent in the Bairnsdale area during this period, an adaptive management response will need to be implemented, so that EGSC can disperse the colony from temporarily appropriate sites when the bats arrive, with the exception of the period August - September. Therefore, the adaptive management response for inappropriate sites will be implemented. Modification of vegetation will be implemented when bats are absent as another means to discourage the colony from re-establishing at temporarily appropriate sites.</p> <p>Acceptable long-term sites</p> <p>Management of colonies which establish at sites deemed to be temporarily acceptable will be carried out in accordance with the contingencies outlined in Section 4 of the Response Plan.</p> <p>Re-dispersals</p> <p>It is impossible to determine cumulative impacts on GHFF from re-dispersals and</p>

Submission	Key Points	EGSC Response to Submission
		<p>therefore re-dispersals will be limited. In the event that a colony establishes at an inappropriate site as defined in the Response Plan, re-dispersals can occur until the colony settles in a site that is either temporarily acceptable or acceptable in the long term. In this case of a colony settling in a temporarily acceptable site, <u>only one re-dispersal will occur in any 12 month period to limit cumulative impacts.</u></p> <p>The welfare of the bats has also been addressed by enacting a stop work trigger if any of the following occur:</p> <ul style="list-style-type: none"> • Any female GHFF are giving birth in the area(s) subject to the dispersal activity; • More than 5% of dependant young subject to the dispersal activity are Flightless dependant young; • The day of the proposed activity is a Hot Day, predicted to reach 30°C before 10am or reach greater than 35°C over the day • A Heat Stress Event have been declared by a Senior DEPI Manager either the day of or within two days on the proposed dispersal activity • More than 5% of GHFF subject to the dispersal activity are showing signs of Significant Stress; or • Anything else at the discretion on the Project Manager or the DEPI Wildlife Management Unit.



Australian Government
Department of the Environment

Proposed Approval

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East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted East Gippsland Shire Council

proponent's ABN 81 957 967 765

proposed action To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position James Tregurtha
Assistant Secretary
South-Eastern Australia Assessment Branch

signature NOT FOR SIGNATURE – DRAFT ONLY

date of decision

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Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (GHFF)**:

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1. The person taking the action must implement and comply with?? the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.
2. Prior to the **removal of habitat** the person taking the action must ensure that:
 - (i) A Hotline with a A-dedicated contact phone number and email address is set up to respond to public enquiries;
 - (ii) At least \$10,000 is spent on revegetation of **Grey-headed Flying-fox habitat** in accordance with expert advice on **GHFF** ecology, subject to negotiation with, and approval by, the Minister;
 - (iii) At least \$5,000 is spent on community education resources, including, but not limited to, educational signage.
3. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
4. If the person taking the action proposes to undertake a **dispersal** that is not an **emergency dispersal** a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to **dispersal**. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **GHFF** from the proposed **dispersal** activity;
 - c) The presence of pregnant **GHFF**;
 - d) The presence of **dependent young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on, or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **GHFF**, which must at a minimum include, **Stop Work Triggers**; and
 - g) Monitoring and reporting protocols.
5. The person taking the action may undertake an **emergency dispersal**. Unless negotiated with the **Minister and approved**, an **emergency dispersal** must be undertaken in accordance with the following requirements:
 - a) A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
 - b) During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
 - c) During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
 - d) **Emergency dispersal** must not be undertaken between 1 August and 30 September;

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- e) From 1 October to 31 March if a **suitably qualified ecologist** determines that **flightless dependent young** are present **dispersal** must not be undertaken;
 - f) **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **GHFF** have time to settle elsewhere before the heat of the day;
 - g) **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - h) Once **GHFF** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
 - i) Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.
6. At the completion of Stage One of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or **emergency dispersal** occurs, the person taking the action must submit a report to the **Minister** that addresses the following:
- a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
 - b) Details of the associated outcomes of these activities;
 - c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
 - d) The status of **GHFF** colonies in the Bairnsdale region;
 - e) Details of how information gained has been incorporated into the management of **GHFF** (adaptive management);
 - f) Details of any activities planned to occur in the following year;
 - g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
 - h) Raw data must be made available to the **Department** upon request.
7. Within **five** days after the **commencement** of the action, the person taking the action must advise the **Department** in writing of the actual date of **commencement**.
- 7.
8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, **including measures taken to implement the management plans required by this approval**, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
- 8.
9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. **Non-compliance with any of the conditions of this approval must also be reported to the department Department within 48 hours of the non-compliance occurring.**
- 9.
10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.

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11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the **management plans** as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that **management plan**. The varied activity shall not commence until the **Minister** has approved the varied **management plan** in writing. The **Minister** will not approve a varied **management plan** unless the revised **management plan** would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised **management plan**, that **management plan** must be implemented in place of the **management plan** originally approved.
12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the **management plans** specified in the conditions and submit the revised **management plans** for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved **management plan** must be implemented. Unless the **Minister** has approved the revised **management plan**, then the person taking the action must continue to implement the **management plan** originally approved, as specified in the conditions.
13. If, at any time after **five** years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all **management plans** referred to in these conditions of approval on their website. Each **management plan** must be published on the website within **one** month of being approved.

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Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site*, [DRAFT Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013.

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Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **GHFF** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependent young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Commented [L10]: Spelling of "dependent" differs between bolded and definition and is inconsistent throughout the approval. Consider revising for consistency.

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Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **GHFF** from a site of habitation.

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Emergency dispersal means a **dispersal** response to be undertaken if **GHFF** relocate to an area where:

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- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox (GHFF) means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

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Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **GHFF** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

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Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **GHFF**, the establishment of a new camp of **GHFF** and to discuss general concerns regarding **GHFF**.

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Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at **Appendix A** as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **GHFF**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **GHFF**.

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Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Significant Stress means the identification of unacceptable levels of stress as determined by a **suitably qualified ecologist**. As a guide, **GHFF** may be exhibiting either sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity, there may be evidence of abandoned young, evidence of aborted young or, at worst case, death.

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Stop Work Triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the removal of habitat at the Mitchell River Roost Site.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **GHFF**.

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Appendix A



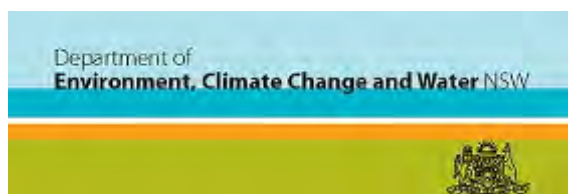


Draft National Recovery Plan for the

Grey-headed Flying-fox *Pteropus poliocephalus*



July 2009



Prepared by Dr Peggy Eby and by the Department of Environment, Climate Change and Water NSW for the Australian Government Department of the Environment, Water, Heritage and the Arts.

Disclaimer

The Australian Government, in partnership with the Environmental Protection Agency (Qld), the Department of Environment, Climate Change and Water NSW and the Department of Sustainability and Environment (Vic), facilitates the publication of recovery plans to detail the actions needed for the conservation of threatened native wildlife.

The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved, and may also be constrained by the need to address other conservation priorities. Approved recovery actions may be subject to modifications due to changes in knowledge and changes in conservation status.

The Department of Environment, Climate Change and Water has compiled the information in this publication in good faith, exercising all due care and attention. No representation is made as to its accuracy, completeness or suitability for any particular purpose. Readers should seek appropriate advice as to the suitability of the information for their particular needs.

This plan should be cited as follows:

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Acknowledgments

This recovery plan sets out the actions necessary to stop the decline of, and support the recovery of, the listed threatened species or ecological community. The Australian Government is committed to acting in accordance with the plan and to implementing the plan as it applies to Commonwealth areas.

This recovery plan has been prepared under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and structured according to the *Revised Recovery Plan Guidelines for Nationally Listed Threatened Species and Ecological Communities*, June 2002.

The plan has been developed with the involvement and cooperation of a broad range of stakeholders, but individual stakeholders have not necessarily committed to undertaking specific actions. The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved. Proposed actions may be subject to modification over the life of the plan owing to changes in knowledge.

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Kylie McClelland of the Department of Environment, Climate Change and Water NSW collated final comments and edits and prepared the final draft.

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National Recovery Team

A National Recovery Team was convened to provide advice and expertise. The recovery team was structured to be representative of the many and varied stakeholders who have interests in the conservation and management of Grey-headed Flying-foxes and to be representative of the regions within the geographic range of the species. The following people participated, and they brought to the process a breadth of personal experience with Grey-headed Flying-foxes.

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Executive summary

This document constitutes the Draft National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*. It considers the conservation requirements of the species throughout its range, sets objectives for recovery and identifies actions to be undertaken to reverse decline and ensure long-term viability.

The Grey-headed Flying-fox is listed as Vulnerable under both the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the New South Wales *Threatened Species Conservation Act 1995*. The species is listed as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*, and its threatened status is under consideration in Queensland. The primary threats affecting the species are loss and degradation of foraging and roosting habitat, deliberate destruction associated with commercial horticulture and competition for resources from the Black Flying-fox, *Pteropus alecto*.

Grey-headed Flying-foxes occupy forests and woodlands in the coastal lowlands, tablelands and slopes of southeast Australia from Bundaberg to Geelong. They are migratory bats that are primarily found in coastal areas. Few localities support a continuous presence. Rare sightings occur north to Gladstone, west to Adelaide, south to Flinders Island and in inland areas of southern New South Wales and Victoria.

Grey-headed Flying-foxes feed on blossom and fruit in canopy vegetation and forage over extensive areas. They disperse pollen and seeds of diet plants during their foraging bouts; in this way they participate in the reproductive and evolutionary processes of forest communities. Clearing of native vegetation continues to reduce food production from native plants in the flying-foxes' diet, and food shortages are known to occur in winter and in spring. When native food is scarce, individuals increase their use of cultivated plants, particularly commercial fruit crops, exposing them to mortality from crop management practices.

The species is colonial and roosts in large aggregations in the exposed branches of canopy trees (camps). When the camps are undisturbed their locations are generally stable through time. Camp size fluctuates, and many camps are empty for extensive periods. Conflict between humans and flying-foxes is an ongoing and apparently increasing problem, particularly affecting camps located near human development. Conflict and negative perceptions of Grey-headed Flying-foxes can affect the species directly through harassment and deliberate destruction, or indirectly by inhibiting or impeding community support for conservation initiatives.

The overall objectives of recovery of Grey-headed Flying-foxes are: to reduce the impact of threatening processes; to arrest decline throughout their range; to conserve their functional roles in seed dispersal and pollination of native plants; and to improve the comprehensiveness and reliability of information available to guide recovery.

Specific objectives relevant to the 5-year duration of this recovery plan aim to identify, protect and enhance key foraging and roosting habitat; to substantially reduce deliberate destruction associated with commercial fruit crops; to reduce negative public attitudes and conflict with humans; and to involve the community in recovery actions where appropriate. Further objectives aim to address the impact on the species of artificial structures such as powerlines, loose netting and barbed wire fences; and to improve knowledge of demographics and population structure.

Actions to meet these objectives incorporate principles of sustainable development and promote procedures to minimise significant adverse social and economic impacts, such as the use of environmental incentive schemes and equitable cost-sharing arrangements.

1 Species information and general requirements

1.1 Species identification

The Grey-headed Flying-fox *Pteropus poliocephalus* Temminck 1825 is one of the largest bats in the world. Adult males generally weigh between 750 and 1000 g, and weights as high as 1133 g have been recorded (Ratcliffe 1932, Tidemann 1995, J. Nelson, Monash University unpublished data). Adult females generally weigh between 650 and 800 g. Although males and females differ in weight, their forearms are of similar length at 155 to 175 mm. Body fur is typically medium to dark grey, with many light-tipped hairs (Hall and Richards 2000). Fur on the head is also grey but varies in shade from near black to silver. An orange or russet-coloured mantle or collar encircles the neck. Leg fur extends to the ankle, and this characteristic distinguishes the species from the similarly sized Black Flying-fox, *P. alecto*, the legs of which are bare below the knee. Wing membranes are black.

1.2 Conservation status

Since the time of European settlement of Australia Grey-headed Flying-foxes have been subjected to ongoing loss of foraging habitat; direct, deliberate destruction in commercial fruit crops and in diurnal roosts (camps); and competition with Black Flying-foxes for resources (Ratcliffe 1931, Tidemann *et al.* 1999). These and other threatening processes have resulted in an ongoing decline in abundance. Ratcliffe (1932) hypothesised that a 50% reduction in abundance had occurred by the late 1920s. There is evidence of a decline of approximately 30% since 1989 (Tidemann *et al.* 1999, Parry-Jones 2000, Threatened Species Scientific Committee 2001). For these reasons, the Grey-headed Flying-fox is listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the New South Wales *Threatened Species Conservation Act 1995* and as threatened under the Victorian *Flora and Fauna Guarantee Act 1988*. Its threatened status in Queensland is under consideration.

1.3 Taxonomy

The taxonomy of the Grey-headed Flying-fox is considered unambiguous (Tidemann 1995, Webb and Tidemann 1996). No intraspecific taxa are recognised.

1.4 Objects of the EPBC Act

This recovery plan has been prepared with due consideration of the objects of the EPBC Act, which are:

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- (c) to promote the conservation of biodiversity
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities
- (f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity
- (g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

1.5 International obligations

The Grey-headed Flying-fox is endemic to Australia and is not listed under any international agreements.

1.6 Affected interests

A wide range of public authorities, organisations and private individuals may be affected by actions to recover the Grey-headed Flying-fox. The habitats used by the species for foraging and roosting are varied and widespread. They include intact and remnant native forests and woodlands, paddock trees in agricultural landscapes, garden and streetscape plantings in urban areas and cultivated fruit trees. Management of foraging and roosting habitat falls under the jurisdiction of a range of authorities and is regulated by Commonwealth and State legislation in the three range States of the species, as well as by the policies of local government areas throughout the range of the species.

Government agencies with affected interests include:

Australian Government

Department of the Environment, Water, Heritage and the Arts

Queensland Government

Environmental Protection Agency
Department of Primary Industry and Fisheries
Department of Natural Resources and Water
Department of Local Government, Sport and Recreation

New South Wales Government

Department of Environment, Climate Change and Water (including National Parks and Wildlife Service),
Royal Botanic Gardens Trust
Department of Planning
Department of Primary Industries (including NSW Agriculture, Forests NSW)

Victorian Government

Department of Sustainability and Environment
Department of Primary Industries
Parks Victoria

Local Government

Local government areas throughout the range of the species

State-based resource management groups

Queensland – Natural Resource Management groups
New South Wales – Catchment Management Authorities
Victoria – Catchment Management Authorities

Actions proposed as part of this recovery plan may affect various members of the community, including:

- private landholders whose properties provide foraging or roosting habitat
- persons whose homes immediately adjoin camps
- conservation organisations
- licensed animal rehabilitators and their representative organisations
- individuals and groups involved in tree-planting and habitat restoration programs
- volunteers involved in flying-fox surveys and population estimates

- individual researchers and their representative organisations.

Proposed actions may also affect individual commercial fruit growers and representative organisations, including:

- BananasNSW
- NSW Farmers' Association
- Queensland – Growcom (formerly Queensland Fruit and Vegetable Growers)
- Victoria – Eastern Metropolitan Fruit Growers Association.

1.7 Role and interests of indigenous people

In making a recovery plan, regard must be given to the role and interests of indigenous people in the conservation of Australia's biodiversity. The indigenous communities in regions affected by this plan have not yet been identified. Implementation of recovery actions under this plan will include consideration of the roles and interests of indigenous communities.

There will be further indigenous consultation before finalisation of the plan. In Queensland, consultation will occur via the Indigenous Liaison Officers of the relevant Natural Resource Management Groups. In New South Wales, consultation will occur through Department of Environment, Climate Change and Water contact with interested Aboriginal Land Councils and Catchment Management Authorities, Aboriginal Reference Groups and through direct contact with indigenous organisations. In Victoria, indigenous communities on whose traditional lands the Grey-headed Flying-fox occurs will be advised, through the relevant Department of Sustainability and Environment Regional Indigenous Facilitator, of the preparation of this draft Recovery Plan and invited to provide comments. The public exhibition phase provides an opportunity for indigenous people to comment on the draft recovery plan.

1.8 Benefits to other species

Management actions to recover the Grey-headed Flying-fox will provide direct benefits to various species of fauna and flora, including several species listed as threatened under State and Commonwealth legislation (Table 1). They will also benefit various threatened plant communities and three of Australia's World Heritage Areas: Fraser Island, the Central Eastern Rainforest Reserves and the Greater Blue Mountains.

Grey-headed Flying-foxes interact with numerous plant communities and confer the benefits of seed and pollen dispersal on the diet plants that occur within these communities (Eby 1996, Southerton *et al.* 2004, Birt 2005). Actions to arrest the decline in the Grey-headed Flying-fox population will protect these important ecosystem functions. Diet lists for Grey-headed Flying-foxes include over 100 species of flowering trees and fleshy-fruited trees and lianas (Parry-Jones and Augee 1991, Eby 1995 and 1998, Hall and Richards 2000). Actions to protect or regenerate foraging and roosting habitat will benefit several hundred vegetation communities in Queensland, New South Wales and Victoria (P. Eby and B. Law unpublished data). Nectar- and fruit-feeding bats, birds and mammals will also benefit, as will a range of other fauna that occupy the forest and woodland communities used by Grey-headed Flying-foxes.

Actions to protect roosting habitat and ameliorate conflict at camps in urban areas will additionally benefit the Black Flying-foxes and Little Red Flying-foxes that share communal camps with Grey-headed Flying-foxes (Birt and Markus 1999, Tidemann 1999, Eby 2004).

Actions to reduce deliberate destruction associated with commercial fruit crops by introducing alternative crop management techniques will benefit other native vertebrates that damage crops, including Black Flying-foxes, Little Red Flying-foxes, and several species of birds, including Little and Long-billed Corellas, Galahs, Pied Currawongs, Red Wattlebirds, Noisy Friarbirds, Black-faced Cuckoo-shrikes, Musk Lorikeets, Rainbow Lorikeets, Scaly-breasted Lorikeets, Crimson Rosellas, Eastern Rosellas, Pale-headed Rosellas, Australian King-Parrots, Silvereyes, Satin Bowerbirds, Yellow-faced and Blue-faced Honeyeaters, Figbirds and Olive-backed Orioles (Bomford and Sinclair 2002).

Implementation of this recovery plan is not expected to adversely impact other species or ecological communities.

Table 1: Species and communities that are listed under Commonwealth and State threatened species legislation and will benefit from actions to recover the Grey-headed Flying-fox

CE = listed as critically endangered, E = listed as endangered, V = listed as vulnerable, T = listed as threatened, R = listed as rare. The fauna on this list is limited to birds and mammals.

Species, population or community	Aust Govt	Qld	NSW	Vic
Flora				
Species and populations				
<i>Eucalyptus seeana</i> population at Taree			E	
<i>E. parramattensis decadens</i>	V		V	
<i>E. parramattensis parramattensis</i> population at Wyong and Lake Macquarie			E	
<i>Davidsonia</i> spp.	E		E	
<i>Eucalyptus tetrapleura</i>	V		V	
<i>Syzygium paniculatum</i>	V		V	
Vegetation communities				
Bangalay Sand Forest, Sydney Basin and South East Corner Bioregions			E	
Bega Dry Grass Forest South East Corner Bioregion			E	
Blue Gum High Forest Sydney Basin Bioregion	CE		CE	
Brogo Wet Vine Forest South East Corner Bioregion			E	
Candelo Dry Grass Forest South East Corner Bioregion			E	
Castlereagh Swamp Woodland			E	
<i>Casuarina glauca</i> open forest		E		
Central Gippsland Plains Grassland				T
<i>Corymbia citriodora</i> open forest		E		
Cumberland Plain Woodland	E		E	
Dry Rainforest of the South East Forests of the South East Corner Bioregion			E	
Eastern Suburbs Banksia Scrub Sydney Basin Bioregion	E		E	
<i>Eucalyptus camaldulensis</i> fringing open forest		E		
<i>Eucalyptus camaldulensis</i> in the Hunter Catchment			E	
<i>Eucalyptus melanophloia</i> , <i>E. crebra</i> woodland on sedimentary rocks		E		
<i>Eucalyptus melliodora</i> woodland		E		
<i>Eucalyptus moluccana</i> open forest		E		
<i>Eucalyptus populnea</i> woodland on alluvial plains		E		
<i>Eucalyptus seeana</i> , <i>Corymbia intermedia</i> , <i>Angophora leiocarpa</i> woodland		E		
<i>Eucalyptus siderophloia</i> , <i>E. propinqua</i> , <i>E. microcorys</i> and/or <i>E. pilularis</i> tall open forest		E		
<i>Eucalyptus tereticornis</i> , <i>Angophora floribunda</i> open forest on alluvial plains		E		
<i>Eucalyptus tereticornis</i> , <i>Corymbia intermedia</i> on remnant Tertiary surfaces		E		
<i>Eucalyptus tereticornis</i> woodland to open forest on alluvial plains		E		
<i>Eucalyptus tindaliae</i> and/or <i>E. racemosa</i> open forest		E		
Forest Red Gum Grassy Woodland				T
Gallery rainforest (notophyll vine forest) alluvial plains		E		
Grassy White Box Woodlands	E			
Herb-rich Plains Grassy Wetland (West Gippsland)				T

Table 1 cont'd: Species and communities that are listed under Commonwealth and State threatened species legislation and will benefit from actions to recover the Grey-headed Flying-fox

CE = listed as critically endangered, E = listed as endangered, V = listed as vulnerable, T = listed as threatened, R = listed as rare. The fauna on this list is limited to birds and mammals.

Species, population or community	Aust Govt	Qld	NSW	Vic
Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion			E	
Illawarra Subtropical Rainforest Sydney Basin Bioregion			E	
Limestone Grassy Woodland Community				T
Littoral Rainforest NSW North Coast, Sydney Basin and South East Corner Bioregions			E	
Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion			E	
Lowland Grassy Woodland in the South East Corner Bioregion			E	
Lowland Rainforest in the NSW South Coast and Sydney Basin Bioregions			E	
<i>Melaleuca irbyana</i> low open forest		E		
Microphyll/notophyll vine forest on beach ridges		E		
Milton Ulladulla Subtropical Rainforest in the Sydney Basin Bioregion			E	
River-Flat Eucalypt Forest on Coastal Floodplains of NSW North Coast, Sydney Basin and South East Corner Bioregions			E	
O'Hares Creek Shale Forest			E	
Pittwater Spotted Gum Forest			E	
Shale Gravel Transition Forest Sydney Basin Bioregion	E		E	
Shale/ Sandstone Transition Forest			E	
Southern Sydney Sheltered Forest on Transitional Sandstone Soils in the Sydney Basin Bioregion			E	
Subtropical Coastal Floodplain Forest NSW North Coast Bioregion			E	
Sun Valley Cabbage Gum Forest Sydney Basin Bioregion			E	
Swamp Oak Floodplain Forest NSW North Coast, Sydney Basin and South East Corner Bioregions			E	
Swamp Sclerophyll Forest on Coastal Floodplains of NSW North Coast, Sydney Basin and South East Corner Bioregions			E	
Sydney Turpentine-Ironbark Forest	CE		E	
<i>Syncarpia glomulifera</i> open forest		E		
Tall open forest of <i>Eucalyptus pilularis</i>		E		
Tall open forest with <i>Eucalyptus cloeziana</i>		E		
Umina Coastal Sandplain Woodland in the Sydney Basin Bioregion			E	
Warm Temperate Rainforest (Coastal East Gippsland)				T
Warm Temperate Rainforest (East Gippsland Alluvial Terraces)				T
Warm Temperate Rainforest (Far East Gippsland)				T
White Box Yellow Box Blakely's Red Gum Woodland	CE		E	

Table 1 cont'd: Species and communities that are listed under Commonwealth and State threatened species legislation and will benefit from actions to recover the Grey-headed Flying-fox

CE = listed as critically endangered, E = listed as endangered, V = listed as vulnerable, T = listed as threatened, R = listed as rare. The fauna on this list is limited to birds and mammals.

Species, population or community	Aust Govt	Qld	NSW	Vic
<i>Fauna (birds and mammals only)</i>				
Birds				
Albert's Lyrebird			V	
Barking Owl			V	T
Barred Cuckooshrike			V	
Black-breasted Button Quail	V	V	E	
Black-chinned Honeyeater		R	V	
Brown Treecreeper (eastern sub-species)			V	
Bush Hen			V	
Coxen's Fig Parrot	E	E	E	
Emu population of the NSW North Coast Bioregion and Port Stephens Local Government Area			E	
Gang-gang Cockatoo			V	
Gang-gang Cockatoo in the Hornsby and Ku-ring-gai Local Government Areas			E	
Hooded Robin (south-eastern form)			V	T
Mangrove Honeyeater			V	
Marbled Frogmouth		V	V	
Masked Owl			V	T
Powerful Owl		V	V	T
Purple-crowned Lorikeet			V	
Regent Honeyeater	E	E	E	T
Rose-Crowned Fruit-dove			V	
Rufous Scrub-bird		V	V	
Sooty Owl			V	
Superb Fruit-dove			V	
Swift Parrot	E	E	E	T
Turquoise Parrot			V	T
White-eared Monarch			V	
Wompoo Fruit-dove			V	
Mammals				
Brush-tailed Phascogale			V	T
Eastern Pygmy Possum			V	
Greater Glider in the Eurobodalla Local Government Area			E	
Koala		V	V	
Koala population in the Hawks Nest and Tea Gardens area			E	
Koala population in the Pittwater Local Government Area			E	
Koala population South East Queensland Bioregion		V		
Long-nosed Potoroo	V	V	V	T
Long-nosed Potoroo population Cobaki Lakes and Tweed Heads West			E	
Long-footed Potoroo	E		E	T
Parma Wallaby			V	
Red-legged Pademelon			V	
Rufous Bettong			V	T
Southern Brown Bandicoot	E		E	
Spotted-tail Quoll		V	V	T
Squirrel Glider			V	T
Squirrel Glider population on the Barrenjoey Peninsula			E	
White-footed Dunnart			V	T
Yellow-bellied Glider			V	

This recovery plan encompasses a range of broad biodiversity and conservation issues and principles, many of which have been identified as significant to Australia (Williams *et al.* 2001). Examples include maintenance of functional ecosystems; preservation of connectivity across landscapes and regions; involvement of private landholders in biodiversity conservation; equitable cost-sharing for biodiversity conservation; land clearing; forest degradation; sustainable management practice; targeted habitat restoration; human population growth in coastal areas; urban habitat as refuge; conflict between humans and wildlife; and, importantly, the need to actively educate and involve the public in conservation and biodiversity initiatives.

1.9 Social and economic impacts

The implementation of this recovery plan will be associated with various social and economic costs and benefits. Many initiatives for habitat preservation will affect privately owned land with commercial value. Management actions may restrict, or result in additional costs to, residential development, agricultural expansion and commercial forestry practice. Initiatives to reduce deliberate destruction of flying-foxes on crops will require shifts in management practices; these shifts might result in substantial costs to commercial fruit industries.

There are few non-lethal alternatives available to industry, and their effectiveness remains a topic of debate. Similarly to deliberate destruction, deterrents that involve sight, sound and smell are generally believed to provide a degree of protection when pressure from flying-foxes is low, but they have been found to be ineffective when pressure is high (Bicknell 2002, Teagle 2002, Ballard 2004).

The only method of crop protection that is unambiguously effective is the provision of complete physical barriers, such as full exclusion netting or reinforced banana bags. Rates of uptake in some regions have increased in recent years in response to rising levels of damage by flying-foxes and birds (P. Wilks pers. comm., NSW Agriculture). Netting requires a substantial capital outlay, and concerns have been raised regarding the impact of installing netting on the economic viability of individual orchards (Gough 2002, Ullio 2002). Economic models have shown that netting provides a viable protection option for some crops (Rigden *et al.* 2000); growers generally consider it appropriate for crops of relatively high value that are cultivated on relatively flat land and can be pruned to an appropriate height. However, netting is not a financially viable management option on several previously viable crops, such as various stone and pome fruit crops in the Sydney Basin region (Ullio 2002). Measures are needed to increase rates of netting uptake on these problematic crops, or otherwise to encourage the use of non-lethal management methods. People living adjacent to orchards also raise safety concerns in relation to shooting at night. This issue is becoming more prevalent as human population densities in rural and semi-rural areas increase.

The incidence of crop visitation by Grey-headed Flying-foxes is not declining in line with the decline in the population of this species. Instead, crop damage is reportedly increasing, particularly in the southern half of the range, and this trend is likely to continue (Biel 2002, Comensoli 2002, Rogers 2002, I. Temby pers. comm., Victorian Department of Sustainability and Environment). If flying-foxes increase their use of crops when native food is limited, one would predict that the fruit industry in eastern Australia will experience difficulties with flying-foxes so long as the bats experience periods of inadequate food. Food shortages are likely to persist into the future as a consequence of ongoing forest loss. This loss of habitat is not being caused by commercial fruit operations. There is general concern within the industry that growers should not be financially disadvantaged by the resulting change to the status of Grey-headed Flying-foxes, a change that may preclude the use of deliberate destruction (Biel 2002).

Comprehensive implementation of this recovery plan will provide long-term economic benefits associated with the protection of ecosystem services, promotion of sustainable forest management, reduced conflict at camps, improved crop protection regimes, promotion of sustainable agricultural practices and increased viability of some commercial fruit industries. Programs to preserve continuous nectar production from diet plants will benefit the apiary

industry. Programs to conserve and enhance foraging habitat that is productive at times critical for the commercial fruit industry will reduce impacts on crops (Law *et al.* 2002).

Social benefits from this recovery plan will be derived from reduced conflict between humans and flying-foxes, particularly at camps and in crops; a public better informed about flying-foxes and broader conservation issues; and increased public participation in conservation initiatives. The camps and the dusk exit flights of Grey-headed Flying-foxes are increasingly being recognised as attractions for eco-tourism, as is apparent at camps in Grafton, Wingham, Bellingen and Yarra Bend. Programs to protect camps and ameliorate conflict with neighbours will benefit tourism in urban and regional areas. Initiatives to promote equity in the cost of biodiversity conservation will provide positive social and economic outcomes (Biel 2002).

2 Distribution and location

Grey-headed Flying-foxes occupy the coastal lowlands and slopes of southeastern Australia from Bundaberg to Geelong and are usually found at altitudes < 200 m (Figure 1). Areas of repeated occupation extend inland to the tablelands and western slopes in northern New South Wales and the tablelands in southern Queensland. Sightings in inland areas of southern New South Wales and Victoria are uncommon. There are rare records of individuals or small groups west to Adelaide, north to Gladstone and south to Flinders Island.

2.1 Seasonal patterns of distribution

The Grey-headed Flying-fox is a highly mobile, migratory species that relies on food sources with largely irregular patterns of production (Law *et al.* 2000). Patterns of occurrence and relative abundance within its distribution vary widely between seasons and between years. When assessed at a local scale, the species is generally present intermittently and irregularly (Eby and Lunney 2002). However, broad trends in the distribution of plants with similar flowering and fruiting schedules support regular annual cycles of migration that are apparent at regional scales (Eby and Lunney 2002, Figure 2). The metropolitan areas of Brisbane, Newcastle, Sydney and Melbourne are occupied continuously (Pallin 2000, Hall 2002, van der Ree *et al.* 2006). Elsewhere, during spring Grey-headed Flying-foxes are uncommon south of Nowra and widespread in other areas of their range. They are widespread throughout their range in summer. In autumn, they occupy coastal lowlands and are uncommon inland. In winter they congregate in coastal lowlands north of the Hunter Valley and are occasionally found on the south coast of New South Wales (associated with flowering Spotted Gum *Corymbia maculata*) and the northwest slopes (generally associated with flowering White Box *Eucalyptus albens* or Mugga Ironbark *E. sideroxylon*).

2.2 Historical change to distribution

There is evidence that the northern limit to the range of Grey-headed Flying-foxes has contracted by approximately 500 km during the past 100 years. Collett (1887) recorded large numbers of the species in Mackay. Fifty years later, Ratcliffe (1931) identified Rockhampton as the northern limit to their range. The current limit is 250 km farther south. There is no evidence that the southern limit to distribution has changed. Grey-headed Flying-foxes were first recorded in Melbourne and Geelong in the mid-1880s and were recorded as far west as Warrnambool in the early 1960s (Nelson 1965a, Victorian Department of Sustainability and Environment 2005). Insufficient information exists to enable the assessment of change to inland boundaries.

Patterns of occupancy and abundance have altered in some parts of the range. During the past 20 years the numbers of animals occupying camps in metropolitan Newcastle, inner Sydney and Melbourne/Geelong have increased, and several camps in these large urban areas have changed their patterns of occupation from seasonal use to continuous use (Richards 2002, van der Ree *et al.* 2006, D. Bidwell Royal Botanic Gardens Sydney unpublished). The increasing occurrence in Melbourne has resulted in a general increase in sightings in Gippsland and on the south coast of New South Wales as animals migrate to and from Melbourne (Tidemann and Nelson 2004).

2.3 Extent and geographical locations of populations

Grey-headed Flying-foxes are partial migrants: some individuals migrate whereas others are sedentary (Fleming and Eby 2003, Tidemann and Nelson 2004). A small number of local areas support a continuous presence and others are associated with regular, annual patterns of use (Figure 3). There is consistent evidence from radio-telemetry, satellite-telemetry and banding studies that these patterns of camp occupation reflect behavioural subdivisions in the population, including resident animals that inhabit camps permanently and individuals with seasonal fidelity to specific camps (Eby 1991, Parry-Jones and Augee 2001, Fleming and Eby

2003, Tidemann and Nelson 2004). There is no evidence that these behaviours are expressed in the genetic structure of the species, although the question has not been specifically addressed by research (Webb and Tidemann 1996). Resident populations occur in urban centres in southeast Queensland, Newcastle, Sydney and Melbourne, where highly diverse garden and streetscape plantings, including exotic plants and weeds, provide a continuous source of food, as well as vegetation suitable for roosting (Parry-Jones and Augee 2001, Hall 2002, Birt 2005, van der Ree *et al.* 2006). In addition, the natural diversity of food plants in a number of coastal areas of the Interim Biogeographic Regionalisation of Australia bioregions of southeast Queensland and the New South Wales north coast supports a continuous presence (Eby 1995, 1996). Camps with annual patterns of occupation occur in coastal areas and are common north from Batemans Bay, New South Wales.

Figure 1. Distribution of Grey-headed Flying-foxes, showing sightings recorded since 1984

There are few data from inland regions, and blank localities on the map cannot be interpreted as areas never occupied by the species.

- = records from areas of repeated occupation (> 1 record in a 40 km radius)
- ◐ = areas of unusual occupation (one record in a 40 km radius)
- = vagrants (records of individuals or small groups in unusual areas)

(Sources: Atlas of NSW Wildlife, NSW DEC 2004; Atlas of Victorian Wildlife, Victoria DSE 2004; WildNet, QPWS 2004; Eby 2004; Tidemann and Nelson 2004; G. O'Brien, University of New England unpublished data; T. Reardon, South Australian Museum unpublished data.)

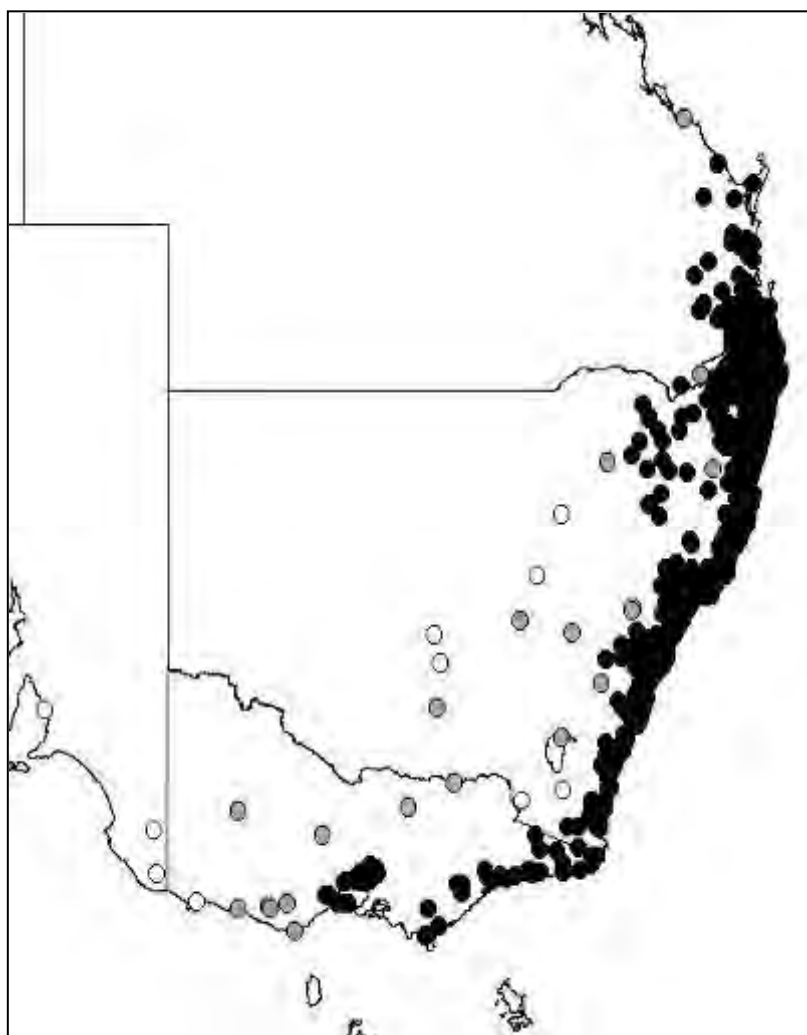


Figure 2: Seasonal sightings of Grey-headed Flying-foxes in areas of repeated occupation, as described in Figure 1

Winter sightings associated with the urban areas of Sydney and Melbourne are outlined to differentiate them from sightings in non-urban areas and highlight the importance of native vegetation in the northern half of the range in that season.

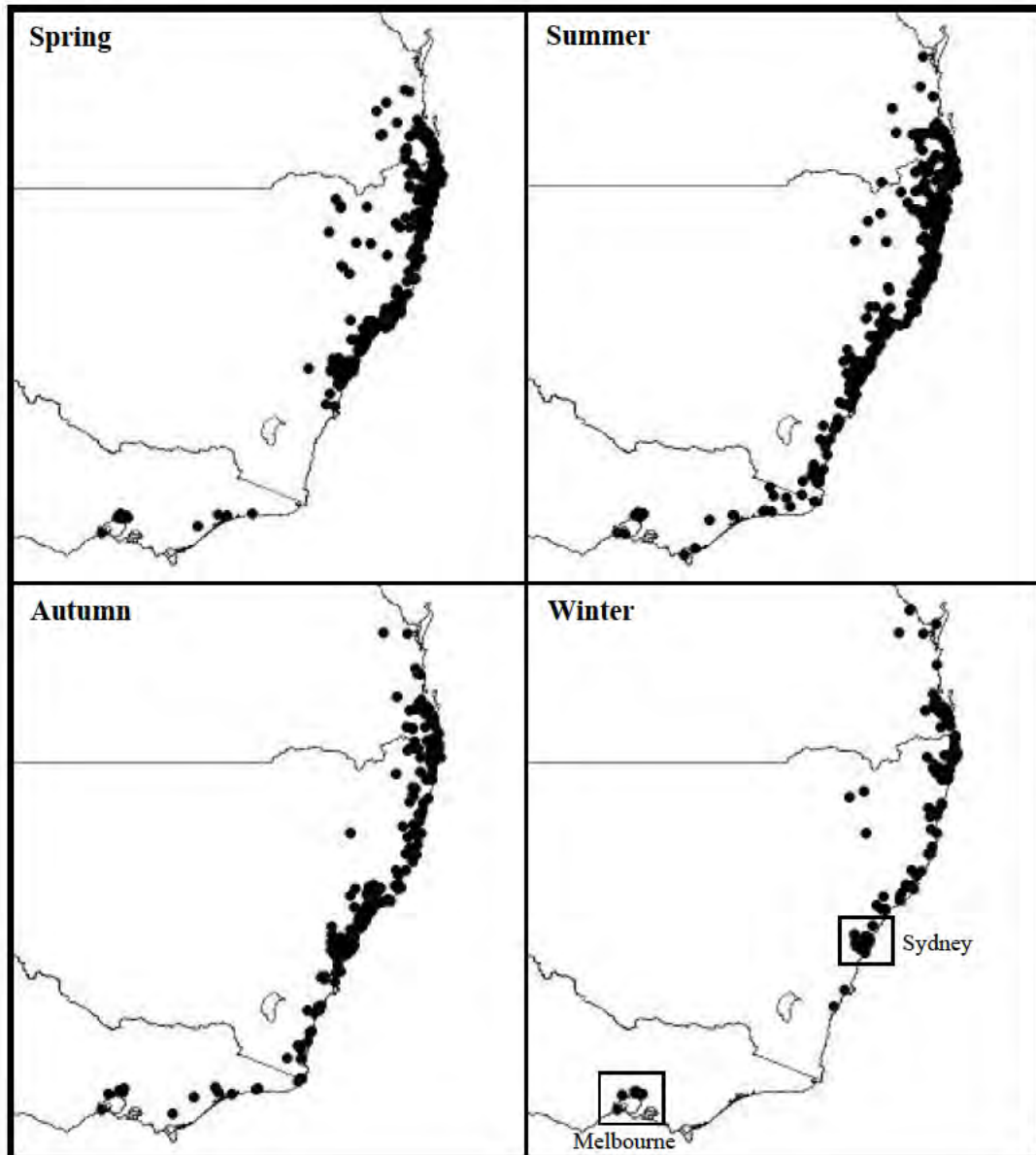
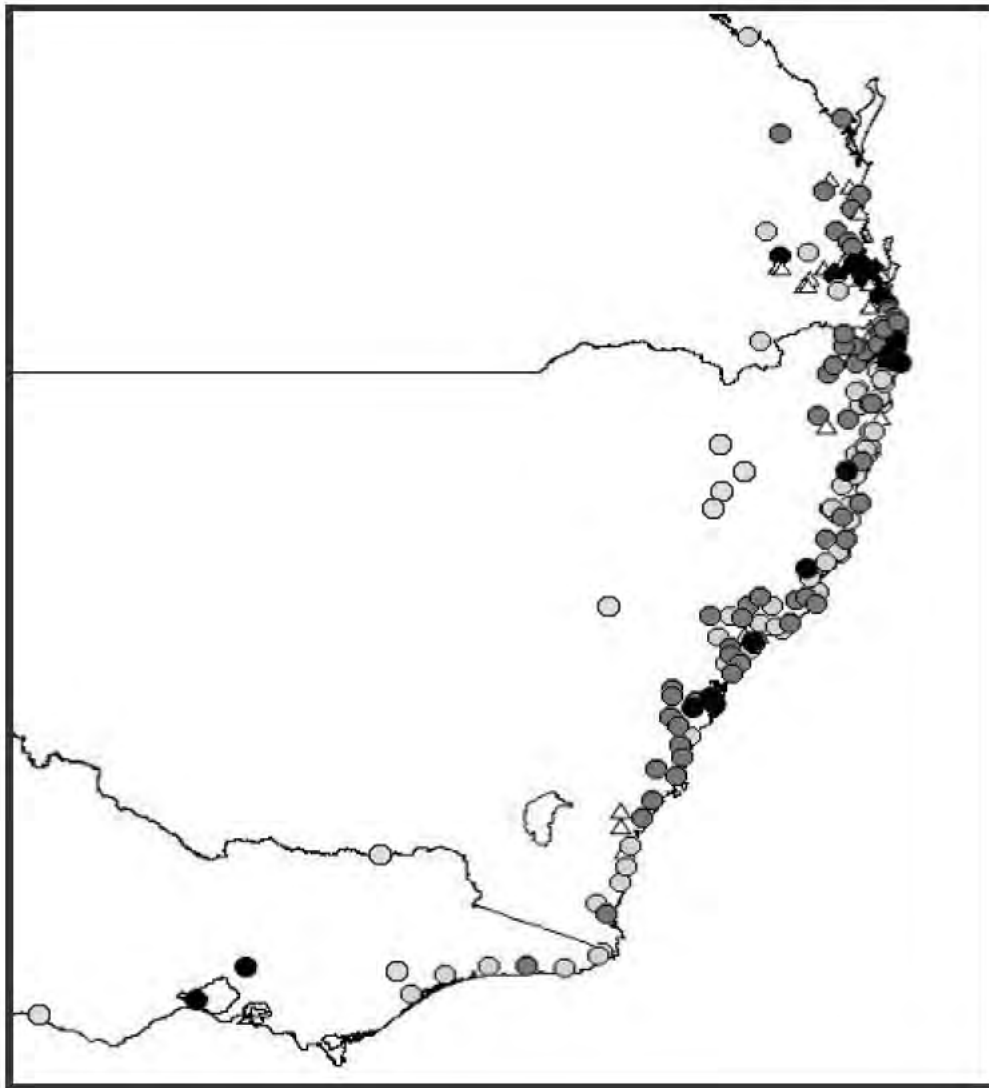


Figure 3: Locations of camps used by Grey-headed Flying-foxes, with indications of their patterns of use

- occupied continuously
- seasonal occupation > 80% of years
- occupied < 80% of years
- △ unknown, not continuous



2.4 Habitat critical to the survival of the species

In order to survive, Grey-headed Flying-foxes require a continuous sequence of productive foraging habitats, the migration corridors or stopover habitats that link them, and suitable roosting habitat within nightly commuting distance of foraging areas (Fleming and Eby 2003).

It should be noted that different jurisdictions have different legislative provisions and definitions of habitat critical to the survival of a species and of critical habitat. The legislative provisions and definition under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* apply to this national recovery plan.

A recovery plan for a nationally listed threatened species must identify the habitats that are critical to the survival of the species concerned and the actions needed to protect those habitats. S. 270(2)(d) of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* states that ‘In particular, a recovery plan must (subject to subsection (2A)):

- (d) identify the habitats that are critical to the survival of the species or community concerned and the actions needed to protect those habitats’

where subsection (2A) states that ‘A recovery plan need only address the matters mentioned in paragraphs (2)(d), (e), (f), (g) and (h) to the extent to which it is practicable to do so.’

S. 37(1) of the New South Wales *Threatened Species Conservation Act 1995* states that ‘The whole or any part or parts of the area or areas of land comprising the habitat of an endangered species, population or ecological community or critically endangered species or ecological community that is critical to the survival of the species, population or ecological community is eligible to be declared under this Part to be the critical habitat of the species, population or ecological community.’

That is, in New South Wales critical habitat can not be declared for a species listed as vulnerable under the *Threatened Species Conservation Act 1995*.

S. 13 of the Queensland *Nature Conservation Act 1992* states that

- ‘(1) Critical habitat is habitat that is essential for the conservation of a viable population of protected wildlife or community of native wildlife, whether or not special management considerations and protection are required.
- (2) A critical habitat may include an area of land that is considered essential for the conservation of protected wildlife, even though the area is not presently occupied by the wildlife.’

S. 20(1) of the Victorian *Flora and Fauna Guarantee Act 1988* states that ‘The Secretary may determine that the whole or any part or parts of the habitat of any taxon or community of flora or fauna is critical to the survival of that taxon or community.’

Foraging habitat critical to survival

The majority of myrtaceous plants in the diet of Grey-headed Flying-foxes flower within a defined season but are not annually reliable, and the locations of productive foraging habitat provided by these plants vary (Law *et al.* 2000, Eby and Lunney 2002, Birt 2005). In most months it is not possible to predict what localities will be productive, and therefore what localities will provide essential habitat for the species. All foraging habitat has the potential to be productive during general food shortages and to therefore provide a resource critical to survival.

On the basis of current knowledge, foraging habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Grey-headed Flying-foxes. Natural foraging habitat that is:

1. productive during winter and spring, when food bottlenecks have been identified (Parry-Jones and Augee 1991, Eby *et al.* 1999)
2. known to support populations of > 30 000 individuals within an area of 50 km radius (the maximum foraging distance of an adult)

3. productive during the final weeks of gestation, and during the weeks of birth, lactation and conception (September to May)
4. productive during the final stages of fruit development and ripening in commercial crops affected by Grey-headed Flying-foxes (months vary between regions)
5. known to support a continuously occupied camp.

Roosting habitat critical to survival

Grey-headed Flying-foxes roost in large aggregations in the exposed branches of canopy trees (Ratcliffe 1931, Nelson 1965a, Parry-Jones and Augee 1992). The locations of camps are generally stable through time, and several sites have documented histories that exceed 100 years (Lunney and Moon 1997). Camps provide resting habitat, sites of social interactions and refuge for animals during significant phases of their annual cycle, such as birth, lactation and conception (Parry-Jones and Augee 1992, 2001).

On the basis of current knowledge, roosting habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Grey-headed Flying-foxes. Roosting habitat that:

1. is used as a camp either continuously or seasonally in > 50% of years
2. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 10 000 individuals, unless such habitat has been used only as a temporary refuge, and the use has been of limited duration (i.e. in the order of days rather than weeks or months)
3. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 2 500 individuals, including reproductive females during the final stages of pregnancy, during lactation, or during the period of conception (i.e. September to May).

Additional points:

1. In order to reduce conflict, camps in remnant vegetation should be isolated from human habitation by a management zone > 300 m wide. The extent of the management zone should be included in the definition of the camp. It should comprise habitat unsuitable for roosting by flying-foxes (cleared land, low shrubs or isolated trees). Residential development, schools and other structures that might lead to conflict should be excluded.
2. Where possible, the area of vegetation defined as a camp should be large enough to accommodate influxes of migratory animals and enable the colony to change location.
3. Camps that are critical to the survival of the species may consist of introduced plants.

2.5 Mapping of habitat critical to the survival of the species

Habitat critical to the survival of Grey-headed Flying-foxes has not been mapped. Actions under this recovery plan will produce maps of habitat critical to survival.

3 Known and potential threats

3.1 *Biology and ecology relevant to threatening processes*

Diet and foraging ecology. Grey-headed Flying-foxes feed primarily on blossom and fruit in canopy vegetation and supplement this diet with leaves (Ratcliffe 1931, Parry-Jones and Augee 1991, Eby 1995, 1998, Tidemann 1999, Hall and Richards 2000). The majority of animals feed on nectar and pollen from eucalypts (genera *Eucalyptus*, *Corymbia* and *Angophora*), melaleucas and banksias. Grey-headed Flying-foxes forage over extensive areas. One-way commutes of approximately 50 km have been recorded between camps and foraging areas (Eby 1991), although commuting distances are more often < 20 km (Tidemann 1999).

Flying-foxes disperse pollen and seeds of diet plants during their foraging bouts; in this way they participate in the reproductive and evolutionary processes of forest communities. The movement of genetic material via seed and pollen dispersal provides plants with a range of benefits, and various characteristics of Grey-headed Flying-foxes contribute to this species' role as a pollen and seed disperser. Their mobility, size, territorial feeding behaviour, and colonial habit result in wide-ranging dissemination of pollen and seeds (Eby 1996, Southerton *et al.* 2004, Birt 2005). The nightly foraging areas of individuals generally contain several trees that may be separated by distances exceeding 5 km (Eby 1996, Birt 2005). The ability of flying foxes to move freely among habitat types allows them to transport genetic material across fragmented, degraded and urban landscapes.

The foraging behaviour of Grey-headed Flying-foxes alters when native food is scarce. Individuals decrease the costs of foraging by reducing their coloniality. They roost individually, or in small groups, near feeding trees. Usual patterns of foraging behaviour are relaxed as animals come down close to the ground in search of food and increase the use of cultivated plants, particularly commercial fruit crops (Ratcliffe 1931, McWilliam 1986, Teagle 2002). Contact with humans increases in these circumstances, and greater numbers of animals are at risk of mortality from crop management practices.

Long distance movements. The majority of eucalypts have regular seasonal flowering schedules but do not flower every year, and there are few areas within the range of the Grey-headed Flying-fox where nectar is available continuously (House 1997, Wilson and Bennett 1999, Law *et al.* 2000). Grey-headed Flying-foxes have no adaptations for withstanding food shortages (e.g. torpor) and migrate in response to changes in the amount and location of food (Hall and Richards 2000). Evidence from broad-scale surveys, radio-telemetry and satellite-telemetry shows that adults and young can move hundreds of kilometres between productive habitats (Eby 1991, Spencer *et al.* 1991, Parry-Jones 1993, Augee and Ford 1999, Tidemann and Nelson 2004). In most areas within the species' range, patterns of migration and distribution vary considerably between seasons and between years (Eby and Lunney 2002). The mechanisms that flying-foxes use to locate stands of flowering trees are unknown and have not been studied. However, no speculative movements of large numbers of animals have been observed, and there is inferential evidence that information exchange plays a role in locating food.

Roosting ecology. Grey-headed Flying-foxes display a degree of flexibility in their choice of camp vegetation (Tidemann 1999, Peacock 2004, Roberts 2005). Camps are commonly located in closed forest, *Melaleuca* swamps or stands of *Casuarina* and are generally found near rivers or creeks (Ratcliffe 1932, Hall and Richards 2000). More open vegetation, including introduced species such as willows, poplars and pines, is used in southern and inland areas. Camps occur in vegetation ranging from continuous forest to remnants as small as 1 ha (Eby 2002, West 2002) and in southeast Queensland there is a propensity for camps to be situated in urban environments (Roberts 2005, 2006). Optimal roosting conditions have not been described, and the relative benefits of using sites of different floristic or structural traits need further investigation (Tidemann 1999, Peacock 2004, Roberts 2005).

Patterns of camp occupation vary, ranging from sites that are inhabited continuously to those that are inhabited only rarely (Parry-Jones 1993, Eby 1995). Although many camps have distinguishable seasonal cycles of occupation, annual variations can be extreme, and peak population size can exceed 50 000 (Ratcliffe 1931, Parry-Jones and Augee 1992, Parry-Jones 1993, Eby *et al.* 1999, Birt 2000). The number of flying-foxes in most camps is primarily related to the amount of food available within nightly commuting distance, although the annual reproductive cycle also influences the stability and size of populations (Ratcliffe 1931, Nelson 1965a, Parry-Jones and Augee 2001, Birt 2005).

Camps are used as day refuges by animals that forage in surrounding areas over several weeks, and as short-term stopover sites by migrating animals (Eby 1991, 1995, Tidemann and Nelson 2004). They are the sites of social behaviours associated with reproduction and maternal care (Nelson 1965b, Markus and Blackshaw 2002, Connell *et al.* 2006). For several weeks in late spring and summer they provide refuge for flightless young. Vocalisations associated with territorial disputes and mother–infant recognition are most concentrated pre-dawn, when animals return to camps (Markus and Blackshaw 2002). The majority of trees are occupied by groups of mixed-sex adults. These groups comprise a single male, who scent-marks and defends a territory shared by one or more females who may have dependent young (Nelson 1965b, Markus and Blackshaw 2002). Males mate with females that occupy their territories, and polygamy is common.

When undisturbed, camp locations are generally stable through time (Lunney and Moon 1997). This characteristic applies to camps that are used on an annual basis as well as those that are used infrequently. It is unclear whether the capacity of Grey-headed Flying-foxes to locate infrequently used sites is a result of a well-developed spatial memory in a long-lived species, or of the specific qualities of camps. For example, the Palm Grove in the Royal Botanic Gardens Sydney contained Grey-headed Flying-foxes for short periods in 1858, 1900, 1916, 1920 and 1989 (A. Leishman pers. comm., Royal Botanic Gardens Sydney). It is unlikely that this pattern of occupation can be attributed to memory alone. The site may have physical characteristics that are attractive to the species.

Grey-headed Flying-foxes alter the vegetation of camps, particularly those in small patches of remnant forest or public gardens (Hall 2002, Richards 2002). Roosting animals defoliate trees and break end branches. Concerns exist regarding the effects of periodic defoliation on photosynthesis and reproduction, the effects of reduced canopy cover on establishment rates of exotic weeds, and the effects of faecal material on soil nutrient levels (Floyd 1990, Pallin 2000). When camps occur in large remnants the animals move within the available space through time, providing opportunities for roost trees to recover (Hall 2002). Pressure on trees is more consistent in small remnants and gardens (Richards 2002, West 2002). Flying-fox camps have been incorporated into successful habitat regeneration programs in locations such as Wingham Brush, Bellingen Island, Currie Park (Lismore) and Gordon (Sydney) (e.g. Pallin 2000).

Breeding. Reproduction in Australian flying-foxes is seasonal and synchronous (Ratcliffe 1931, Nelson 1965b, O'Brien 1993). Grey-headed Flying-foxes give birth to single pups in October or November (Martin and McIlwee 2002) and lactate approximately to March. Mating behaviour commences in January and conception occurs in April or May (Nelson 1965b, O'Brien 1993, Martin *et al.* 1996). Individuals reach reproductive maturity in the second year of life. However, there is evidence that few females younger than three years successfully raise young to independence (McIlwee and Martin 2002). This low reproductive potential inhibits the capacity of Grey-headed Flying-foxes to recover from population declines (McIlwee and Martin 2002).

Relationship with other Australian flying-foxes. The range of Grey-headed Flying-foxes overlaps with those of two other flying-fox species, Black Flying-foxes and Little Red Flying-foxes. Grey-headed Flying-foxes and Black Flying-foxes are closely related species that share many behavioural and ecological characteristics. In regions where their ranges overlap, their diet lists are equivalent (Hall and Richards 2000, Birt 2005). There is no evidence that foraging behaviours differ, although this has not been a specific area of research. Both species are highly

colonial and share camp sites, within which they segregate spatially (Ratcliffe 1932, Nelson 1965a, McWilliam 1986, Birt and Markus 1999, Eby 2004). In addition, both species are synchronous, seasonal breeders and their annual reproductive cycles are closely aligned at subtropical latitudes (Nelson 1965b, Webb and Tidemann 1995, Martin *et al.* 1996). Grey-headed Flying-foxes and Black Flying-foxes hybridise and produce fertile offspring (G. O'Brien, University of New England unpublished data), although rates of hybridisation in wild populations are unknown (Webb and Tidemann 1995). Little Red Flying-foxes irregularly occupy camps used by Grey-headed Flying-foxes and also share diet plants (Ratcliffe 1931, Nelson 1965a, Birt and Markus 1999, Hall and Richards 2000). Their reproductive schedule is approximately six months out of phase with those of the other two species, and hybridisation with Grey-headed Flying-foxes has not been observed (Ratcliffe 1931, Nelson 1965b, O'Brien 1993, Martin *et al.* 1996).

Disease. During the mid-1990s Australian flying-foxes were identified as natural reservoirs of three newly-described zoonotic diseases: a rabies-like disease, Australian bat lyssavirus (ABL), and two paramyxoviruses, Hendra virus (also known as equine morbillivirus) and Menangle virus (Philbey *et al.* 1998, Halpin *et al.* 2000, Hanna *et al.* 2000). ABL is a fatal disease that is transmitted to humans through bites or scratches when the saliva of infected bats comes into contact with an open wound (Anon 1996). There is no evidence that this or other rabies-like viruses can be transmitted through urine or faeces. Effective pre-exposure and post-exposure protection from ABL is available through a vaccine that can be administered by medical practitioners. There is no evidence that the two paramyxoviruses can be transmitted directly from bats to humans, although each has been transmitted to humans by domestic animals (horses and pigs) (H. Field pers. comm., Queensland DPI, T. Ross pers. comm., NSW Agriculture). The disease risk to the general bat population and to humans remains an active area of research (e.g. Barrett 2004, Barrett *et al.* 2005).

3.2 Identification of threats

Habitat loss: High Priority Threat

Foraging habitat. Loss of foraging habitat is consistently identified as the primary threat to Grey-headed Flying-foxes (Ratcliffe 1931, Tidemann *et al.* 1999, Dickman and Fleming 2002, Eby and Lunney 2002). Reductions in nectar flow and fruit productivity occur as a result of forest clearance and degradation, reductions in floristic diversity, simplification of age structure from forestry practices, eucalypt dieback, drought, fire, climate change and the vulnerability of flowering and fruiting schedules to fluctuations in such factors as temperature and rainfall (Norton 1996, House 1997, Wilson and Bennett 1999, Law *et al.* 2000, Hughes 2003). Clearing of native vegetation for agriculture, forestry operations, plantation plantings, and development continue to reduce food production from eucalypts and other native species in the diet of Grey-headed Flying-foxes (Accad *et al.* 2001, Wilson *et al.* 2002, Queensland Department of Natural Resources and Mines 2005). Plant communities in coastal areas exposed to rapid increases in human population are severely affected (Catterall *et al.* 1997, Williams *et al.* 2001, Keith and Scott 2005).

The complexity of the habitat requirements of the Grey-headed Flying-fox—particularly its requirement for multiple, geographically dispersed populations of food trees—militates against conserving foraging habitats within a system of conservation reserves and leaves the species vulnerable to land-use decisions in unreserved forests (Parry-Jones 1993, Pressey 1994, Eby 1996, Tidemann and Vardon 1997). The clearing of habitat continues as a threat to the Grey-headed Flying-fox. Sources of clearing include that undertaken for rural development, and for urban and infrastructural development. Significant areas are also cleared to establish commercial hardwood and softwood plantations. Many habitats cleared in recent years are those that were retained under earlier land-use regimes because of a lack of agricultural potential (Catterall *et al.* 1997). The impacts of clearing are difficult to predict with accuracy and are unlikely to be manifested immediately owing to the irregular nature of eucalypt flowering.

Clearing of winter forage is a particular concern for the species. Few diet plants flower in winter, and those that flower reliably occur on coastal lowlands in northern New South Wales and southern Queensland (Eby *et al.* 1999, Eby and Lunney 2002). Grey-headed Flying-foxes congregate in these habitats. The vegetation communities that contain winter-flowering *Eucalyptus tereticornis* (Forest Red Gum), *Eucalyptus robusta* (Swamp Mahogany) and *Melaleuca quinquenervia* (Five-veined Paperbark) have been substantially cleared, are poorly represented in conservation reserves, occur primarily on privately owned land and continue to be cleared at high rates (Catterall *et al.* 1997, Sattler and Williams 1999, Accad *et al.* 2001, Wilson *et al.* 2002, Keith and Scott 2005). Substantial tracts are zoned for residential development and rural use. For example, approximately 62% of the remaining swamp vegetation containing *M. quinquenervia* or *E. robusta* in the Coffs Harbour Local Government Area is zoned for land use that makes it available for development under the current Local Environment Plan (K. Taylor pers. comm., formerly of Coffs Harbour City Council). Studies of rates of clearing in southeast Queensland indicate that 0.7% to 1.1% of the remaining vegetation that contains key winter-flowering species is cleared each year (Accad *et al.* 2001, and unpublished data of the Queensland Herbarium).

There is evidence that spring forage is currently inadequate to provide reliable resources during critical periods in the reproductive cycle of Grey-headed Flying-foxes. The species is subject to recurring food shortages during late gestation, birth and early lactation; these shortages are associated with rapid weight loss in adults and poor reproductive success (Eby 1999, Collins 2000, Parry-Jones and Augee 2001). Spring food shortages have been reported over large portions of the range in six of the past 20 years, and more frequently in some local areas (Parry-Jones and Augee 2001, Teagle 2002, B. White pers. comm., NSW Agriculture). Their impact is exacerbated by associated increases in the use of commercial fruit crops, exposing Grey-headed Flying-foxes to destructive crop management regimes (Teagle 2002).

Roosting habitat. Loss of roosting habitat has also been identified as a threat to Grey-headed Flying-foxes (Tidemann *et al.* 1999, NSW Scientific Committee 2001). Camp vegetation has been exposed to the same historical patterns of clearing and degradation as has foraging habitat (Lunney and Moon 1997, Hall 2002). The roosting requirements of Grey-headed Flying-foxes are not known, nor are the impacts on the species of loss of long-term sites, which may be selected to meet specific requirements. The degradation of vegetation in small remnants threatens longevity and may also reduce the suitability of sites as camps (Pallin 2000).

Deliberate destruction associated with commercial horticulture: High Priority Threat

Grey-headed Flying-foxes have caused damage to cultivated fruit crops since the time of European settlement (Ratcliffe 1931, Tidemann *et al.* 1997). Crops grown in coastal areas north from the Illawarra are most commonly affected, although the increase in occurrence of Grey-headed Flying-foxes in eastern Victoria in the past 20 years has been associated with locally significant and sporadic crop damage in that region (I. Temby pers. comm., Victorian Department of Sustainability and Environment). Levels of damage vary considerably between localities and years (Teagle 2002). There is evidence that some relatively new crops such as lychees and some varieties of bananas sustain particularly high levels of damage (Rogers 2002, Teagle 2002).

Shooting is the method most commonly used to protect crops against flying-fox damage (Teagle 2002). The effectiveness of shooting as a crop protection method has not been quantified. Growers report that shooting provides adequate protection in years of low flying-fox pressure but is ineffective in years of severe attack (Comensoli 2002, Teagle 2002). The numbers of animals shot is unknown, but past estimates have been as high as 100 000 a year (Wahl 1994, Vardon and Tidemann 1995), with the majority of animals killed being pregnant and lactating females (Tidemann *et al.* 1997, Parry-Jones and Augee 2001). State-based permit systems regulate the kill (McKinnon *et al.* 2002, Waples 2002). A nationally agreed limit for damage mitigation licences to 1.5% of the population size was put in place in 2002, when Grey-headed

Flying-foxes were listed as Vulnerable under the EPBC Act (Department of the Environment and Heritage 2003a). Compliance monitoring is problematic, and substantial unlicensed deliberate destruction has been reported (Wahl 1994, Vardon and Tidemann 1995, Richards 2000, McLachlan 2002, Waples 2002, Ballard 2004). There are animal welfare issues associated with the unknown accuracy of shots fired at flying animals at night and the extent of injuries sustained by animals that are not killed immediately. The impact of deliberate destruction of flying-foxes in crops on the size and demographic structure of the population is unknown.

It should be noted that as of 1 September 2008, the Queensland Government no longer permits the killing of flying-foxes for crop protection. The move follows a finding by the Queensland Government's Animal Welfare Advisory Committee that shooting flying-foxes for crop protection is inhumane. A strategic compliance program will be undertaken to manage instances of illegal shooting.

Competition with Black Flying-foxes: Threat Priority Unknown

Ecological processes influence the distribution of species. The observed changes in the distribution of flying-fox species in Australia and the interaction of these flying-fox species are natural processes that are influenced by factors such as climate change. That is, the interaction between the Grey-headed and the Black Flying-fox is a natural process. Expansion of the southern limit of Black Flying-foxes has increased the area of overlap with Grey-headed Flying-foxes (Figure 4), and the movement of Black Flying-foxes into new areas has consistently been followed by an increase in abundance relative to that of Grey-headed Flying-foxes. This has occurred in floristically diverse regions east of the escarpment that provide continuous food and suitable camps for both species. There is no evidence that Black Flying-foxes and Grey-headed Flying-foxes use agonistic behaviours to compete directly for resources (N. Markus pers. obs., P. Eby pers. obs.). However, the increasing displacement of Grey-headed Flying-foxes suggests that indirect competition favours Black Flying-foxes.

The ongoing nature of shifts in the southern limit of Black Flying-foxes can be traced through studies conducted in the 1920s (Ratcliffe 1931), 1960s (Nelson 1965a) and 1990s (Eby and Palmer 1991, Eby 1995) and through surveys conducted from 1998 to 2004 (Eby *et al.* 1999, Eby 2004). In each study, range boundaries were defined by inspecting populations of communal roosts. Extra-limital sightings or vagrancy can confound assessments of range boundaries in highly mobile, migratory species such as flying foxes. In this summary, extra-limital sightings are defined by number of individuals, reproductive status and duration of stay. Sightings of < 50 non-breeding individuals or a single sighting of > 50 individuals of < 4 weeks duration are considered extra-limital and are not included in the assessment.

Between 1930 and 1960 the southern limit of the range of Black Flying-foxes moved south by approximately 300 km from the Mary River in Queensland to the Tweed River in New South Wales (Figure 4). In 1990 the southernmost camp used by the species was located 40 km farther south, at the mouth of the Richmond River. However, it is unclear whether this represented a shift in range, as camps located between the Richmond and Tweed rivers were not surveyed in the 1960s study. From 1990 to 2004 the southern limit of Black Flying-foxes shifted rapidly, by a total of about 350 km, to the Manning River. A dead neonate was found in Newcastle in 2005, and adults of both sexes and neonates have been recorded in the Newcastle camp since 2006. In that year, approximately 75 individuals, including breeding females and dependent young, were also observed roosting in the Royal Botanic Gardens Sydney. The southern limit had shifted a further 250 km in two years. In 2007 the population estimate in the Royal Botanic Gardens Sydney was 120. Small numbers of Black Flying-foxes (< 10) were recorded in the Kurnell camp in Sydney in February 2008. These sightings are not included in Figure 4. The NSW Scientific Committee made a final determination in August 2008 to de-list the Black Flying-fox from the schedules of the New South Wales *Threatened Species Conservation Act 1995*.

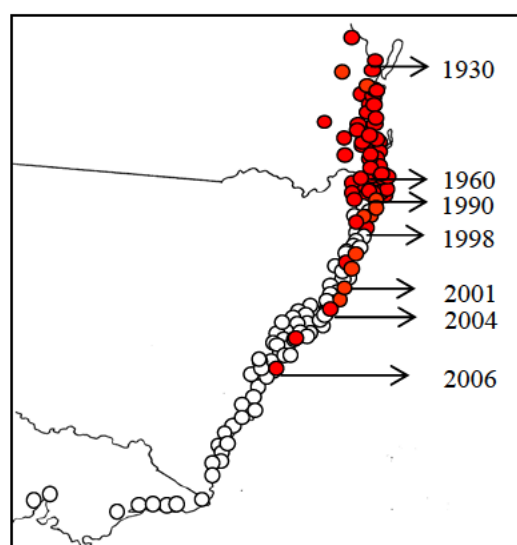


Figure 4: Timing and extent of southern extensions to the range of Black Flying-foxes

This map shows camps used by Black Flying-foxes during national surveys from 1998 to 2004, and the 2006 sightings in Newcastle and the Royal Botanic Gardens Sydney (filled circles). Open circles represent camps occupied by Grey-headed Flying-foxes and not Black Flying-foxes. Within the area of overlap, all camps used by Black Flying-foxes are also used by Grey-headed Flying-foxes.

Relative abundance of Black Flying-foxes. Expansions to the range of Black Flying-foxes have consistently foreshadowed an increase in the local abundance of the species relative to that of Grey-headed Flying-foxes. During the past 20 years the numbers of Grey-headed Flying-foxes relative to those of Black Flying-foxes have declined markedly in coastal areas north from the Clarence Valley and in the tablelands of southeast Queensland (Birt 2000, Hall 2002, Eby 2004, B. Thomson Queensland Environmental Protection Agency unpublished). In 1960, Black Flying-foxes were found in small numbers (50 to 500) in camps from Nambour, Queensland, to the Tweed River (Nelson 1965a). Camps in this region were not monitored in the 1990s study. However, more recent work documented a substantial escalation in the relative abundance of Black Flying-foxes in all camps in the area (Eby *et al.* 1999, Birt 2000, Eby 2004). The rate of increase in northern New South Wales has been particularly rapid in the past 10 years.

Negative public attitudes and conflict with humans: Medium Priority Threat

Conflict between humans and Grey-headed Flying-foxes is an ongoing and apparently increasing problem that particularly affects camps in coastal areas (Smith 2002, Tidemann 2002, West 2002). Conflict and negative perceptions of Grey-headed Flying-foxes can impact the population directly through harassment and deliberate destruction, or indirectly by inhibiting or impeding community support for conservation initiatives. In recent years the incidence of interactions between humans and Grey-headed Flying-foxes has apparently risen. A rapid increase in the human population of coastal Queensland and New South Wales has caused camps that were once isolated from human activities to be increasingly surrounded by urban and rural residential development (Smith 2002, West 2002, Coffs Harbour City Council 2004). The population size and continuity of occupation of camps in metropolitan areas have also increased (Birt *et al.* 1998, Hall 2002, Richards 2002, van der Ree *et al.* 2006). This trend has been associated with an increase in the density and diversity of food trees in the gardens and streetscapes of cities like Sydney and Melbourne, together with increasing pressures on Grey-headed Flying-foxes in non-urban landscapes from reductions in the availability of native forage and increasing competition from Black Flying-foxes (Birt *et al.* 1998, Hall and Richards 2000, Parry-Jones and Augee 2001, Hall 2002).

People living near camps are exposed to several annoyances, including both the noise from vocal communications of animals during the day and pre-dawn when they return from foraging and the pungent smell created by the dense concentration of animals. People in close proximity are also likely to be concerned about disease (Eby 1995, Tidemann 1999, Smith 2002). Active or aggressive disturbances (sometimes including deliberate destruction), have been used in attempts to remove animals from camps (Lunney and Moon 1997, Tidemann 1999, 2002, Hall

2002). Efforts to break the fidelity of Grey-headed Flying-foxes to specific camps have generally been unsuccessful. In the few situations where the animals have moved, ongoing programs of disturbance have been required to keep them away. An exception is the experience at the Royal Botanic Gardens Melbourne, where no ongoing disturbances have been required (S. Toop pers. comm., Victorian Department of Sustainability and Environment). It has not been possible to precisely pre-determine the locations of replacement roosts, and problems with conflict can shift to different sites (Hall 2002). There is a growing view that it is best to manage camps where they are and develop strategies to reduce their impact.

Electrocution on powerlines, entanglement in netting and on barbed-wire: Low Priority Threat

Grey-headed Flying-foxes are prone to accidental injury and death from various artificial obstacles. They are prone to electrocution on powerlines, particularly in urban areas, and increasing urbanisation of the population exposes larger proportions to electrocution (Tidemann 1999, K. Parry-Jones, University of Sydney unpublished data). Animals become entangled in fine gauge netting that is draped loosely over backyard fruit trees. Entanglement on barbed-wire affects animals in rural areas, although the incidence of this is unknown.

Climate change: Threat Priority Unknown

Climate change in the coming decades has the potential to affect food availability and heat-related mortality in Grey-headed Flying-foxes. Current models of climate change predict that mean maximum temperatures in southeast Australia will rise (Pittock and Wratt 2001). Many eucalypts have a narrow range of tolerance to temperature and rainfall, and the predicted levels of change are expected to impact distribution and reproduction (Hughes *et al.* 1996, Hughes 2003). Regional trends in honey yield have been identified as potential indicators of the impacts of climate change on biodiversity (Department of the Environment and Heritage 2003b). The occurrence of extreme temperatures is also predicted to rise. Exposure to high temperatures results in mortality in Grey-headed Flying-foxes (Parry-Jones 2000, Eby *et al.* unpublished, Welbergen *et al.* 2007). Mortality rates are low at ambient temperatures of 41 to 43.5° C but increase rapidly at temperatures > 43.5° C, particularly affecting flightless young.

Disease: Low Priority Threat

Grey-headed Flying-foxes are reservoirs of three recently-described zoonotic diseases (Field 2002). Australian bat lyssavirus (ABL) can cause clinical disease and mortality in Grey-headed Flying-foxes. The incidence of ABL in the species is low (< 1%). The virus appears to have evolved with the bats and generally is in equilibrium with the population (H. Field pers. comm., Queensland Department of Primary Industries). However, when flying-foxes undergo significant ecological stress, the incidence of ABL can increase to the point where the disease is no longer in equilibrium and the population is impacted. No clinical disease or mortality in flying-foxes is associated with Hendra virus or Menangle virus (H. Field pers. comm., Queensland Department of Primary Industries, T. Ross pers. comm., NSW Agriculture).

3.3 Areas and populations under threat

The processes that threaten Grey-headed Flying-foxes are most prevalent in coastal areas north from the Sydney Basin. Rates of forest clearing and modification are high in this region, as are rates of increase in the human population. The region supports large and varied commercial fruit growing operations, and it is experiencing a rapid increase in abundance of Black Flying-foxes. These coastal areas also support the greatest natural diversity of food plants and the most consistent presence of the species outside metropolitan areas. A range of management issues and responses have been explored and implemented in these areas, with varying degrees of success (see Nelson 2008, and Department of Environment and Climate Change 2008).

4 Objectives, criteria and actions

4.1 Recovery objectives and timelines

Overall objectives

The overall objectives of recovery are:

- to reduce the impact of threatening processes on Grey-headed Flying-foxes and arrest decline throughout the species' range
- to conserve the functional roles of Grey-headed Flying-foxes in seed dispersal and pollination
- to improve the standard of information available to guide recovery of the Grey-headed Flying-fox, in order to increase community knowledge of the species and reduce the impact of negative public attitudes on the species.

Specific objectives

Specific objectives to be met in the 5-year timeframe of this recovery plan are listed below, not in priority order. Initiatives to meet these objectives will incorporate principles of sustainable development and promote procedures to minimise significant adverse social and economic impacts, such as the use of environmental incentive schemes and equitable cost-sharing arrangements.

- *Objective 1.* To identify and protect foraging habitat critical to the survival of Grey-headed Flying-foxes throughout their range
- *Objective 2.* To protect and increase the extent of key winter and spring foraging habitat of Grey-headed Flying-foxes
- *Objective 3.* To identify roosting habitat critical to the survival of Grey-headed Flying-foxes
- *Objective 4.* To protect and enhance roosting habitat critical to the survival of Grey-headed Flying-foxes
- *Objective 5.* To substantially reduce deliberate destruction of Grey-headed Flying-foxes in fruit crops
- *Objective 6.* To reduce negative public attitudes toward Grey-headed Flying-foxes and reduce conflict with humans
- *Objective 7.* To increase public awareness and understanding of Grey-headed Flying-foxes and the recovery program, and to involve the community in recovery actions, where appropriate, to reduce the threat of negative public attitudes and conflict with humans
- *Objective 8.* To monitor population trends in Grey-headed Flying-foxes so as to monitor the species' national distribution and status
- *Objective 9.* To assess and reduce the impact on Grey-headed Flying-foxes of electrocution on powerlines and entanglement in netting and on barbed-wire
- *Objective 10.* To improve knowledge of the demographics and population structure of Grey-headed Flying-foxes in order to increase understanding of the ecological requirements of the species
- *Objective 11.* To increase the effectiveness and efficiency of recovery initiatives for Grey-headed Flying-foxes by working cooperatively with conservation and management programs with overlapping objectives to remove or reduce the impact of threatening processes on the species
- *Objective 12.* To maintain an effective Grey-headed Flying-fox National Recovery Team to oversee the implementation of the Grey-headed Flying-fox National Recovery Plan to remove or reduce the impact of threatening processes on the species.

- *Objective 13.* To provide long-term economic benefits associated with the protection of ecosystem services, promotion of sustainable forest management, improved crop protection regimes, promotion of sustainable agricultural practices and increased viability of some commercial fruit industries.

4.2 Performance criteria

The following performance criteria are to be used to assess achievement of the above objectives and are to be met in the 5-year life of this recovery plan:

- *Criterion 1.* Foraging habitat critical to survival of Grey-headed Flying-foxes identified and the extent of this habitat that is protected under conservation management programs increased
- *Criterion 2.* The extent of Grey-headed Flying-fox winter and spring foraging habitat that is protected under conservation management programs increased, and tree-planting and habitat rehabilitation programs to extend winter and spring foraging habitat implemented
- *Criterion 3.* Camps critical to the survival of Grey-headed Flying-foxes identified and mapped
- *Criterion 4.* The number of Grey-headed Flying-fox camps critical to survival that are protected under conservation management programs increased
- *Criterion 5.* Damage to orchard industries by Grey-headed Flying-foxes reduced and deliberate destruction in crops substantially reduced
- *Criterion 6.* Increase in uptake of effective non-lethal flying-fox control practices by orchard industries
- *Criterion 7.* Both negative public attitudes toward Grey-headed Flying-foxes and conflict with humans reduced
- *Criterion 8.* Educational material for increasing public awareness and understanding of Grey-headed Flying-foxes and the recovery program developed and circulated, and members of the general community involved in recovery actions
- *Criterion 9.* Methods for assessing abundance in Grey-headed Flying-foxes improved, error in abundance measures estimated, and population trends monitored
- *Criterion 10.* The incidence of Grey-headed Flying-fox electrocution on powerlines and entanglement in netting and on barbed-wire assessed and reduced
- *Criterion 11.* Knowledge of the demographics and population structure of Grey-headed Flying-foxes improved
- *Criterion 12.* Cooperative alliances formed with appropriate conservation programs
- *Criterion 13.* Strategic direction and coordination between State and Australian Government agencies for implementation of the Grey-headed Flying-fox National Recovery Plan.

4.3 Evaluation of performance

The recovery objectives seek to determine initial benchmarks to enable future monitoring and performance evaluation of the suggested recovery actions, and to track their effectiveness in recovering the Grey-headed Flying-fox. A recovery team will be established to manage and review the performance of the recovery plan. The team will evaluate success or failure against criteria set out in the plan. The recovery team will meet annually to discuss progress and, if necessary, to revise actions. Written reports evaluating performance against criteria will be provided to the Department of the Environment, Water, Heritage and the Arts after three and five years. The recovery team should include representatives of the conservation agencies of each of the three range States and of the Australian Government, representatives of primary stakeholders, and at least one person with scientific expertise suitable for evaluating the progress of research actions.

4.4 Actions for recovery

Actions for recovery of Grey-headed Flying-foxes are listed below. Some underlying principles of the actions are:

- Range-wide, integrated strategies of habitat protection are needed to conserve Grey-headed Flying-foxes. Priority habitats need to be identified and direct actions taken to incorporate the needs of the species into pre-existing mechanisms for protecting, enhancing and rehabilitating native vegetation, particularly on privately-owned land.
- Neither Grey-headed Flying-foxes nor commercial fruit industries are well served by current programs that aim to regulate deliberate destruction in crops. Grey-headed Flying-foxes are best protected from deliberate destruction in crops by eliminating their financial impact on commercial fruit industries and thereby removing the imperative to kill.
- Recovery of Grey-headed Flying-foxes cannot occur without wide community participation. In several areas, negative public attitudes toward the species act as an impediment to the recovery process. Strategic programs of public education and programs to reduce conflict are needed to address this problem.

Action 1: Identify and protect foraging habitat critical to the survival of Grey-headed Flying-foxes across their range

Objectives 1, 2, 7 and 11

Background. This set of actions aims to improve conservation outcomes for Grey-headed Flying-foxes by developing and implementing a range-wide, integrated strategy of habitat protection. Priority habitat will be identified and opportunities will be sought to protect priority habitat by using the range of instruments and procedures available under Federal, State and local government authorities. On privately-owned land, preference will be given to incentive-based programs and voluntary conservation arrangements. Integral to the process will be a program to educate land managers, decision-makers and the general public about the habitat requirements of Grey-headed Flying-foxes and to promote the biodiversity and economic benefits of conserving foraging habitats.

Action 1.1: Set priorities for protecting foraging habitat and generate maps of priority habitat for the Grey-headed Flying-fox

Priority 1

Action has commenced

- Set priorities for habitat protection on the basis of both importance to Grey-headed Flying-foxes and conservation status.
- Incorporate priorities into existing habitat maps.
- Identify areas of overlap between priority habitats for Grey-headed Flying-foxes and those of other threatened fauna and flora, particularly nectar- or fruit-feeding birds and mammals, and vulnerable and endangered vegetation communities.
- Inform appropriate staff of Department of the Environment, Water, Heritage and the Arts and State wildlife management and planning agencies of maps of ranked habitat, and provide copies as required.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$30,000	0	0	0	0	\$30,000

Action 1.2: Protect and enhance priority foraging habitat of the Grey-headed Flying-fox
Priority 1

Action has commenced

- Identify opportunities to protect and enhance priority habitats identified in Action 1.1 under instruments such as clearing regulations for native vegetation, State and Commonwealth threatened species legislation, forestry management plans, regional natural resource management plans, catchment management plans, local government environmental plans and development assessments, voluntary conservation agreements and Land for Wildlife programs.
- Particular emphasis should be placed on incorporating priority habitat on privately-owned land into available incentive-based or volunteer conservation programs.
- Promote protection and enhancement under these procedures through direct contact with appropriate authorities or individuals.
- Provide to authorities any background information or data they require for their decision-making processes (e.g. habitat definitions and maps of priority habitats). Material should be provided in a format appropriate to their systems. Broader biodiversity benefits, such as benefits to other threatened taxa, and economic benefits, such as implications for the fruit, forestry and apiary industries, should be highlighted in background material.
- Collaborate with other conservation initiatives.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$27,000	\$9,500	\$9,500	\$9,500	\$9,500	\$65,000

Action 2: Enhance winter and spring foraging habitat for Grey-headed Flying-foxes

Objectives 2, 5, 7 and 11

Background. Evidence of repeated food shortages during winter and spring indicates that inadequate productive foraging habitat exists in these seasons to sustain the current Grey-headed Flying-fox population. Pre-existing tree-planting and habitat restoration and rehabilitation programs provide vehicles for increasing the extent and viability of habitats productive in these seasons.

Action 2.1: Increase the extent and viability of foraging habitat for the Grey-headed Flying-fox that is productive during winter and spring

Priority 1

- Set regional priorities for tree-planting, restoration and rehabilitation work to increase the extent of, and protect the viability of, habitat containing plants important to Grey-headed Flying-foxes during winter and spring.
- Describe the broader biodiversity benefits of priority work, such as benefits to other threatened taxa, and the economic benefits, such as implications for the fruit, forestry and apiary industries.
- Develop material to promote priority plants to existing tree-planting and habitat restoration and rehabilitation programs, as well as to the agencies and instruments that support them, such as local government, catchment management authorities, natural resource management plans, and farm forestry operations.
- Promote priority plants for Grey-headed Flying-foxes by actions such as direct contact with individual agencies and groups and presentations at conferences.
- Collaborate with other conservation initiatives.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$70,000

Action 3: Identify, protect and enhance roosting habitat critical to the survival of Grey-headed Flying-foxes

Objectives 3, 4 and 7

Action 3.1: Establish and maintain a range-wide database of Grey-headed Flying-fox camps
Priority 2

Action has commenced

- Database to include information pertinent to management, including location, tenure, local government area, land-use zoning, species of flying-fox and history of use.
- Generate and circulate to relevant land management and planning authorities, researchers and interested public range-wide digital maps of camp localities, including point localities and shape files showing the boundary of the maximum area used by roosting animals. Include shape files of nominal buffer zones for limited development, as described in Section 2 of this recovery plan.
- Lodge the data with relevant State and Australian Government conservation agencies and put in place formal inter-agency data-sharing arrangements.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$15,000	0	\$10,000	0	\$10,000	\$35,000

Action 3.2: Improve knowledge of Grey-headed Flying-fox camp locations, particularly in inland areas

Priority 2

Action has commenced

- Undertake surveys of Grey-headed Flying-foxes that target regional areas and seasons where information is notably incomplete, such as inland areas during spring and summer.
- Promote public participation in surveys and reporting of camp locations.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$25,000	0	\$10,000	0	\$10,000	\$45,000

Action 3.3: Protect roosting habitat critical to the survival of the Grey-headed Flying-fox
Priority 1

Action has commenced

- Identify camps critical to the survival of Grey-headed Flying-foxes by using criteria set out in Section 2 of this recovery plan.
- Promote protection of camp vegetation under instruments such as local government environmental plans and development assessments, regional development plans, catchment management plans, forestry management plans, voluntary conservation agreements and Land for Wildlife programs.

- Promote the protection of management zones around camp vegetation, as described in Section 2 of this recovery plan.
- Develop information packages for local government planners and other land managers aimed at encouraging protection of camps and prohibiting inappropriate development in exclusion zones. Promote the value to humans of this approach. Include information on flying-fox biology, issues of community concern such as noise and disease, and summaries of recent management experiences at flying-fox camps (see Actions 5 and 6).
- State agencies to review the application of their relevant camp management policies by Year 5.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$14,000	\$12,750	\$12,750	\$12,750	\$12,750	\$65,000

Action 3.4: Determine the characteristics of roosting habitat for the Grey-headed Flying-fox
Priority 2

Action has commenced

- Conduct a program of research to explore the roles of characteristics such as floristic composition, vegetation structure, microclimate and landscape features in defining optimum roosting habitat.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	\$15,000	\$15,000	0	\$30,000

Action 3.5: Enhance and sustain the vegetation in camps that are critical to the survival of the Grey-headed Flying-fox
Priority 2

- Incorporate the results of Action 3.4 into management recommendations for camps.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	0	0	\$5,000*	\$5,000*

* Total action cost is undetermined, as it is contingent on Action 3.4. Cost estimate provided is for the dissemination of the findings of Action 3.4.

Action 3.6: Investigate the interactions between the Grey-headed Flying-fox and the Black Flying-fox
Priority 3

- Identify what is causing the change in the interaction between the Grey-headed Flying-fox and the Black Flying-fox in terms of distribution, and the potential implications for both species.
- Identify the level of threat this interaction poses for the Grey-headed Flying-fox.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	\$15,000	\$15,000	0	\$30,000

Action 4: Significantly reduce levels of deliberate Grey-headed Flying-fox destruction associated with commercial horticulture

Objectives 5, 6, 7, 10 and 11

Background. Grey-headed Flying-foxes cause damage to commercial fruit crops across all range States (Queensland, New South Wales and Victoria). The extent and severity of the damage varies from place to place and year to year. Licences to control Grey-headed Flying-foxes are currently issued to growers in New South Wales to mitigate commercial crop damage, within the bounds of a previously established national cull limit. A review of this practice is being undertaken in 2009 by an expert panel. Permits/licences to control Grey-headed Flying-foxes in commercial crops are not issued in Victoria. Queensland has in the past granted permits to shoot Grey-headed Flying-foxes subject to the national cull limit, but decided that it would grant no further permits from 1 September 2008. There is anecdotal evidence that Grey-headed Flying-foxes are illegally killed in the vicinity of commercial crops in all range States.

Population control by deliberate destruction is not considered to be an effective method of reducing crop damage in the long term and poses a threat to the recovery of the Grey-headed Flying-fox. The following set of actions is designed to assess the scale and pattern of crop damage and to develop locally appropriate solutions that will benefit both the commercial fruit growers and the Grey-headed Flying-fox.

Action 4.1: Identify the commercial fruit industries affected by the Grey-headed Flying-fox Priority 1

Action has commenced

Summarise pre-existing information to describe the fruit industries affected by Grey-headed Flying-foxes. Information is to be gathered as required to provide an information base for other actions under this recovery plan; to improve knowledge of the industry by State and Australian Government agriculture and wildlife management agencies; to set production benchmarks for comparisons of management techniques for Grey-headed Flying-fox damage; and to inform industry groups.

Data collected in this project should include:

- locations of commercial fruit-growing operations (denatured to a scale acceptable to industry for privacy purposes)
- types and varieties of fruit grown
- area of land under cultivation to each variety of fruit
- area of each variety currently under full exclusion netting or other highly effective methods of protection
- area of each variety protected with other methods
- production losses attributed to flying-foxes
- other information as required by economic analysts, researchers, agencies, and industry groups.

Detailed results are to be provided to stakeholders as identified above; summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Cost estimate: \$575,000 for Actions 4.1, 4.3, 4.4 and 4.5

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*			

* = action implementation

Action 4.2: Develop and promote non-lethal measures to protect commercial crops from flying-fox damage

Priority 1

Action has commenced

In light of the patterns of crop damage and the threat posed to the Grey-headed Flying-fox population by legal and illegal deliberate destruction, as identified through the implementation of other actions in this recovery plan, State conservation and agriculture agencies will work with growers to develop and promote locally appropriate, non-lethal programs to protect commercial crops.

Appropriate programs should be developed in consultation with stakeholder groups. The approach taken may vary from State to State. Public support exists for instituting measures to support fruit growers in managing flying-foxes (Ballard 2004), and the approach is supported by both industry and conservation groups.

Economists at WWF Australia, working collaboratively on this issue with the NSW Farmers' Association and NSW Nature Conservation Council, have highlighted the need for further quantitative information to support the case for assistance. An important role of the recovery plan is to provide supporting information as required. Actions 4.1 to 4.8 address this issue.

In Queensland, assistance can be given to growers who meet the eligibility criteria to apply for Low Interest Productivity Loans that are available for the establishment and maintenance of orchard netting through the Queensland Rural Adjustment Authority's Development Loans scheme (see www.qraa.qld.gov.au). A similar scheme operates in NSW under the Rural Assistance Authority's Special Conservation Scheme for primary producers (see www.raa.nsw.gov.au).

The benefits to individual growers of such measures are apparent. However, there are also several public benefits in the form of increased food security, enhanced sustainability of various Australian fruit industries and more positive interactions between primary production and the rapidly increasing human population in rural and semi-rural areas. There are benefits to food security in Australia of maintaining geographically spread industries. In this case, there are benefits to protecting the viability of the range of commercial orchards in the southeast. Having industries that are widespread provides seasonal continuity of supply to consumers and reduces the impact of isolated events such as cyclones and hail storms.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*	*	*	

* = action implementation

This action remains uncoded, as there are no data available upon which to estimate the cost.

Action 4.3: Systematically assess and document levels of flying-fox damage to the horticultural industry within the range of the Grey-headed Flying-fox

Priority 1

Action has commenced

Reliable information on the impact of flying-foxes on industry is required for these analyses. Current estimates of flying-fox damage to crops are based on anecdotal evidence; actual damage has not been measured or valued.

- Develop and trial methods to obtain reliable damage estimates.
- Estimate damage sustained by industries and the distribution of damage across fruit-growing areas.
- Conduct cost-benefit analyses of control methods (including density–damage relationships).

It is likely that crop-specific methods will need to be devised. Priority should be given to those crops and regional areas where incentive schemes are predicted to have the greatest conservation benefit (crops with low profit margins and high levels of damage by flying-foxes).

Cost estimate: \$575,000 for Actions 4.1, 4.3, 4.4 and 4.5

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*			

* = action implementation

Action 4.4: Develop methods for rapid estimation of flying-fox damage to commercial fruit crops

Priority 1

Action has commenced

In order to monitor industry-wide levels and patterns of flying-fox damage, individual growers must be able to assess losses on their holdings. The methodologies developed in Action 4.3 to produce precise damage estimates are likely to be too labour-intensive to be of practical use to individual growers during harvest, and a method for rapid estimation is required.

- Develop a standard, practical sampling technique that will allow orchardists to accurately estimate damage to their crops at a sufficient level of precision to monitor trends. The sampling design should allow for differences in the frequency, timing and intensity of damage between regional areas and between different varieties of fruit to be measured.
- Conduct field trials to calibrate the method against more precise methods developed in Action 4.3.
- Provide training to growers so that methods are standardised within and across industries.
- Develop a centralised database, accessible by stakeholders, to which they can contribute their standardised data.
- Supervise the surveys and database, analyse results, make recommendations to improve successive samples, provide feedback to growers and write reports.
- Update sampling methods and designs to incorporate recommendations.

Cost estimate: \$575,000 for Actions 4.1, 4.3, 4.4 and 4.5

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*			

* = action implementation

Action 4.5: Develop and implement a grower-based program to monitor trends in damage to fruit crops by flying-foxes

Priority 1

With active industry involvement, design and implement an annual sampling strategy to assess damage sustained to fruit crops from flying-foxes within the range of Grey-headed Flying-foxes, by using the rapid assessment technique developed under Action 4.4.

- Use results to monitor the performance of actions to reduce crop damage.
- Publish results in peer-reviewed journals.

Results to be made available to industry, State and Australian Government agriculture agencies, State and Australian Government wildlife management agencies, and those working to promote crop protection schemes; summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Cost estimate: \$575,000 for Actions 4.1, 4.3, 4.4 and 4.5

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*			

* = action implementation

Action 4.6: Develop methods for monitoring trends in nectar availability at a landscape scale
Priority 3

An indirect relationship between levels of crop damage and the availability of native food—primarily nectar production—has been hypothesised since studies of flying-fox damage to fruit industries were first conducted. However, methods for directly monitoring changes in nectar availability have not been developed. These are needed to explain and potentially predict trends in crop damage in the absence of crop protection, and to promote the importance of actions to protect and enhance foraging habitat that is productive in seasons critical to the horticultural industry (Actions 1 and 2).

- Review existing indices and initiatives to develop indices of nectar production suitable for monitoring trends at the geographic scales appropriate for assessing food availability for Grey-headed Flying-foxes.
- Develop an index of nectar flow for use in monitoring trends.
- Monitor trends at appropriate times and scales to investigate relationships between alternative food availability and estimates of crop damage from Actions 4.3, 4.4 and 4.5.
- Incorporate results as a covariate in analyses of trends in crop damage.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	\$30,000	0	0	\$30,000

Action 4.7: Collect biological information on flying-foxes deliberately destroyed in crops
Priority 2

Action has commenced

The impact of deliberate destruction of Grey-headed Flying-foxes in fruit crops on the population size and demographic structure of the species is unknown. This action aims to improve understanding of the impact by assessing trends in the species, sex, age and reproductive status of animals killed on crops.

This will be conducted by:

- securing the support of growers
- developing a repeatable sampling strategy for assessing trends, and collecting demographic information from populations at local camps and from animals killed by growers: species, sex, age, body condition and reproductive status (the sampling method must not require growers to handle or transport animals)
- providing feedback to growers and industry organisations and publishing results in peer-reviewed journals.

Additionally, this action may:

- compare the demographic characteristics of animals present in local camps with those of animals killed in crops
- assess differences between years, regional areas and type(s) of fruit grown
- assess covariate relationships with estimates of crop damage and estimates of population size in local camps
- provide data on camp estimates to Action 4.3 to help with damage–density estimates.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$10,000	\$10,000	\$10,000	0	0	\$30,000

Action 4.8: Assess damage to fruit crops in Victoria by the Grey-headed Flying-fox
Priority 1

The damage to Victorian fruit crops by flying-foxes has reportedly increased in association with the increase in occupation of camps in Melbourne and Geelong. Targeted effort is needed to better understand patterns of damage in this region; provide information to local fruit growers; inform Department of Sustainability and Environment field staff; and encourage uptake of non-lethal protection methods.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$15,000	\$	\$	0	0	\$15,000

Action 5: Provide information and advice to managers, community groups and members of the public that are involved with controversial flying-fox camps

Objectives 6, 7 and 11

Background. This action aims to provide active support to those involved with managing conflict with humans at flying-fox camps by providing summary information on the outcomes of past experiences; developing and providing management guidelines; developing and providing educational resources for affected communities; and conducting research to fill in important knowledge gaps.

Action 5.1: Review and evaluate recent management activities at flying-fox camps
Priority 2

- Engage an independent person with wildlife-management expertise to formally review management activities at flying-fox camps in recent years, including assessments of effectiveness, effort, cost and community responses. Practices being reviewed should include habitat management and public education, as well as direct wildlife management.
- Publish the results in a peer-reviewed journal.
- Produce a summary document, including case studies, for circulation to relevant agencies and affected people.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$30,000	0	0	0	0	\$30,000

Action 5.2: Develop guidelines to help land managers dealing with controversial flying-fox camps
Priority 2

Incorporate the outcomes from Action 5.1, the policies of State wildlife management agencies (e.g. Department of Environment and Climate Change 2007, Department of Sustainability and Environment 2005), the experiences of local government and further input from experienced individuals into guidelines for those charged with managing controversial flying-fox camps.

Guidelines may include:

- decision trees for assessing available management options
- material to help develop management plans for camps that are currently, or are likely to become, sites of conflict
- material to promote the use of management zones, where appropriate, to limit human interactions with roosting animals
- specific recommendations for managing camps identified as critical to the survival of the species.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	\$30,000	0	0	0	\$30,000

Action 5.3: Develop materials for public education and provide them to land managers and local community groups working with controversial flying-fox camps

Priority 2

Action has commenced

- Highlight the status of the species, the reasons for flying-fox presence in urban centres, the reasons for their decline, the management challenges that result, and the need to find a balance between protecting the species and minimising the impacts on the community.
- Make use of material produced under Action 6.1, as appropriate.
- Develop additional education resources as needed, including summaries of outcomes of Actions 5.1 and 5.4 in formats appropriate for public dissemination.

Cost estimate: see Action 6.1

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	*	*	*	*	*	

* = action implementation

Action 5.4: Assess the impacts of Grey-headed Flying-fox camps on water quality

Priority 3

Action has commenced

Communities adjacent to camps often perceive that streams or water bodies may be adversely affected because of close proximity to a flying-fox camp.

- Monitor water quality in waterways adjacent to flying-fox camps and in roof-collected water at residences near camps.
- Publish results in a peer-reviewed journal.
- Provide the results to land managers and the community, and post on a website.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total				\$20,000		\$20,000

Action 6: Produce and circulate educational resources to improve public attitudes toward Grey-headed Flying-foxes, promote the recovery program to the wider community and encourage participation in recovery actions

Objectives 6, 7 and 11

Background. The actions for recovery in this plan will take place across a large geographic area and have the potential to involve individuals and groups with a range of interests. Negative public attitudes toward the species act as an impediment to community support for the recovery process. Various studies of public attitudes toward Grey-headed Flying-foxes have concluded that programs of public education are the most appropriate means of improving attitudes and involving the community in conservation initiatives (Ford 2002, Lunney *et al.* 2002, Ballard 2004). It is important that the material presented to the public be accurate, credible and easy to access. Systems for circulating the material must have the capacity to reach a wide audience.

This action aims to provide educational resources of a uniform standard to support existing programs of public education (e.g. through community groups, State agencies and non-government organisations); to make information about Grey-headed Flying-foxes, the recovery plan and its progress available to the general public and people involved with the species; and to encourage community participation in appropriate recovery actions.

Action 6.1: Provide educational resources regarding the Grey-headed Flying-fox

Priority 1

Action has commenced

- Develop a comprehensive strategy of public education.
- Scrutinise the existing educational material relevant to Grey-headed Flying-foxes and secure permission for its distribution.
- Identify gaps and produce original material to fill the gaps.
- Establish central points of distribution in each range State.
- Provide the other actions under this recovery plan with comprehensive lists of the educational resources available under this action, and exchange resources.
- Produce regular newsletters to inform the public of the recovery plan, its progress, and opportunities for participation in actions.
- Create a website to promote the Grey-headed Flying-fox Recovery Plan and circulate information.
- Form cooperative alliances and exchange materials and information with other conservation and management programs.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$18,000	\$9,250	\$9,250	\$9,250	\$9,250	\$55,000

Action 6.2: Monitor public attitudes towards flying-foxes

Priority 2

- Conduct a survey of public attitudes to flying-foxes for comparison with the results of Ballard (2004).
- Expand the area surveyed to cover the range of Grey-headed Flying-foxes.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	0	0	\$30,000	\$30,000

Action 7: Monitor population trends for the Grey-headed Flying-fox**Objectives 7, 8 and 11**

Background. A program is needed to monitor population trends and assess the effectiveness of recovery actions. To achieve these aims, the method for assessing population size must reliably detect relatively small shifts and repeat estimations must be made at sufficient frequency to provide an understanding of the natural fluctuations that occur (Pople 2003). Actions are needed to assess the precision of methods, determine confidence intervals, increase precision as required to meet aims, and collect data of known quality at regular intervals. It is necessary to either validate and refine the current technique or develop a different methodology. Any new methodology must be cost-effective, verifiable and repeatable, and it must attract the confidence of stakeholders.

*Action 7.1: Review and improve methods used to assess population size for the Grey-headed Flying-fox**Priority 1**Action has commenced*

The following work should be overseen or reviewed by a person with expertise in field and statistical methods for monitoring population trends:

- review recommendations made to improve population monitoring for Grey-headed Flying-foxes and implement key recommendations (e.g. Pople 2003)
- conduct field trials to improve precision of estimations of proportions of species in shared camps
- conduct field trials to improve precision of estimations of population size in camps not suited to exit counts
- explore alternative sampling methods (e.g. distance sampling; Clancy and Einoder 2004) and conduct field trials to assess such factors as precision, repeatability and feasibility.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$25,000	\$25,000	0	0	0	\$50,000

*Action 7.2: Monitor population trends for the Grey-headed Flying-fox**Priority 1*

Conduct periodic range-wide assessments of population size of the Grey-headed Flying-fox, consistent with maintaining the expertise and enthusiasm of volunteers. The assessments should use the count method employed in previous years (Eby 2004) until such time as it can be updated to incorporate outcomes and recommendations from Action 7.1.

Results are to be provided to State and Australian Government wildlife agencies. Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$51,750	0	\$51,750	0	\$51,500	\$155,000

Action 8: Assess the impacts on Grey-headed Flying-foxes of electrocution on powerlines and entanglement in netting and barbed wire, and implement strategies to reduce these impacts

Objectives 6, 7, 9, 10 and 11

Background. The incidence of deaths or injuries to Grey-headed Flying-foxes from electrocution and entanglements is unknown. Actions are needed to increase public awareness, encourage reporting, develop methods for monitoring trends and identify and implement mitigation programs. This action requires the active involvement of community groups, such as animal rehabilitation organisations, and the general public.

Action 8.1: Assess the impacts on Grey-headed Flying-foxes of electrocution on powerlines and entanglement in netting and barbed wire, and implement strategies to reduce these impacts
Priority 3

- Review available information on the incidence of deaths and injuries to Grey-headed Flying-foxes from electrocution and entanglement.
- Review the remedial measures available to reduce impacts on wildlife of electrocution and entanglement, and promote those that are appropriate to Grey-headed Flying-foxes.
- Establish systems for direct reporting of electrocutions and entanglements by the public, with State-based collation and information sharing.
- Establish public awareness campaigns appropriate to the significance of the threat.
- Monitor trends as required.
- Form cooperative alliances with other conservation and management programs.

Summary information is to be incorporated into actions under this recovery plan to inform and educate stakeholders and the general public.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$10,000	\$2,500	\$2,500	\$2,500	\$2,500	\$20,000

Action 9: Oversee a program of research to improve knowledge of the demographics and population structure of the Grey-headed Flying-fox

Objectives 6, 7, 8, 9 and 10

Background. The list of proposed research topics below aims to clarify population structure in Grey-headed Flying-foxes and describe the demographics of the population. These topics are not covered in actions to reduce threats. However, a better understanding of each would greatly help with assessing the impacts of threats and developing efficient conservation strategies.

Action 9.1: Investigate the determinants of sedentary or transient status of Grey-headed Flying-foxes
Priority 3

A comparison of patterns of genetic relatedness, sex, age, etc., between sedentary and transient animals.

Cost estimate: \$180,000 for Actions 9.1 to 9.3

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total			*	*	*	

* = action implementation

*Action 9.2: Investigate between-year fidelity of individual Grey-headed Flying-foxes to seasonal camps**Priority 3*

A telemetry and behavioural study of individuals in camps with seasonal (not continuous) patterns of occupation, allowing comparisons to be drawn with similar studies that have confirmed between-year fidelity of migratory animals to continuously occupied camps.

Cost estimate: \$180,000 for Actions 9.1 to 9.3

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total			*	*	*	

* = action implementation

*Action 9.3: Investigate genetic structure within Grey-headed Flying-fox camps**Priority 3*

An investigation of levels of relatedness within and between members of adult groups, occupants of individual trees, etc.

Cost estimate: \$180,000 for Actions 9.1 to 9.3

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total			*	*	*	

* = action implementation

*Action 9.4: Investigate patterns of Grey-headed Flying-fox juvenile dispersal**Priority 3*

A study of the dispersal behaviour and specific habitat requirements of juveniles.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	0	0	\$22,500	\$22,500	0	\$45,000

*Action 9.5: Investigate the age structure and longevity of Grey-headed Flying-foxes**Priority 2*

Action has commenced

A project to support and build on the results of current research (Divljan *et al.* 2006) and provide baseline information for interpreting data collected in Actions 7.2 and 8.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$10,000	\$10,000	0	0	0	\$20,000

Action 10: Maintain a National Recovery Team to oversee the implementation of the Grey-headed Flying-fox National Recovery Plan

Objectives 11 and 12

*Action 10.1: Grey-headed Flying-fox National Recovery Team to undertake an annual review of the national recovery plan's implementation**Priority 1*

With three range States for the Grey-headed Flying-fox, and with the species being listed nationally as a threatened species, implementation of the recovery program will require strong collaboration and coordination. A National Recovery Team will be established to manage and review the performance of the recovery plan (see Section 4.3). The National Recovery Team should include representatives of the government conservation agencies of Queensland, New South Wales and Victoria and Australia, representatives of primary stakeholders and at least one

person with suitable scientific expertise. An annual convenor of the recovery team should be assigned from the relevant State and Australian Government conservation agencies on a rotational basis. The National Recovery Team will meet annually to review the progress of the recovery plan's implementation against the criteria as set out in the plan and revise actions as necessary. A summary of the results of each review are to be reported to the relevant State and Australian Government conservation agencies, and to the general public. A written report evaluating performance against criteria will be provided to the Department of the Environment, Water, Heritage and the Arts after three and five years.

Year	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Total	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$55,000

5 Management practices

The recovery of Grey-headed Flying-foxes is primarily dependent on the protection and rehabilitation of foraging habitat and the expansion of forested areas that are productive during winter and spring. Management practices that destroy significant foraging habitats, or alter them to the extent that their productivity or suitability to the species is diminished, will have an adverse impact. In particular, clearance of key winter or spring habitats should be avoided, as should practices that reduce volumes of nectar available to Grey-headed Flying-foxes during those seasons. Important winter and spring habitats include vegetation communities that contain *Eucalyptus tereticornis*, *E. albens*, *E. crebra*, *E. fibrosa*, *E. melliodora*, *E. paniculata*, *E. pilularis*, *E. robusta*, *E. siderophloia*, *Banksia integrifolia*, *Castanospermum australe*, *Corymbia citriodora citriodora*, *C. eximia*, *C. maculata* (south from Nowra), *Grevillea robusta* and *Melaleuca quinquenervia*.

Management practices in fruit crops that expose Grey-headed Flying-foxes to deliberate destruction will also be detrimental to the species. In principle, the impact of these practices is curtailed by the current cull limit system that limits the licensed range-wide take. However, regulatory problems need to be addressed in New South Wales, Queensland and Victoria—particularly compliance with licence conditions and issues associated with unlicensed deliberate destruction.

Management practices to reduce conflict at controversial camps should be implemented. Every attempt should be made to resolve conflict through mediation and public education. Ideally, site management plans should be developed in conjunction with the community. Plans should include both long-term and short-term strategies for ameliorating conflict. Land management authorities should identify camps that are potential sites of conflict and initiate programs of public education to reduce the potential for future disputes. Where concerns have been raised, authorities should respond rapidly by providing advice and information to those involved. Attempts to remove flying-foxes from camps are not recommended, particularly at camps identified as critical to survival. In many cases, problems develop as a result of land-use planning that encourages inappropriate human development close to flying-fox camps. Where the option still exists, limitations should be placed on developments that can occur within approximately 300 m of flying-fox camps.

6 Duration and costs

6.1 Duration and costs

It is anticipated that the recovery process for the Grey-headed Flying-fox will take longer than the 5-year life of this recovery plan. Five years after the date of publication of the plan, its implementation and the effectiveness of its actions are to be reviewed, and its performance formally evaluated, by the Australian Government Department of the Environment, Water, Heritage and the Arts in conjunction with the Environmental Protection Agency (Qld), the Department of Environment, Climate Change and Water (NSW) and the Department of Sustainability and Environment (Vic). The timing and costs for each action proposed to support the recovery objectives are provided in Table 2. The total cost to implement this plan is estimated to be at least \$1,715,000 over five years, plus as-yet-undetermined costs for developing and promoting measures to reduce the deliberate destruction of flying-foxes associated with commercial horticulture (Action 4.2).

6.2 Resource allocation

The actions proposed in this recovery plan build upon the Action Plan for Australian Bats (Environment Australia 1999), on expert knowledge of the species, and on research undertaken to date. At least 16 actions of this recovery plan are already under way.

The estimated cost of the plan comprises temporary project officer contracts, research/consultant contracts, funding contributions for student research projects (Honours, Masters and PhD) and in-kind contributions. Two actions cannot be fully costed—either they are contingent on the outcomes of other actions, or the details of the action and how it is to be implemented are yet to be determined. High-priority actions are to be initiated in the early phase of the plan's implementation, and often they span the full five years of the plan.

The efficient and effective use of resources has been considered when developing this recovery plan, and the recommended actions build on the knowledge obtained from previous and ongoing research projects, thus maximising the efficiency of the resources already committed to the conservation of the Grey-headed Flying-fox. The national cooperative approach between the Australian Government and the Queensland, New South Wales and Victorian State governments for the management and conservation of the Grey-headed Flying-fox continues, facilitating linkages that result in efficient resource use and avoid unnecessary duplications.

All actions have a cost, although many will be met through in-kind contributions or recurrent funding. The major costs of the plan are for research actions, a number of which are already under way. In-kind contributions will continue to be provided by the Australian Government Department of the Environment, Water, Heritage and the Arts in conjunction with Environmental Protection Agency (Qld), Department of Environment, Climate Change and Water (NSW) and the Department of Sustainability and Environment (Vic), building on the existing conservation programs. Additional, as-yet-unsecured, funds will be required to implement this recovery plan.

Actions to protect foraging habitat of the Grey-headed Flying-fox will confer benefits on both the numerous plant communities and the individual plant species with which this animal interacts, and on other nectar- and fruit-feeding bats, birds and mammals. Actions to protect the roosting habitat of the Grey-headed Flying-fox will additionally benefit other flying-fox species that share communal camps. Actions to reduce deliberate destruction of flying-foxes in commercial fruit crops via the introduction of alternate crop management techniques will also benefit other native species that damage crops. See Table 1 for the list of species to benefit from actions to recover the Grey-headed Flying-fox.

Table 2: Summary of actions

Actions for recovery are listed below, along with an indication of their priority and the years in which they should be carried out.

Priorities are set on a scale of 1 to 3, with 1 indicating the highest priority.

Years 1 to 5 represent years in the duration of the recovery plan.

Action	Priority	Year 1	Year 2	Year 3	Year 4	Year 5	Total cost
Action 1. Identify and protect foraging habitat critical to the survival of Grey-headed Flying-foxes across their range							
Action 1.1 Set priorities for protecting foraging habitat and generate maps of priority habitat for the Grey-headed Flying-fox	1	\$30,000					\$30,000
Action 1.2 Protect and enhance priority foraging habitat for the Grey-headed Flying-fox	1	\$27,000	\$9,500	\$9,500	\$9,500	\$9,500	\$65,000
Action 2. Enhance winter and spring foraging habitat for Grey-headed Flying-foxes							
Action 2.1 Increase the extent and viability of foraging habitat for the Grey-headed Flying-fox that is productive during winter and spring	1	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$70,000
Action 3. Identify, protect and enhance roosting habitat critical to the survival of Grey-headed Flying-foxes							
Action 3.1 Establish and maintain a range-wide database of Grey-headed Flying-fox camps	2	\$15,000		\$10,000		\$10,000	\$35,000
Action 3.2 Improve knowledge of Grey-headed Flying-fox camp locations, particularly in inland areas	2	\$25,000		\$10,000		\$10,000	\$45,000
Action 3.3 Protect roosting habitat critical to the survival of the Grey-headed Flying-fox	1	\$14,000	\$12,750	\$12,750	\$12,750	\$12,750	\$65,000
Action 3.4 Determine the characteristics of roosting habitat for the Grey-headed Flying-fox	2			\$15,000	\$15,000		\$30,000

Action	Priority	Year 1	Year 2	Year 3	Year 4	Year 5	Total cost
Action 3.5 Enhance and sustain the vegetation in camps that are critical to the survival of the Grey-headed Flying-fox	2					\$5,000	\$5,000 Total cost undetermined: contingent on Action 3.4. Cost is for the dissemination of findings of Action 3.4.
Action 3.6 Investigate the interactions between the Grey-headed Flying-fox and the Black Flying-fox	2			\$15,000	\$15,000		\$30,000
Action 4. Significantly reduce levels of deliberate Grey-headed Flying-fox destruction associated with commercial horticulture							
Action 4.1 Identify the commercial fruit industries affected by the Grey-headed Flying-fox	1	*	*	*			Funding from Actions 4.3 to 4.5
Action 4.2 Develop and promote non-lethal measures to protect commercial crops from flying-fox damage	1	*	*	*	*	*	Uncosted * denotes time of implementation
Action 4.3 Systematically assess and document levels of flying-fox damage to the horticultural industry within the range of the Grey-headed Flying-fox	1	*	*	*			\$575,000 * Denotes time of implementation
Action 4.4 Develop methods for rapid estimation of flying-fox damage to commercial fruit crops	1	*	*	*			
Action 4.5 Develop and implement a grower-based program to monitor trends in damage to fruit crops by flying-foxes	1	*	*	*			
Action 4.6 Develop methods for monitoring trends in nectar availability at a landscape scale	3			\$30,000			\$30,000
Action 4.7 Collect biological information on flying-foxes deliberately destroyed in crops	2	\$10,000	\$10,000	\$10,000			\$30,000
Action 4.8 Assess damage to fruit crops in Victoria by the Grey-headed Flying-fox	1	\$15,000					\$15,000

Action	Priority	Year 1	Year 2	Year 3	Year 4	Year 5	Total cost
Action 5. Provide information and advice to managers, community groups and members of the public that are involved with controversial flying-fox camps							
Action 5.1 Review and evaluate recent management activities at flying-fox camps	2	\$30,000					\$30,000
Action 5.2 Develop guidelines to help land managers dealing with controversial flying-fox camps	2		\$30,000				\$30,000
Action 5.3 Develop materials for public education and provide them to land managers and local community groups working with controversial flying-fox camps	2						Funding from Action 6.1
Action 5.4 Assess the impacts of Grey-headed Flying-fox camps on water quality	3				\$20,000		\$20,000
Action 6. Produce and circulate educational resources to improve public attitudes toward Grey-headed Flying-foxes, promote the recovery program to the wider community, and encourage participation in recovery actions							
Action 6.1 Provide educational resources regarding the Grey-headed Flying-fox	1	\$18,000	\$9,250	\$9,250	\$9,250	\$9,250	\$55,000
Action 6.2 Monitor public attitudes towards flying-foxes	2					\$30,000	\$30,000
Action 7. Monitor population trends for the Grey-headed Flying-fox							
Action 7.1 Review and improve methods used to assess population size for the Grey-headed Flying-fox	1	\$25,000	\$25,000				\$50,000
Action 7.2 Monitor population trends for the Grey-headed Flying-fox	1	\$51,750		\$51,750		\$51,500	\$155,000
Action 8. Assess the impacts on Grey-headed Flying-foxes of electrocution on powerlines and entanglement in netting and barbed wire, and implement strategies to reduce these impacts							
Action 8.1 Assess the impacts on Grey-headed Flying-foxes of electrocution on powerlines and entanglement in netting and barbed wire, and implement strategies to reduce these impacts	3	\$10,000	\$2,500	\$2,500	\$2,500	\$2,500	\$20,000

Action	Priority	Year 1	Year 2	Year 3	Year 4	Year 5	Total cost
Action 9. Oversee a program of research to improve knowledge of the demographics and population structure of the Grey-headed Flying-fox							
Action 9.1 Investigate the determinants of sedentary or transient status of Grey-headed Flying-foxes	3			*	*	*	\$180,000 * Denotes time of implementation
Action 9.2 Investigate between-year fidelity of individual Grey-headed Flying-foxes to seasonal camps	3			*	*	*	
Action 9.3 Investigate genetic structure within Grey-headed Flying-fox camps	3			*	*	*	
Action 9.4 Investigate patterns of Grey-headed Flying-fox juvenile dispersal	3				\$22,500	\$22,500	\$45,000
Action 9.5 Investigate the age structure and longevity of Grey-headed Flying-foxes	2	\$10,000	\$10,000				\$20,000
Action 10. Maintain a National Recovery Team to oversee the implementation of the Grey-headed Flying-fox National Recovery Plan							
Action 10.1 Grey-headed Flying-fox National Recovery Team to undertake an annual review of the national recovery plan's implementation	1	\$11,000	\$11,000	\$11,000	\$11,000	\$11,000	\$55,000
TOTAL							\$1,715,000

7 References

- Accad, A., Neldner, V.J., Wilson, B.A. and Niehus, R.E. 2001. *Remnant Vegetation in Queensland: Analysis 1997–1999. Regional Ecosystem Information*. Queensland Herbarium, Environmental Protection Agency, Brisbane.
- Anon. 1996. Prevention of human lyssavirus infection. *Communicable Disease Intelligence* **20**: 505–507.
- Augee, M.L. and Ford, D. 1999. Radio-tracking studies of grey-headed flying-foxes, *Pteropus poliocephalus*, from the Gordon colony, Sydney. *Proceedings of the Linnean Society N.S.W.* **121**: 61–70.
- Ballard, G. 2004. *The Human Dimensions of Grey-headed Flying-fox Management: surveys of NSW commercial fruit growers and the public (2003–2004)*. A report to NSW Dept of Environment and Conservation, Sydney.
- Barrett, J.L. 2004. *Australian Bat Lyssavirus*. PhD Thesis, School of Veterinary Science, The University of Queensland.
- Barrett, J., Rodwell, B., Lunt, R., Rupprecht, C., Field, H., Smith, G. and Young, P. 2005. Australian bat lyssavirus: observations of natural and experimental infection in bats. In: *Wildlife Disease Association International Conference*, Cairns, Queensland, Australia, 26 June–1 July, 2005.
- Bicknell, J. 2002. The need for aversion agents for managing flying-foxes on crops and the difficulties in attracting research funds. pp. 63–69 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Biel, E. 2002. The cost to orchardists in the management of the Grey-headed Flying-fox. Who pays? A community benefit approach. pp. 47–52 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Birt, P. 2000. Summary information on the status of the Grey-headed (*Pteropus poliocephalus*) and Black (*P. alecto*) Flying-fox in New South Wales. pp. 78–86. in *Proceedings of a Workshop to Assess the Status of the Grey-headed Flying-fox in New South Wales*, edited by G. Richards, Australasian Bat Society, Canberra.
- Birt, P. 2005. *Mutualistic interactions between the nectar-feeding Little Red Flying fox Pteropus scapulatus (Chiroptera: Pteropodidae) and Eucalypts: habitat utilisation and pollination*. PhD thesis. University of Queensland, Brisbane.
- Birt, P. and Markus, N. 1999. Notes on the temporary displacement of *Pteropus alecto* and *P. poliocephalus* by *P. scapulatus* within a day-time campsite. *Australian Mammalogy* **21**: 107–110.
- Birt, P., Markus, N., Collins, L. and Hall, L.S. 1998. Urban flying-foxes. *Nature Australia* **26**: 54–59.
- Bomford, M. and Sinclair, R. 2002. Australian research on bird pests: impact, management and future directions. *Emu* **102**: 29–45.
- Catterall, C., Storey, R. and Kingston, M.B. 1997. Reality versus rhetoric: a case study monitoring regional deforestation. pp 367–377 in *Conservation outside nature reserves*. edited by P. Hale and D. Lamb. Centre for Conservation Biology, University of Queensland, Brisbane.
- Clancy, T. and Einoder, L. 2004. *Estimates of size of Grey-headed Flying-fox camp sites – Evaluation of Point Transect using Distance Techniques*. Arthur Rylah Institute for Environmental Research. Heidelberg, Victoria.
- Coffs Harbour City Council. 2004. *Draft Site Management Plan for the Coffs Creek Flying-fox Camp*. CHCC, Coffs Harbour, NSW.
- Collett R. 1887. On a collection of mammals from central and northern Queensland. *Zoologische Jahrbucher*: 829–940.
- Collins, L. 2000. Impact of periods of food shortage on the body weight of Grey-headed Flying-foxes. pp. 99–101. in *Proceedings of a Workshop to Assess the Status of the Grey-headed Flying-fox in New South Wales*, edited by G. Richards, Australasian Bat Society, Canberra.
- Comensoli, P. 2002. The impact upon fruit growers of a decision to list the Grey-headed Flying-fox as a Vulnerable species under the NSW Threatened Species Conservation Act. pp. 53–55 in *Managing the*

Grey-headed Flying-fox as a Threatened Species in NSW, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Connell, K.A., Munro, U., and Torpy, F.R. 2006. Daytime behaviour of the grey-headed flying fox *Pteropus poliocephalus* Temminck (Pteropodidae: Megachiroptera) at an autumn/winter roost. *Australian Mammalogy* **28**: 7–14.

Department of Environment and Climate Change. NSW. 2008. *Managing Flying-fox Camps for Land Managers. Workshop Proceedings: Ballina 2 July 2008 & Newcastle 3 July 2008*. Department of Environment and Climate Change NSW, Sydney.

Department of Environment and Climate Change NSW. 2007. *Flying-fox camp management policy*. Department of Environment and Climate Change NSW, Sydney.

Department of Sustainability and Environment. 2005. *Flying-fox Campsite Management Plan Yarra Bend Park*. Department of Sustainability and Environment Victoria, Melbourne.

Department of the Environment and Heritage. 2003a. *EPBC Act Administrative Guidelines on Significance – supplement for the Grey-headed Flying-fox 2003–2004*. Department of the Environment and Heritage, Canberra.

Department of the Environment and Heritage. 2003b. *Climate Change Impacts on Biodiversity in Australia*. Outcomes of a workshop sponsored by the Biological Diversity Committee, October 2002, Department of the Environment and Heritage, Canberra.

Dickman, C. and Fleming, M. 2002. Pest, or Passenger Pigeon? The New South Wales Scientific Committee's assessment of the status of the Grey-headed Flying-fox. pp. 20–28 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Divljan, A., Parry-Jones, K. and Wardle, G. 2006. Age determination in the Grey-headed Flying-fox. *Journal of Wildlife Management* **70**(2): 607–611.

Eby, P. 1991. Seasonal movements of Grey-headed Flying-foxes, *Pteropus poliocephalus* (Chiroptera: Pteropodidae), from two maternity camps in northern New South Wales. *Wildlife Research* **18**: 547–559.

Eby, P. 1995. *Biology and Management of Pteropus in New South Wales. Species Report*. NSW National Parks and Wildlife Service, Hurstville, NSW.

Eby, P. 1996. *Interactions between the Grey-headed Flying-fox Pteropus poliocephalus (Chiroptera: Pteropodidae) and its diet plants – seasonal movements and seed dispersal*. PhD Thesis, University of New England, Armidale, NSW.

Eby, P. 1998. An analysis of diet specialization in frugivorous *Pteropus poliocephalus* in Australian subtropical rainforest. *Australian Journal of Ecology* **23**: 443–456.

Eby, P. 1999. Low reproductive output in Grey-headed Flying-foxes associated with a short period of food scarcity. *Australasian Bat Society Newsletter* **14**: 17–20.

Eby, P. 2002. Using New South Wales planning instruments to improve conservation and management of Grey-headed Flying-fox camps. pp. 240–250 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Eby, P. 2004. *National Count of Grey-headed Flying-foxes – April 3 & 4, 2004*. A report to the Department of Environment and Heritage, Canberra.

Eby, P. and Lunney, D. 2002. Managing the Grey-headed Flying-fox *Pteropus poliocephalus* as a threatened species in NSW: adjusting to a long-term vision. pp. 273–284 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Eby, P. and Palmer, C. 1991. Flying foxes in rainforest remnants in northern New South Wales. pp. 48–56 in *Rainforest Remnants*, edited by S. Phillips. NSW National Parks and Wildlife Service, Lismore.

Eby, P., Collins, L., Richards, G. and Parry-Jones, K. 1999. The distribution, abundance and vulnerability to population reduction of a nomadic nectarivore, *Pteropus poliocephalus*, during a period of resource concentration. *Australian Zoologist* **31**: 240–253.

- Environment Australia. 1999. *The Action Plan for Australian Bats*, edited by A. Duncan, G.B. Baker and N. Montgomery. Environment Australia, Canberra.
- Field, H. 2002. The role of Grey-headed Flying-foxes in the ecology of Hendra virus, Menangle virus and Australian bat lyssavirus. pp. 139–141 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Fleming, T.H. and Eby, P. 2003. Ecology of bat migration. pp. 156–208 in *Ecology of Bats*. edited by T.H. Kunz and M.B. Fenton. University of Chicago Press, Chicago USA.
- Floyd, A.G. 1990. *Australian Rainforests in New South Wales*. Surrey Beatty & Sons Pty Ltd. Sydney.
- Ford, D. 2002. An historical perspective of changing community attitudes towards flying-foxes in Sydney. pp. 146–159 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Gough, J. 2002. Netting – the Need and the Problems. pp. 56–57 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Hall, L.S. 2002. Management of flying fox camps: what have we learnt in the last twenty five years? pp. 215–224 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Hall, L.S. and Richards, G. 2000. *Flying Foxes: Fruit and Blossom Bats of Australia*. UNSW Press: Sydney.
- Halpin, K., Young, P., Field, H. and Mackenzie, J. 2000. Isolation of Hendra virus from pteropid bats: a natural reservoir of Hendra virus. *Journal of General Virology* **81**: 1927–1932.
- Hanna, J., Carney, I., Smith, G., Tannenberg, A., Deverill, J., Botha, J., Serafin, I., Harrower, B., Fitzpatrick, P. and Searle, J. 2000. Australian bat lyssavirus infection: a second human case, with a long incubation period. *Medical Journal of Australia* **172**: 597–599.
- House, S. 1997. Reproductive biology of eucalypts. pp. 30–54 In *Eucalypt ecology: individuals to ecosystems*, edited by J. E. Williams and J. C. Z. Woinarski. Cambridge University Press, Cambridge.
- Hughes, L., Cawsey, E.M. and Westoby, M. 1996. Climatic range sizes of species in relation to future climate change. *Global Ecology and Biogeography Letters* **5**: 23–29.
- Hughes, L., 2003. Climate change and Australia: trends, projections and impacts. *Austral Ecology* **28**: 423–443.
- Keith, D.A. and Scott, J. 2005. Native vegetation of coastal floodplains – a diagnosis of the major plant communities in New South Wales. *Pacific Conservation Biology* **11**: 81–104.
- Law, B.S., Mackowski, C., Schoer, L., and Tweedie, T. 2000. The flowering phenology of myrtaceous trees and their relation to environmental and disturbance variables in northern New South Wales. *Austral Ecology* **25**: 160–78.
- Law, B.S., Eby, P. and Sommerville, D. 2002. Tree-planting to conserve flying-foxes and reduce orchard damage. pp. 84–90 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Lunney, D. and Moon, C. 1997. Flying-foxes and their camps in the rainforest remnants of north-east NSW. pp. 247–277 In *Australia's Ever-Changing Forests III*, edited by J. Dargavel. Centre for Resource and Environmental Studies, Australian National University, Canberra.
- Lunney, D., Reid, A. and Matthews, A. 2002. Community perceptions of flying-foxes in New South Wales. pp. 160–175 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Markus, N. and Blackshaw, J.K. 2002. Behaviour of the black flying fox *Pteropus alecto*: 1. an ethogram of behaviour, and preliminary characterisation of mother-infant interactions. *Acta Chiropterologica* **4**(2): 137–152.
- Martin, L. and McIlwee, A.P. 2002. The reproductive biology and intrinsic capacity for increase of the Grey-headed Flying-fox *Pteropus poliocephalus*, and the implications of culling. pp. 91–108 in

- Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Martin, L., Kennedy, J.H., Little, L., Luckhoff, H.C., O'Brien, G.M., Pow, C.S.T., Towers, P.A., Waldon, A.K. and Wang, D.Y. 1996. The reproductive biology of Australian flying-foxes (genus *Pteropus*). *Symposium of the Zoological Society of London* **67**: 167–184.
- McIlwee, A.P. and Martin, L. 2002. On the intrinsic capacity for increase of Australian flying-foxes. (*Pteropus* spp., Megachiroptera). *Australian Zoologist* **32**: 76–100.
- McKinnon, A., Thompson, J. and Gordon, G. 2002. Flying-fox management in Queensland: is it any different? pp. 128–138 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- McLachlan, B. 2002. NPWS Operational management of commercial crop damage by flying-foxes – licensing in practice: a far north coast perspective. pp. 80–83 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- McWilliam, A.N. 1986. The feeding ecology of *Pteropus* in north-eastern New South Wales, Australia. *Myotis* **23–24**: 201–208.
- Nelson, J.E., 1965a. Movements of Australian flying-foxes (Pteropodidae: Megachiroptera). *Australian Journal of Zoology* **13**: 53–73.
- Nelson, J. E. W. 1965b. Behavior of Australian Pteropodidae (Megachiroptera). *Animal Behavior* **13(4)**: 544–557.
- Nelson, J. 2008 *Options for the Management of Flying-Foxes in Maclean*. A report to the Department of Environment and Climate Change, NSW, Sydney.
- Norton, T. 1996. Conserving biological diversity in Australia's temperate eucalypt forests. *Forest Ecology and Management* **85**: 21–33.
- NSW DEC. 2004. Atlas of NSW Wildlife report – generated August 2004. NSW Department of Environment and Conservation.
- NSW Scientific Committee 2001(last amended 12 February 2008, accessed 11 July 2008). *Grey-headed Flying-fox vulnerable species listing, final determination*. <http://www.environment.nsw.gov.au/determinations/GreyheadedFlyingFoxVulSpListing.htm>
- O'Brien, G.M. 1993. Seasonal reproduction in flying-foxes, reviewed in the context of other tropical mammals. *Reproduction, Fertility and Development* **5**: 499–521.
- Pallin, N. 2000. Ku-ring-gai Flying-fox Reserve: habitat restoration project, 15 years on. *Ecological Management and Restoration* **1**: 10–20.
- Parry-Jones, K.A. 1993. The movements of *Pteropus poliocephalus* in New South Wales. PhD Thesis, University of New South Wales, Sydney.
- Parry-Jones, K.A. 2000. Historical declines since the early 1900s, and current mortality factors and abundance of the Grey-headed Flying-fox. pp. 57–66 in *Proceedings of a Workshop to Assess the Status of the Grey-headed Flying-fox in New South Wales* edited by G. Richards, Australasian Bat Society, Canberra.
- Parry-Jones, K. A. and Augee, M. 1991. Food selection by Grey-headed Flying-foxes (*Pteropus poliocephalus*) occupying a summer colony site near Gosford, N.S.W. *Wildlife Research* **18**: 111–124.
- Parry-Jones, K.A. and Augee, M. 1992. Movements of Grey-headed Flying-foxes (*Pteropus poliocephalus*) to and from a colony site on the central coast of New South Wales. *Wildlife Research* **19**: 331–340.
- Parry-Jones, K.A. and Augee, M.L. 2001. Factors affecting the occupation of a colony site in Sydney, New South Wales by the Grey-headed Flying-fox, *Pteropus poliocephalus* (Pteropodidae). *Austral Ecology* **26**: 47–55.
- Peacock, L. 2004. The Roost Preference of the Grey-headed Flying-fox, *Pteropus poliocephalus*, in New South Wales. Thesis, Faculty of Veterinary Science, University of Sydney, NSW.

- Philbey, A., Kirkland, P., Ross, A., Davis, R., Gleeson, A., Love, R., Daniels, P., Gould, A. and Hyatt, A. 1998. An Apparently New Virus (Family *Paramyxoviridae*) Infectious for Pigs, Humans and Fruit Bats. *Emerging Infectious Diseases* **4**: 269–271.
- Pittock, A.B. and Wratt, D. 2001. Australia and New Zealand. pp. 591–639 in *Climate Change 2001: Impacts, Adaptation, and Vulnerability*. The IPCC Third Assessment Report, Working Group II Report, edited by J.J. McCarthy, O.F. Canziani, N.A. Leary, D.J. Dokken and K.S. White KS, Cambridge University Press, Cambridge.
- Pople, A.R. 2003. *Monitoring Grey-headed Flying-foxes*. A report prepared for the Biodiversity Group, Environment Australia, Canberra.
- Pressey, R.L. 1994. Land classifications are necessary for conservation planning but what do they tell us about fauna? pp.31–41 in *Future of the Fauna of Western New South Wales*, edited by D. Lunney, S. Hand, P. Reid and D. Butcher. Surrey Beatty & Sons, Chipping Norton, NSW.
- QPWS. 2004. WildNet – report generated September 2004. Queensland Parks and Wildlife Service, Environmental Protection Agency (Qld).
- Queensland Department of Natural Resources and Mines 2005. *Land Cover Change in the South East Queensland Natural Resource Management Region 2001–2003*. State-wide Landcover and Trees Study. Queensland. Department of Natural Resources and Mines, Brisbane.
- Ratcliffe, F.N. 1931. The flying-fox (*Pteropus*) in Australia. *Bulletin of the Council for Scientific and Industrial Research* **53**: 1–80.
- Ratcliffe, F.N. 1932. Notes on the fruit bats (*Pteropus* spp.) of Australia. *Journal of Animal Ecology* **1**: 32–57.
- Richards, G. (ed) 2000. *Proceedings of a Workshop to Assess the Status of the Grey-headed Flying Fox*. Australasian Bat Society, Canberra.
- Richards, G. 2002. The development of strategies for management of the flying fox colony at the Royal Botanic Gardens, Sydney. pp. 196–201 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Rigden, P., Page, J. and Chapman, J. 2000. *To net or not to net? Flying-fox control in orchards through netting protection*. Queensland Horticultural Institute, Queensland Department of Primary Industries, Nambour, Queensland.
- Roberts, B. 2005. Habitat characteristics of flying fox camps in south-east Queensland. BSc(Hons) Thesis, Griffith University, Brisbane.
- Roberts, B.J. 2006. *Management of Urban Flying-fox Camps: Issues of relevance to camps in the Lower Clarence Valley, NSW*. Valley Watch Inc., Maclean.
- Rogers, J. 2002. The economic and social implications of flying-fox predation on the north coast of NSW. pp. 58–62 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Sattler, P. and Williams, R. (eds) 1999. *The Conservation Status of Queensland's Bioregional Ecosystems*, Environmental Protection Agency, Brisbane.
- Smith, M. 2002. Management of roost sites of the Grey-headed Flying-fox *Pteropus poliocephalus* on the north coast of NSW: a National Parks & Wildlife Service perspective. pp. 202–214 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.
- Southerton, S.G., Birt, P., Porter, J. and Ford, H.A. 2004. Review of gene movement by bats and birds and its potential significance for eucalypt plantation forestry. *Australian Forestry* **67**(1): 44–53.
- Spencer, H. J., Palmer, C. and Parry-Jones, K. 1991. Movements of fruit-bats in eastern Australia, determined by using radio-tracking. *Wildlife Research* **18**: 463–468.
- Teagle, S. 2002. Flying fox Consultative Committee – formation, outcomes and future strategies. pp. 109–116 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Threatened Species Scientific Committee 2001. Advice to the Minister for the Environment and Heritage on Amendments to the list of Threatened Species under the EPBC Act. Department of the Environment and Heritage, Canberra.

Tidemann, C.R. 1995. Grey-headed flying fox *Pteropus poliocephalus*. pp 439–441 in *The Mammals of Australia*, edited by R. Strahan. Reed Books, Chatswood, NSW.

Tidemann, C.R. 1999. Biology and management of the Grey-headed Flying-fox, *Pteropus poliocephalus*. *Acta Chiropterologica* **1**: 151–164.

Tidemann, C.R. 2002. Sustainable management of the Grey-headed Flying-fox, *Pteropus poliocephalus*. pp. 122–127 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Tidemann, C.R. and Nelson, J. 2004. Long-distance movements of the grey-headed flying fox (*Pteropus poliocephalus*). *Journal of Zoology London* **263**: 141–146.

Tidemann, C.R. and Vardon, M.J. 1997. Pests, pestilence, pollen and protein: the need for community-based management of flying foxes in Australia. *Australian Biologist* **10**: 77–83.

Tidemann, C. R., Kelson, S.L. and Jamieson, G. 1997. Flying-fox damage to orchard fruit in Australia – incidence, extent and economic impact. *Australian Biologist* **10**: 179–186.

Tidemann, C., Eby, P., Parry-Jones, K. and Vardon, M. 1999. Grey-headed Flying-fox. pp 31–35 in *The Action Plan for Australian Bats*, edited by A. Duncan, G.B. Baker and N. Montgomery. Environment Australia, Canberra.

Ullio, L. 2002. To net or not to net! That is the question, but is it the answer? pp 70–76 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

van der Ree, R., McDonnell, M.J., Temby, I., Nelson, J. and Whittingham, E. 2006. The establishment and dynamics of a recently established urban camp of *Pteropus poliocephalus* outside their geographic range. *Journal of Zoology London* **268**: 177–185.

Vardon, M.J. and Tidemann, C.R. 1995. Harvesting of flying-foxes (*Pteropus* spp.) in Australia: Could it promote the conservation of endangered Pacific Island species. pp 82–85. in *Conservation through the Sustainable Use of Wildlife*, edited by G. Grigg, P. Hale and D. Lunney. University of Queensland Press, Brisbane, Queensland.

Victoria Department of Sustainability and Environment. 2005. *Atlas of Victorian Wildlife*. Department of Sustainability and Environment, South Melbourne, Victoria.

Victoria DSE. 2004. Atlas of Victorian Wildlife – report generated August 2004. Victoria Department of Sustainability and Environment.

Wahl, D. E. 1994. The management of flying foxes (*Pteropus* spp.) in New South Wales. MSc thesis. University of Canberra, Canberra.

Waples, K. 2002. Review of the NPWS policy on the mitigation of commercial crop damage by flying-foxes. pp. 39–46 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

Webb, N. and Tidemann, C. 1995. Hybridisation between black (*Pteropus alecto*) and grey-headed (*Grey-headed Flying-fox*) flying-foxes (Megachiroptera: Pteropodidae). *Australian Mammalogy* **18**: 19–26

Webb, N. J. and C. R. Tidemann. 1996. Mobility of Australian flying foxes. *Pteropus* spp (Megachiroptera): evidence from genetic variation. *Proceedings of the Royal Society of London B* **263**: 497–502.

Welbergen, J., Klose, S., Markus, N. and Eby, P. 2007. Climate change, temperature extremes and selective mass mortality in flying-foxes. *Proceedings of the Royal Society of London B*. **275**: 419–425

West, C. 2002. Contemporary issues in managing flying fox camps. pp. 176–195 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney. Royal Zoological Society of NSW, Mosman, NSW.

- Williams, J., Read, C., Norton, A., Dovers, S., Burgman, M., Proctor, W. and Anderson, H. 2001. *Biodiversity. Australia State of the Environment Report 2001*. Independent Report to the Commonwealth Minister for the Environment and Heritage. Department of Environment and Heritage, Canberra.
- Wilson, B.A., Neldner, V.J. and Accad, A. 2002. The extent and status of remnant vegetation in Queensland and its implications for statewide vegetation management and legislation. *Australian Rangelands Journal* **24**(1): 6–35.
- Wilson, J. and Bennett, A.F. 1999. Patchiness of a floral resource: flowering of red ironbark *Eucalyptus tricarpa* in a Box and Ironbark forest. *Victorian Naturalist* **116**: 48–53.

From: s47F [REDACTED]@yahoo.com.au]
Sent: Wednesday, 13 February 2013 3:46:11 PM
To: Feedback Address For Web Page
Subject: RE FLYING FOXES

Hello,

It is my preference that you do not remove the bats and that you do not remove their habitat.

Best Wishes
s47F [REDACTED]

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RESPONSE 1

From: s47F [redacted] com]
Sent: Thursday, 17 January 2013 8:52:53 PM
To: Feedback Address For Web Page
Subject: Draft Grey-headed Flying-fox Roost Site Management and Action

Dear Sir or Madam

I am writing to comment on the Draft Grey-headed Flying-fox Roost Site Management and Action. Please do not relocate them and destroy their current roost site. I believe that the flying foxes need protection, not constant relocation and destruction of their habitat, no matter what the effect on the local human population.

Yours sincerely

s47F

Albert Park VIC 3206

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From: s47F [REDACTED]@gmail.com]
Sent: Tuesday, 12 February 2013 12:47:05 PM
To: Feedback Address For Web Page
Subject: Grey-headed fruit bats

Thanks for the opportunity to contribute to the discussion on fruit bats in Bairnsdale.

My understanding is that the fruit bat colony is in Bairnsdale because of the huge reduction in native habitat for these animals, which is rain forest.

Some years ago there was a program to replant rainforest species in cleared gullies on farmland in East Gippsland. I believe this was instigated by Catchment Management. The reason for this was to create better filtration for water run-off to the Gippsland Lakes as a positive action to reduce nutrients from farmlands, there by addressing the algal bloom issue.

If this excellent scheme could continue, the fruit bat habitat could be re-instated.

This is a long term solution, but the broader benefits are obvious. The plantings could be done by Landcare groups, Conservation Management groups, private land-holders and other interested parties.

Land management underlies all our wildlife concerns.

Regards

s47F [REDACTED]

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dwaDF

From: s47F [redacted]@bigpond.com
Sent: Monday, 18 February 2013 11:12:51 AM
To: Feedback Address For Web Page
Subject: grey headed flying foxes

Dear East Gippsland Council,
I MUST email you to strongly oppose this ILLEGAL action to remove the breeding habitat of a highly endangered species actually PROTECTED under federal LAW... This species is listed as vulnerable to extinction FEDERALLY and this action you are proposing is liable to fines and JAIL terms if trees are felled,. This action shows how backwards this council is as in Melbourne and most likely other cities, vulnerable species have been severely compromised due to clearing of vegetation necessary to the survival of this species, I could mention the helmeted honeyeater, whose habitat and cover was removed under the guise of removing the non native vegetation, and then it was found the birds gone...no cover, no birds.

I realise there are a few ignorant people who dislike wildlife and want all wildlife eradicated from urban areas but in this day and age, the survival of such an important species and its loss is detrimental to OUR survival. THIS IS A BREEDING COLONY OF ENDANGERED MAMMALS we MUST protect them. I work in tourism, and am also a member of the Australian Bat Society, and have myself directed over 50 people to observe and delight in our resident breeding colony.

THIS ACTION IS ILLEGAL UNDER THE EPBC ACT 1999 AND IS DISGRACEFUL.

Yours sincerely,

s47F [redacted] ..registered wildlife shelter, member ABS, WCN

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From: s47F [REDACTED]@wideband.net.au]
Sent: Friday, 15 February 2013 4:11:22 PM
To: Feedback Address For Web Page
Subject: Grey Head flying fox management plan FEEDBACK from s47F [REDACTED]

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EPBC 2009/501

East Gippsland Shire Council Natural Resources Management, Bairnsdale /Vic/ Poplar Tree Removal
Program - Grey Headed Flying Fox Zone

MANAGEMENT PLAN FEEDBACK FROM s47F

Buchan 3885
0351 559498

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are addressed. If you have received this email in error please notify
the system manager.

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EPBC 2009/501

East Gippsland Shire Council Natural Resources Management, Bairnsdale /Vic/ Poplar Tree Removal Program - Grey Headed Flying Fox Zone

Proposed removal of poplars along Mitchell River, habitat of grey-headed flying fox.
Submission from s47F Buchanan 3885 - ratepayer of this shire and owner of a number of properties in the City of Bairnsdale.

I hereby lodge objection to Council's proposal to remove poplar trees along the Mitchell River which form an integral habitat for the threatened species, the grey-headed flying fox.

East Gippsland Shire has gone to considerable expense to promote this region as *Naturally Magic* and has a moral and statutory responsibility to respect threatened native species. The grey-headed Flying Fox is listed as threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

And while the poplar trees are not a native species, they provide the necessary requirements for the flying fox of height, shelter etc that once would have been available before their original habitat of rainforest type trees were destroyed.

In some other places, flying foxes/bats provide a feature of tourism to their areas with guided educational observation of the unique creatures. This would be a true expression of *Naturally Magic* rather than removal of the animals' habitat with the likelihood that most will not survive - and those individuals that may, will be dispersed from their community and will resort to equally unpopular roosting trees.

The private residence that is closest to the present colony's roosting area should be purchased for scientific use and also used as a tourist focus for observation. The cost of purchase of the building could possibly be alleviated by grants and may be no more expensive than the three year tree removal plan.

The current proposal does not meet the requirement of 'no or minimal impact.' It would result in loss of suitable habitat and jeopardize the survival of a unique threatened species. In no circumstances should the poplars be removed until alternative habitat of suitable height is grown.

s47F

Buchan 3885

From: s47F [mailto:s47F@activ8.net.au]
 Sent: Friday, 15 February 2013 11:42:49 AM
 To: Feedback Address For Web Page
 Subject: Fw: Submission re. Removal of poplar trees affecting grey-headed flying fox
 [SEC=UNCLASSIFIED]

EPBC 2009/501

East Gippsland Shire Council Natural Resources Management, Bairnsdale /Vic/ Poplar Tree Removal Program
 - Grey Headed Flying Fox Zone

Proposed removal of poplars along Mitchell River, habitat of grey-headed flying fox.
 Submission from David Eagleson, Buchan 3885 - ratepayer of this shire and owner of a number of properties in the City of Bairnsdale.

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s47F

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RESPONSE 6

From: s47F [redacted].com.au]
 Sent: Sunday, 10 February 2013 12:09:13 PM
 To: 'Editor Mallacoota Mouth'
 CC: 'Editor Mallacoota Mouth'; Feedback Address For Web Page; s47F @vnpa.org.au;
 friendsofmallacoota@gmail.com
 Subject: FW: Flying foxes

FLYING FOXES

11.2.2013

Just because one can see a large amount of flying foxes sometimes in the evening, this does not indicate an abundance of the species. It might only indicate that one is lucky to live in an area still frequented by these magnificent animals. Figures indicate a steady and frightening decline in the overall number in Australia. Maybe educating the fruit-tree owners that the fruit bats only eat over-ripe fruit, that they are important to the regeneration of rainforest areas by propagating seeds during flying over these inaccessible forests etc, we might elicit more compassion for these wonderful, highly intelligent Australian animals? We have a fluctuating colony on our property; however it is seasonal and unfortunately not a regular visitation; but ALWAYS very welcome. Tourism alone should not be a reason to protect these creatures, but any help from all sites must be used to change the misapprehension that prevails and that condemns these native flying mammals to eventual final extinction. Please, East Gippsland Shire and any other person in charge of Native Animal Protection, use your power to change the prevailing attitudes and encourage awareness as to how wonderful, exotic and unique a flying fox is in our environment. A little tolerance goes a long way.

s47F



s47F

Mallacoota VIC 3902

s47F

Galah mum feeding her baby.

From:

Please do circulate anything you want about the tragic state of these poor Flying Foxes, the more people who write to the East Gippsland Shire and the better.

Department of Sustainability, Environment, Water, Population and Communities
 GPO Box 787
 Canberra ACT 2601

RESPONSE 7

Warm wishes.

s47F

From: s47F @activ8.net.au
To: ctiv8.net.au
Subject:

Date: Fri, 8 Feb 2013 07:58:01 +1100

This is another case of DSE and Council taking action before they have undertaken any appropriate research, please read through what s47F has written her because these Flying Foxes need help from all of us or they will face the same fate as many other species of wildlife who just don't 'fit in', they'll be sacrificed!

Please send letters to the East Gippsland Shire and let them know you strongly disapprove of what they intend doing.

Thank you
s47F

Hi All,

There is a breeding colony of grey headed flying foxes at Bairnsdale in poplar trees along the bank of the Mitchell River in Bairnsdale. It is now threatened by the East Gippsland Shire.

This letter is first to request submission to the federal process. http://www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=5017

In 1999 the species was classified as "Vulnerable to extinction" in The Action Plan for Australian Bats,^[20] and has since been protected across its range under Australian federal law. As of 2008 *the species is listed as "Vulnerable"* on the IUCN Red List of Threatened Species. from the wiki article http://en.wikipedia.org/wiki/Grey-headed_flying_fox#cite_note-17

The grey-headed flying fox summer nursery colony has been on the Mitchell River Bank for 10 years. This species, despite what DSE and some zoologists say - has been present in Victoria continuously. The removal of colonies from Sale and elsewhere last century, accompanied by the removal of vegetation they require for a summer breeding colonies had seen these colonies lost to the south of the state. The creation of a rainforest in the Melbourne Botanical Gardens and later, around 2002-03 the growth of poplars with a dense weedy understory at Bairnsdale, has enabled them to establish two summer breeding colonies. The one from the Botanical Gardens was forcibly evicted and the grey headed flying foxes moved to red gums on the banks of the Yarra River where they suffer a significantly increased mortality rate.

The East Gippsland Shire, in response to resident's complaints, established a process to fell the poplars in stages and replace them with native vegetation - continuing 'revegetation program'. Unfortunately designing these plantings no consideration has been given to the basic physical requirements of the grey - headed flying foxes nursery area. From past experience vegetation will have to be least 2-30 years of age or even much older before it can provide the physical structure - especially shelter from sun - required.

The properties affected - 2-5 - have a legitimate grievance - but no steps have been taken to mitigate the impact of grey-headed flying foxes on these properties. The noise volumes experienced by residents and frequency has not been measured and proximity of the flying foxes to the properties has not been mapped. The proposal of the Shire here; http://www.eastgippsland.vic.gov.au/Your_Say/Draft_Grey-headed_Flying-

fox Roost Site Management and Action is actually illegal under the EBPC Act 1999. By running their consultative process at the same time as the one for the federal review there has been a large degree of confusion.

IF ANY TREES ARE CUT DOWN PLEASE RING s22 and s22 IMMEDIATELY. UNLESS FEDERAL APPROVAL IS GIVEN THE PENALTIES ARE FINES AND/OR JAIL SENTENCES.

I have attached an article that I wrote in last weeks (Bairnsdale) Advertiser and basic internet searches will reveal both that Grey-headed flying foxes are likely primates <http://www.batcon.org/index.php/media-and-info/bats-archives.html?task=viewArticle&magArticleID=259> and their threatened status, nationally and internationally.

I am doing what I can but I would really appreciate any help and assistance that any of you could generate. Submissions for the federal process (see below) close on the 15th of February. The council date for closure of submissions finishes on the same day - but Kate Nelson of the East Gippsland Shire indicated on local ABC Radio yesterday that the council will be clearing the poplars out over 18 months. This will lead to the death of grey-headed flying foxes, especially the young, and the loss of the breeding colony and apparently pre-empts the process established by the shire.

The alternative approach is outlined in the letter below and involves continuing the rainforest revegetation on all available public land, developing tourism potential and only removing the poplars in two or three decades time when the grey headed flying foxes move on.

Before the council takes any further action it must;

1. Abide by the Australian Federal Law
2. Actually evaluate the nuisance caused to a few residents by the fruit bats and undertake measures to reduce their impact
3. Pay for or jointly fund research to determine what the physical parameters are for this nursery colony,
 - a. the temperature range within the colony,
 - b. the current mortality rate of young and adult grey-headed flying foxes and the cause of that mortality
 - c. collate all the known counts of animals in this colony and undertake a monitoring the numbers of adults and young
4. Measure the noise nuisance caused to residents and undertake research to determine what mitigation measures are required and install those that do not impact grey-headed flying foxes such as sound barriers etc.

Regards

s47F

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From: eeg@eastgippsland.net.au
Sent: Tuesday, 12 February 2013 2:12:00 PM
To: Feedback Address For Web Page
Subject: comments - plans by EG shire to remove Flying-fox habitat.

Re: East Gippsland Shire Council/Natural resources management/Bairnsdale/VIC/Poplar Tree Removal Program - Grey Headed Flying Fox Zone

EEG objects to the plans of the East Gippsland Shire to force the colony of bats from the Mitchell River. These bats are listed by both State and Federal governments but neither has a protection plan for them. Despite there being acknowledgement of their precarious status and the identified threats to them (including destruction of their roosting sites), no work has been done to ensure these rare wildlife are properly managed at this site. These bats have been present for many years.

The fairly harsh plans suggested by the shire will likely cause stress to this colony and they may not find another suitable site with the right shade and temperature needed to maintain the colony's health in hot weather. Replanting with natives is a splendid sounding plan, but do you expect they will replace the poplars' size and shade within 18 months time? There are likely to be 3-5,000 bats in this colony. If there was a better summer camp for them, they'd have moved to it.

We hope that the biological and habitat details of these animals are well known by the Council staff who are making decisions on the bats' future and management, so we will not repeat them here. Such details are freely available on the net if the planners would like to consider the behaviour and habitat needs of these amazing nocturnal creatures.

We believe there are alternatives to destroying the roosting site completely and in a short time. The shire could, for less cost, provide noise abatement measures for the few houses that are affected. Signs to prevent people deliberately disturbing the Flying-foxes would also help reduce daytime noise (they are out feeding at night). The public walkway could be detoured around the colony to avoid complaints about the droppings.

The Action Plan for Australian Bats includes the objectives of stabilising the population at the 1999 level, develop non-destructive methods for management of camps in problem areas and identify and protect essential habitat. Plans by the shire to move these bats on by cutting down their roosting cover over a short period of time is contrary to these objectives.

Regards

s47F

Coordinator
 Environment East Gippsland Inc

Locked Bag 3
 ORBOST Vic 3888

(03) 5154 **s47F**
www.eastgippsland.net.au

EAST GIPPSLAND - our breathing space

RESPONSE 8

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From: EGRCMN Facilitator [facilitator@egrainforest.org.au]
Sent: Friday, 15 February 2013 1:42:40 PM
To: Feedback Address For Web Page
Subject: Grey-headed flying fox Draft Plan - Feedback

Good afternoon,

Please find attached feedback regarding the "Draft Strategic Management and Action Plan October 2012, Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site"

Regards,

s47F

Facilitator, East Gippsland Rainforest CMN
Conservation Officer, Trust for Nature

s47F

<http://www.egrainforest.org.au/>

<http://www.trustfornature.org.au/>

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www.clearswift.com

East Gippsland Rainforest Conservation Management Network

PO Box 263, Lakes Entrance 3909
Inc. No: A0049651T
ABN: 33 749 272 178

Secretary: S47F
Tel: s47F
Email: secretary@egrainforest.org.au



15th February 2013

By email to: feedback@egipps.vic.gov.au

Review of the Draft Strategic Management and Action Plan October 2012,
Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site
East Gippsland Shire Council
PO Box 1618
Bairnsdale, VIC, 3875

Dear Sir / Madam,

Re: Grey-headed flying fox Draft Strategic Management and Action Plan October 2012 Feedback

The East Gippsland Rainforest Conservation Management Network (EGRCMN) appreciates the opportunity to provide feedback regarding the 'Draft Strategic Management and Action Plan October 2012, Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site'. The EGRCMN is an organisation whose aim is the conservation and permanent protection of rainforest and associated vegetation types in East Gippsland.

The EGRCMN supports the EGSC's actions in the preparation of this draft strategy to manage the impacts and associated management issues with this matter. It is appreciated that such management is necessarily detailed and complex.

As indicated in the Draft, Grey-headed flying foxes play a pivotal role as pollinators and dispersers of seed for many of our flora species. The population of grey-headed flying foxes is believed to be halving every 6 – 7 years. It is imperative, therefore that an appropriate management strategy is put in place.

In regard to the Draft Strategic Management and Action Plan, it is suggested that a further management option exists, which has additional advantages over the preferred option. An integrated progressive restoration of the whole site would have the following activities as key components;

- Weed control – a hierarchical approach based on the extent, impact and most effective control methods, across the whole site. (eg, focus on English Ivy and Broad leaf privet initially before tackling other species.
- Poplar removal – a staged removal based on their individual proximity to housing, public safety and utilisation as roosting habitat. It is noted that some of the poplars are being progressively killed by the flying foxes, however whilst they remain, they do provide habitat, and do contribute structural elements to the vegetation.
- Supplementary planting and support for natural regeneration of native species.

This option differs from the staged option in terms of the area covered, works undertaken and timing of those works. The benefits include;

- Least impact to colony as roosting habitat not so severely reduced
- Flying foxes contributing to revegetation as evidenced by the natural regeneration already occurring, (eg. pittosporum and lilly pilly's)
- Progressive restoration supports weed control and increases opportunities for natural regeneration.

It is acknowledged that this option does not remove the grey-headed flying foxes from the site.

It is further suggested that strong consideration be given to establishing an alternative roost site to encourage movement of the colony away from the residential area, and to provide alternative habitat during the site restoration. It is understood that a potential alternative site could be upstream of the Lind bridge on the Mitchell River. This location could be quickly established using suitable fast growing native species and would ensure that appropriate buffer distances from residences are maintained.

Finally, with all proposed revegetation, it is recommended that the vegetation type be rainforest. In addition to providing suitable habitat for the grey-headed flying fox, rainforests provide a range of other benefits to the environment and the community. Rainforest species already occur naturally within the area, and rainforest restoration is being undertaken at a number of sites upstream from the roost site. The EGRCMN would be happy to provide advice and assistance in regard to rainforest restoration.

Please don't hesitate to contact me if you require further information or clarification regarding these suggestions and recommendations.

Yours sincerely,



Secretary,

East Gippsland Rainforest Conservation Management Network

From: s11c [redacted]@skymesh.com.au] dwalB
Sent: Saturday, 9 February 2013 3:12:47 PM
To: Feedback Address For Web Page
Subject: Grey headed flying fox feedback.....

Resending this as there seems to be a problem with the shire server.

Just in case have also sent it through the snail mail system.

Dear Mayor and Councillors,

Please find attached my thoughts on the removal of the poplar trees that have been adopted by the grey headed flying fox colony.

Thank you.

s11c [redacted]

East Gippsland Wildlife Shelter Groups Inc..
<http://www.gwildlife.com.au/>

--

Registered Linux User:- 329524

If I knew for a certainty that a man was coming to my house with the conscious design of doing me good, I should run for my life.Henry David Thoreau

Debian GNU/Linux - just the best way to create magic

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The Snug Wildlife Shelter

38 McPhies Road - Cassilis - via Omeo 3898- Victoria

email: arlestao@skymesh.com.au

Phone: 03 51594460

Grey-headed Flying-fox Feedback
PO Box 1618
Bairnsdale 3875
Victoria

Grey-Headed Flying-Fox Feedback

Friday 8 February 2013

Mayor and Councillors
Dear Madams and Sirs,

I think I read first about the grey headed flying fox roost in the Bairnsdale advertiser last year. Realising just how fortunate Bairnsdale residents were to have these animals, was going to write just that to the advertiser. Too many other things going on at the time and it was slowly over written on my list of things to do.

There are many elements in error with what the East Gippsland Shire has been doing along the Mitchell and other rivers. As can be seen by the recent floods and undermining of the Great Alpine Road.

♣ Removing species of trees to plant others

- The trees being removed from the river banks because they are not native was never a good idea. These are not exotics as most people will claim, no more than "born here" white Australians are exotics. These trees have come from seed from naturalised Australian poplars or whatever immigrated species. That they are being used by Australian native animals is enough to validate their benefit to the nation and Bairnsdale in particular.
- To call these trees "invasive" and "pests" as in the draft document produced by the East Gippsland Shire shows lack of examination of the species and no appreciation of nature's diversity. They can be the former, just like the wattle. But never the latter, and are great fodder for introduced species which accrue a considerable amount of export dollars into the national coffers.
- Further, the flying fox migration to this area will, if it's undisturbed, eventually bring the seeds of native species to the roost area. Why this indecent haste to have it happen immediately by creating devastation and then planting natives that will eventually volunteer at any rate?

♣ Removing an animal habitat

- We of East Gippsland and everywhere in Australia, though we are concerned in this instance about the former, are losing required numbers to maintain genetic strength and diversity of some species of native animals every day through road kill and other human generated conditions.
- Instead of trying to deter animals from coming into areas where they can at least survive, though hopefully thrive, we should be trying to encourage their occupation. Bairnsdale needs to get on board the native animal conservation thrust. Not just for tourism and the intrinsic

value of the native animals found in our region, but also to attract people who wish to study them to ensure their survival elsewhere.

- Removing this native animals habitat to plant native trees is a bit weird? Why disturb and put under stress any animal species to plant native flora that will take years to establish? Are the native plants earmarked to replace the poplars, Victorian natives even?
- A better option if there is a conflict with a section of walking track, is to close that section of the path. For a decade if need be, or make a path round it if possible rather than tear down the established trees. Thus, allowing them to slowly become part of, and enrich the soil in which they grow.

♠ Establishing new habitats

- Before any habitat is removed, new habitat should be established if the old is interfering with the overly delicate sensibilities of the residents near any occupation of native fauna. The East Gippsland Shire should be far sighted and create habitat for native animals long before they are perceived as being a nuisance.

♠ History

- Dare I go into the history of slaughter and dislocation of animals so white settlers who were introduced to this country could live in a comfort to which they were often unaccustomed in the country from which they emigrated? Nothing was sacred in this new land they took as their own by force and slowly turned into the old country they had left. But with more room and possibly more freedoms and maybe less rain.
- The aboriginal people were known to eat flying foxes in the past. How many colonies were in the area and not recorded because they were a nuisance and no one thought to do so. Dispossessing them by habitat removal or slaughtered, because they were in the way of the new settlers ambitions?

♠ The disease issue

- Disease is the crazy fear of some people in the community who have not been supplied all the information to dispel it. Some flying foxes are known to carry the Hendra virus. But - there is no proof that flying foxes transmit the disease to horses. People catch the virus from horses, not flying foxes. The documentation is there to be read. Some research has been done. Flying foxes can handle the virus and are not affected by it. Horses are.
- Lyssavirus is not a danger to anyone unless, someone is bitten by a flying fox that just happens to have the disease. So if people just leave the flying foxes alone, and are warned to call a wildlife carer who has had the precautionary vaccinations if a need for rescue arises, an incidence of contracting the disease would be almost as likely as being hit by a runaway space craft.

♠ How much disturbance?

- Have all the residents of Bairnsdale been canvassed to discover if they find the flying fox colony disturbing?
- Are the residents of Bairnsdale informed about all things pertaining to the grey headed flying fox?
- Has anyone researched how many people actually go to see the colony, take photographs and observe them because of interest?

Summary:

Human beings remove the shade and then suffer in the sun, we bulldoze flat the species that evolution has proven to be successful for what we erroneously think we need. Then build something inappropriate for the purpose, more to do with fashion than practical, which requires enormous energy use to deliver the same environment that was in place before the decision to slash and burn. We create climate change that further increases our energy use which further increases our discomfort in a never ending spiral.

Believing to be correct: our double standards removing or attempting to remove exotic species of which we are one. Trying to recreate the irreplaceable environment that was created by evolution with the plants we bulldozed down and burnt and continue to do so. Taking insufficient time to think and accurately evaluate the result.

In this instance East Gippsland Shire has the opportunity to be the first, a pioneer shire, to change this destructive mindset. Accept that exotics are desirable in the right place and use, many are fire retardants and increase the appeal of our environment. That they are especially desirable if they have been adopted and endorsed by species who were here long before the white settler.

The East Gippsland Shire could be the clever shire, the one that demands minimum disruption to areas where people want to build. Encourage maximum tree planting of fire retardant species and protects its wildlife where residents should share, rather than steal their land area. Going round "features" that others, less enlightened, may consider obstacles, making the Bairnsdale area interesting for both residents and visitors.

To step onto this pioneering path; reconsider the removal of the the poplar trees which are the grey headed flying fox roost on the Mitchell river. Rather, spend that money and a little bit more, to establish another suitable roost area which this native Australian may prefer when it has properly grown. In the interim; creating the infrastructure for those who need to walk, to go round, to graciously give ground, to be tolerant of another sentient being.

Can the East Gippsland Shire Council be that far sighted?

Sincerely,

s11c



**Australian
Wildlife
Protection
Council**
A voice for wildlife

February 13, 2013

Grey-headed Flying-fox Feedback
PO Box 1618, Bairnsdale, 3875

Reference Number: 2009/5017

East Gippsland Shire Council/Natural
resource management / Bairnsdale/ VIC/
Poplar Tree Removal Program - Grey Headed Flying Fox Zone.

3	8	15	T	F	G	P
Pest Plant office.						
Env - Strategy.						
Res - Res. Needs + Pest An.						
18 FEB 2013						
EGSC - Corporate Records Unit						

Email to: epbc.referrals@environment.gov.au Reference Number: 2009/5017

**FEEDBACK RE: DRAFT GREY HEADED FLYING FOX ROOST SITE STRATEGIC
MANAGEMENT ACTION PLAN**

Status of Grey-headed Flying Fox (GHFF) (*Pteropus poliocephalus*)

International IUCN - Vulnerable National - Vulnerable Victorian State - Endangered

Australian Wildlife Protection Council (AWPC) brings to the attention of the East Gippsland Shire Council (EGSC) our abject dissent with the proposed Management Action Plan regarding the removal of Poplar trees which at present constitute the summer nursery and roost for several thousand GHFF at this site on the banks of the Mitchell River.

Flying-foxes disperse the pollen and seeds of plants they visit during their foraging trips, and in this way they contribute to the reproductive and evolutionary processes of forest and woodland communities. Their mobility, size, territorial feeding activities, and colonising behaviour result in wide-ranging dissemination of pollen and seeds. Their ability to move freely among habitat types allows them to transport genetic material across fragmented, degraded and urban landscapes.

Camps are highly structured. The majority of roost trees are occupied by mixed groups of adults comprised of a single male, who scent-marks and defends a territory shared by one or more females and their dependent young. The roosting positions of individual males are highly consistent and animals return to the same branch of a tree over many weeks or months. Some grey-headed flying-foxes are known to occupy a single area within a camp for several years, while others may return to the same branch of a tree after having migrated over large distances.

Flying-foxes often have a strong connection to camp sites and can be extremely resistant to relocation efforts.

Our concerns for the welfare of the GHFF and the demise of their annual roost at this site are as follows:

* The EGSC states in the draft strategic management plan: "The roost site poplars form part of this program. The national listing of the GHFF means that the proposal to remove the existing roost trees is a controlled action and requires the development of a management plan that will ensure no or minimal impact to the conservation of this species".

The key wording here is "no or minimal impact to the conservation of the species"

The removal of the Poplar trees over a 3 year period without revegetation will lead to the GHFF colony being gradually displaced, this would mean for each of the 3 years GHFF's would be returning to this site looking for a place to roost. With the number of trees gradually diminishing there would be on each of these 3 years GHFF's attempting to squeeze into a smaller and smaller area. Each year this happens, thousands of these animals will fly around until they are totally exhausted and will die and amongst these deaths will be hundreds if not thousands of juveniles which the mothers will be carrying.

This is not "no or minimal impact" This is expulsion by stealth.

Australian Wildlife Protection Council Inc

KINDNESS HOUSE, 2nd Floor, 288 Brunswick Street, Fitzroy, Victoria

TEL: 03 5978 8570 FAX: 03 5978 8302 MOB: s47F

kangaroo@hotmail.net.au www.awpc.org.au www.rootou

Patrons: Professor Peter Singer and the Hon Richard Jones Registered

RESPONSE 11

* The draft strategic management plans states:

The existing vegetation is in a very poor and senescent condition and has a limited lifespan. The poplars are an undesirable invasive pest plant species. Due to the high public usage of the walking path and the condition of the trees they are becoming a public safety issue.

These trees didn't suddenly grow old and it is reasonable to assume that if the revegetation program has been ongoing since 2003 the condition of these trees would have been noted when the area was initially investigated.

The question we put to the EGSC are:

- a) Why wasn't the problem with the trees acknowledged in the early stages of the revegetation work?
- b) Why wasn't planting of native trees amongst the Poplar instigated in 2003 allowing substantial growth to occur before cutting down the Poplars?
- c) Was any consideration given to or research carried out with regard to the GHFF roost site and how it could be replaced with minimal disturbance?
- d) Why is this strategic management plan not incorporating the advice given in the report tendered by David Tarling – Hort IV. Arb (Melb Uni) Nowhere in his report does he say that these Poplar tree should be cut down within a 3 year period, to the contrary, he gives them a Useful Life Expectancy (ULE) of 5 – 10 years

* The draft strategic plan states:

The roost site is adjacent to a residential area. Residents have expressed concerns over the impacts from the colony including disease, noise, smell, and the potential for the devaluation of their homes.

We note that nowhere in the strategic management plan does it give an account of any research having been undertaken with regard to:

- a) The noise factor level.
- b) Trials to negate the noise and smell factors such as installation of high, solid fencing which would provide a buffer between the residents and the colony.
- c) Education of the residents with regard to the extremely low risk of disease, how to protect backyards and cars, protection of fruit trees and so on.

There is a huge amount of information about 'Living with Flying Foxes' which is easily accessible on many web sites such as:

http://www.bats.org.au/downloads/living_with_flying-foxes.pdf

<http://www.sydneymbats.org.au/flying-foxes/living-with-flying-foxes/>

It is incredibly remiss of EFSC not to have provided concerned residents with such information.

It is apathetic negligence not to have conducted an evaluation of the noise level and not to have trialed a buffer between the residents and the GHFF.

We conclude from reading the strategic management action plan that the primary interests of the EGSC are:

* Removal of the GHFF colony.

* Removal of the Poplar trees with no genuine concern for the GHFF which becomes very evident in this plan with the statement: **It is anticipated that the GHFF will relocate to find other suitable habitat.**

Australian Wildlife Protection Council Inc

KINDNESS HOUSE, 2nd Floor, 288 Brunswick Street, Fitzroy, Victoria 3065 Australia

TEL: 03 5978 8570 FAX: 03 5978 8302 MOB: s47F

kangaroo@hotmail.net.au www.awpc.org.au www.rooftourism.com.au

Patrons: Professor Peter Singer and the Hon Richard Jones Registered Charity: A0012224D

The outcomes and costs of relocating flying-fox camps.

http://www.griffith.edu.au/data/assets/pdf_file/0006/358440/Roberts-et-al.pdf

Relocation continues to be viewed as an attractive solution to problems arising from flying-fox camps in Urban areas. For example, between 2006 and 2009, proposals were made to state and/ or commonwealth Government to relocate eight flying-fox camps in NSW, Queensland and the Northern Territory. However, it is important to determine the magnitude of the perceived problem before exploring potential management options, including relocation. For example, if noise, smell and faeces from a camp affects only a small number of residents, then more local-scale mitigation options such as creating buffers between houses and roosting flying foxes or constructing sound barriers may be more effective solutions than attempted wholesale relocation of a camp (see Roberts 2006 for review of further management options and their estimated costs). In many cases, public education campaigns can reduce antipathy towards flying-foxes and reduce the social or political imperative to 'do something' about flying-fox camps. For example, managers of some urban camps (e.g., Bellingen, Coffs Harbour, Wingham Brush and Ku-ringgai (Gordon) in NSW, and Woodend in Ipswich, Queensland), have acted to alleviate the concerns of nearby residents through strategies such as community based camp revegetation programs, coupled with minor habitat modification around the camp's periphery, education days, and the promotion of tourism to campsites (Pallin 2000; Smith 2002; Coffs Harbour City Council 2007; Hall 2006). Similar approaches have been used to successfully manage residents' concerns around six flying-fox camps in suburban Brisbane, Queensland, that were considered potential sources of major conflict (Hall 2002, 2006). Many of the conflicts between humans and flying-fox camps may be attributed to poor planning and inappropriate development near established camp sites (West 2002; Smith 2002; Eby 2002). Creating public open space buffers around established camp sites, aligned with more sympathetic developments, could minimise future conflict, particularly in new residential areas. This is mainly an issue for local government, although there may also be a role for State and/ or Commonwealth planning policies to guide development of areas adjoining flying-fox habitat, given that some flying-foxes species are classified as 'vulnerable to extinction' under State and/or Commonwealth legislation.

Yours sincerely

s47F

President

Australian Wildlife Protection Council Inc

KINDNESS HOUSE, 2nd Floor, 288 Brunswick Street, Fitzroy, Victoria 3065 Australia

TEL: 03 5978 8570 FAX: 03 5978 8302 MOB: S47F

kangaroo@hotmail.net.au www.awpc.org.au www.rootourism.com.au

Patrons: Professor Peter Singer and the Hon Richard Jones Registered Charity: A0012224D

From: J. s47F [redacted]@hotmail.com]
Sent: Friday, 22 February 2013 3:38:42 PM
To: Feedback Address For Web Page
Subject: s47F [redacted] response to GHFF project

To whom it may concern.

Thank you for the extension of time for public comment to the East Gippsland Shire Council Draft Strategic Management and Action Plan for the Grey-headed Flying Fox colony on the banks of the Mitchell River at Bairnsdale.

Please find attached my response to the Draft Plan.

I would be grateful for acknowledgement.

Regards

s47F [redacted]

Caulfield North
Victoria 3161

Phone s47F [redacted]

s47F response to East Gippsland Shire Council's Bairnsdale Grey-headed Flying Fox Roost Site Draft Strategic Management and Action Plan October 2012

Introduction

I made comment on the East Gippsland Shire Council referral on this project to the Federal department for environment in 2009. I am amazed and depressed that it has taken four years, untold labour and expense to come up with a draft management plan that is a/ political, b. ad hoc, and c. inadequate.

Australia is the world record holder for the extinction of mammal species over the last two centuries. A growing number of native mammal species in Australia are in radical decline. The reason for this is extremely poor land management, including introduction of exotic species.

The rapacity and utter carelessness with which Australia's natural resources have been exploited is, unfortunately, ongoing. The Grey-headed Flying Fox Roost Site Draft Strategic Management and Action Plan reflects these attitudes.

There is some scientific support for the view that flying foxes are primates, or more closely related to Primates than Chiroptera. *Homo sapiens* is also in the order Primates. Perhaps this is one reason why there is an overlap in preferred camping spots of the two species.

It is a fact that the numbers of GHFF has reduced dramatically since Europeans arrived in Australia in 1788, and the species is now listed as vulnerable on the IUCN Red List, due to its ongoing population decline. The species is listed as vulnerable under the Victorian *Flora and Fauna Guarantee Act 1988*.

The Draft Management Plan for the Grey-headed Flying Foxes (GHFF) could have been more strategic in its approach. An assessment needs to be made about how the Bairnsdale colony fits in with the social order of GHFF across their range.

Will potential reduction in size or elimination of GHFF at the Mitchell River roost site affect the viability of GHFF colonies elsewhere in their range?

As suitable habitat for GHFF continues to shrink will they be forced to cohabit more with the Black Flying Fox *Pteropus alecto* with which they are known to interbreed?

Will competition with other flying fox species within GHFF range cause further decline of one or another of the flying fox species?

Will continued constriction and elimination of roosting and breeding sites for GHFF increase mortality of flying foxes from disease as there will be less opportunity to disperse away from affected sites?

Are large colonies of GHFF important for the survival of the species?

What is the total number of GHFF necessary to ensure their continued survival?

Does the trend to increasing urban location of GHFF colonies threaten the survival of the species, or the plant species they pollinate?

Will chemical and other pollution in the urban areas where GHFF now choose to camp and forage cause higher mortalities, increase their vulnerability to disease or reduce their breeding success?

The Draft Management Plan

Three options for the management of the roost site have been identified in the Draft Management Plan (page 5):

- Do nothing option
- One off replacement of vegetation from non-native to native species (i.e. complete clear felling of site with corresponding complete site revegetation).
- Staged replacement of non-native vegetation (i.e. partial site clearing with corresponding revegetation).

My comments regarding these options are –

None of the options are costed.

- Do nothing option

This option is the easiest and cheapest. Whether the existing vegetation, dominated by exotic poplars, will continue to thrive in the long term is doubtful on the evidence presented i.e. senescing trees, rampant growth of ivy, damage from use as a flying fox roost, etc. There will be continued complaints from local human residents. When the site degrades sufficiently due to collapse and death of the exotic poplars the GHFF camp will move.

- One off replacement of vegetation

This will eliminate the flying fox colony from the site, and may or may not eliminate them from the nearby area. The problems associated with flying fox colonies are simply shifted elsewhere. No matter where the flying colonies are located some people will perceive them as a problem. The flying foxes will go to where the political pressure from humans is least, which will not necessarily be the best place for the flying foxes.

- Staged replacement of non-native vegetation

The current roost site is considered to be an inappropriate location to support a GHFF colony of the population size seen in recent years. Key reasons include disturbance of the colony from recreational walking path users, creation of conflict with local residents, proximity to high traffic areas and limited longevity of the current roost trees. (p11. Draft Management Plan)

There is no indication in the Draft Plan that there is much consideration of the welfare of the flying foxes, apart from mealy-mouthed humbug. The plan is clearly to get rid of the flying fox colony from its preferred roosting site by removing the associated vegetation over three years. The effects on the flying foxes might be more detrimental than one-off replacement of vegetation.

If the existing exotic vegetation was to be removed and replaced with natives over an extended time frame e.g. 20 plus years, in a well-planned way, there would be a good chance for a happy reconciliation, with the flying foxes remaining on the site, and the human neighbours complaints resolved.

If the plan is simply to get rid of the flying foxes why not clear all the exotic vegetation of the roost site while the flying foxes are not there? Simple and cheap. Not what I would want to see, but why pretend to have the welfare of GHFF at heart, when you don't?

If the plan is to restore the area to 'be representative of pre-European condition' (see Aims of revegetation page 67 of the Draft management plan) the flying foxes might well be attracted back to the area in future, and thus conflict once more with human preferences, particularly

as one purpose of the draft management plan is to 'provide a safe environment for increasing recreational activities.' I suppose recreating people might not like 'smelly' 'disease-carrying' flying foxes, any more than they like mosquitoes, march flies, bush flies, wasps, bees, spiders, goannas, snakes, ticks, bullants, etc. normally associated with native bush.

One likely desire of many human residents of Bairnsdale will be to walk their dogs along the riverside. If people can learn to put up with dog shit everywhere, why not bat shit? If people don't like noise, why do they live in cities? People are very adaptable it seems, when they want to be. The perceived problems can be reduced in any case with good planning and management. That putting plans into effect might take longer than some people would like is unfortunate but necessary if we are to maintain the GHFFs. As the Draft Management Plan states, the GHFF play a critical role in pollination and dispersal of native plant seeds. They are also a food item for other native species.

There is no need for the walking path to go through the GHFF colony. The path can easily be shifted. Tall vegetation near human resident's homes could be lopped or removed to prevent GHF roosting there.

It is stated in the Draft Management Plan the exotic poplars pose an ongoing threat to environment due to their invasiveness. Only one of many invasive species allowed to persist on both public and private land. One of many invasive plant species legally traded commercially throughout Victoria.

Another option might be to remove the houses built on the river side of Riverine Street. If people in those house are the primary objectors to the flying fox colony, that might solve part of the problem. Extra land would become available for GHFFs. The houses should never have been allowed to be built there in the first place. They are an ongoing environmental hazard, and take up what could be attractive public open space. How do these things happen I wonder?

Appendix 9 Response Plan

The harassment and dispossession of the GHFFs, a threatened species, does not seem consistent with caring for the species well-being. Furthermore, it is completely unnecessary. If the destruction of the camp vegetation is to be done, it can be done when the bats are not there.

This is reminiscent of the dispossession of Aborigines. It is uncaring, stupid, and ultimately extremely counterproductive.

Fed Minister's assessment

Environmental protection laws in Australia suffer from severe deficiencies. A major one is that the laws focus on preventing extinctions, although they don't even achieve that aim (witness the recent extinction of the Christmas Island Pipistrelle).

This focus on extinction means that the role of species within ecosystems can be lost before the law even recognizes a problem. Flying foxes prior to 1788 numbered in millions. Now much reduced in numbers and with disturbed distributions, flying foxes may cease to be effective in their former roles as pollinators and distributors of seeds, and the consequences not realized until long after the flying foxes are gone.

The Federal Minister in his assessment of a referral, can take into account social and economic factors. The Bairnsdale Shire Council's emphasis on social factors i.e. some

Bairnsdale residents don't like the GHFFs, leads to the conclusion that the council has no good reason to remove the bats. The complaints about smell, noise, excrement don't appear to have been quantified or substantiated.

Monitoring and enforcement

The Federal environmental jurisdiction has the task of monitoring and enforcing compliance with its decisions, yet has almost no staff to do the job, and not a great deal of interest in doing it. Guidance will probably be left to the Victorian Department of Sustainability and Environment.

Strategic Remedies to maintain GHFFs might include-

1. Adequate roosting reserves for flying foxes
2. Reducing or halting clearing of flying fox habitat and food sources
3. Reducing and removing logging from native forests – logging regimes take out the older trees which provide most blossom and nectar
4. Restricting or halting urban development in flying fox habitat
5. Finding ways to protect human food crops without destroying flying foxes
6. Education of people about flying foxes and the important roles they play in native ecosystems
7. Stronger protective legislation for flying foxes
8. Federal and interstate engagement & joint action to protect flying foxes, including planning on a national scale
9. More research into the biology of GHFF and other flying fox species
10. Long term integrated strategies to adjust for climate change, bushfires, etc
11. Planning fuel reduction burns to minimize impacts on flying fox habitat and food supply
12. Maintaining security of tenure for flying fox camps in urban sites and developing these areas as sanctuaries, education centres, tourist attractions.

Conclusion

The reasons GHFFs choose roosting sites is not understood by humans as the Draft Management Plan admits. It took a considerable effort to relocate the GHFF camp in the Royal Botanic Gardens in Melbourne to the banks of Yarra, and the site chosen by the GHFF was not the intended one. The mortality rates of GHFF at the Yarra site is much higher than at the Botanical Gardens site as the Yarra site is more exposed and the GHFF die in large numbers from heat stress. The dominant trees are Red Gums. Whether the present Yarra campsite can sustain the GHFF in the longer term is debatable.

It is precipitous then to be removing the Mitchell River campsite.

Appropriate replanting of the existing campsite over a time long enough to allow development of canopy trees would maintain the existing campsite, or creating suitable camp sites near the existing camp site should in the long term allow the GHFF to move to a more favourable location.

A long-term plan to establish habitats suitable for GHFF will create good habitat for species other than GHFF and favourable environments for *H. sapiens* as well.

Additionally, planning needs to be in place to protect the food supply of the GHFF colony.

The well-being of GHFF is our well-being.

Man talks of a battle with nature, forgetting that if he won the battle, he would find himself on the losing side. (*E. F. Schumacher, economist*)

References

Department of Environment, Climate Change and Water NSW. 2009. Draft National Recovery Plan for the Grey-headed Flying-fox *Pteropus poliocephalus*. Prepared by Dr Peggy Eby. Department of Environment, Climate Change and Water NSW, Sydney.

Mitchell River Revegetation Program. Bairnsdale Grey-headed Flying Fox Roost Site. Draft Strategic Management and Action Plan. East Gippsland Shire Council 2012.

Nomadic Range and movement. Sydney bats 2011 <http://www.sydneymbats.org.au/flying-foxes/grey-headed-flying-fox/grey-headed-flying-fox-nomadic-range/>

Proceedings of a workshop to assess the status of the Grey-headed Flying Fox in New South Wales¹. University of Sydney, 29th April 2000

Pteropus poliocephalus IUCN Red List <http://www.iucnredlist.org/details/18751/0> accessed 21 February 2013



Proposed Approval

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	East Gippsland Shire Council
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proponent's ABN	81 957 967 765
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proposed action	To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (<i>Pteropus poliocephalus</i>) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].
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Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position	James Tregurtha Assistant Secretary South-Eastern Australia Assessment Branch
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signature	NOT FOR SIGNATURE – DRAFT ONLY
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date of decision	
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Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (Grey-headed Flying-fox)**:

1. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
2. The person taking the action must implement and comply with the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.
3. The person taking the action must ensure that:
 - a) Prior to the **removal of habitat** at the **Mitchell River Roost Site** a **Hotline** with a dedicated contact phone number and email address is set up to respond to public enquiries;
 - b) Prior to the **removal of habitat** at the **Mitchell River Roost Site** neighbouring Councils are notified of the proposal and provided with contact details to respond to enquiries;
 - c) Undertake revegetation of long-term **Grey-headed Flying-fox habitat** within the Bairnsdale area, in accordance with expert advice on **Grey-headed Flying-fox** ecology, subject to negotiation with and approval by, the **Department**. If a long-term **Grey-headed Flying-fox** camp is not established within the Bairnsdale area then revegetation or improvement of **Grey-headed Flying-fox habitat** within the Bairnsdale region must be undertaken; and
 - d) At least \$5,000 is spent on community education resources relating to **Grey-headed Flying-fox**, including, but not limited to, educational signage at a site of **Grey-headed Flying-fox habitat**.
4. If, following the **removal of habitat** at the **Mitchell River Roost Site**, the person taking the action proposes to undertake a separate **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
 - g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

5. The person taking the action may undertake an **emergency dispersal**. Unless negotiated with the **Minister** and approved, an **emergency dispersal** must be undertaken in accordance with the following requirements:
 - a) A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
 - b) During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
 - c) During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
 - d) **Emergency dispersal** must not be undertaken between 1 August and 30 September;
 - e) For the period 1 October to 31 March in any given year, **emergency dispersal** activities must not be undertaken if **flightless dependant young** are present (as determined by a **suitably qualified ecologist**);
 - f) **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **Grey-headed Flying-fox** have time to settle elsewhere before the heat of the day;
 - g) **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - h) Once **Grey-headed Flying-fox** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
 - i) Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.
6. Within one month from the completion of Stage One of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or **emergency dispersal** occurs, the person taking the action must submit a report to the **Minister** that addresses the following:
 - a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
 - b) Details of the associated outcomes of these activities;
 - c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
 - d) The status of **Grey-headed Flying-fox** colonies in the Bairnsdale region;
 - e) Details of how information gained has been incorporated into the future management of **Grey-headed Flying-fox** (adaptive management), including, but not limited to, the future **removal of habitat** or **dispersal** activities associated with the action;
 - f) Details of any activities planned to occur in the following year;
 - g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
 - h) Raw data must be made available to the **Department** upon request.
7. Five days prior to the **commencement** of the action, the person taking the action must advise the **Department** verbally and in writing of the actual date of **commencement**.

8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the **Department** within 48 hours of the non-compliance occurring.
10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.
12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.
13. If, at any time after five years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.

Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, DRAFT Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013*.

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not be limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at Appendix A as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Appendix A





EPBC Ref: 2009/5017

Ms Kate Nelson
Director Planning & Community
East Gippsland Shire Council
P.O. BOX 1618
BAIRNSDALE VIC 3875

Dear Ms Nelson

**Invitation to comment on proposed approval decision
East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)**

I am writing to you in relation to your proposal to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria. The above proposal was referred and assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for its impacts on listed threatened species and ecological communities. I am proposing to approve this project. My proposed decision is attached.

In accordance with the EPBC Act, I invite you to provide comments on my proposed decision, including the conditions which I propose to attach, within 10 business days of the date of this letter. Please quote the title of the action and EPBC reference, as shown at the beginning of this letter, in any correspondence. You can send comments to:

by letter Victoria Section
South-Eastern Australia Environment Assessments Branch
Department of the Environment
GPO Box 787
CANBERRA ACT 2601

by email s22 @environment.gov.au

If you have any questions about this decision, please contact the project manager, s22 by email to s22 @environment.gov.au, or telephone 02 s22 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch
10 March 2014

cc. s22 Roadside Pest Plant Officer, East Gippsland Shire Council



Australian Government
Department of the Environment

EPBC Ref: 2009/5017

The Hon Matthew Guy MLC
Minister for Planning
Level 20
1 Spring Street
MELBOURNE VIC 3001

Dear Minister

Proposed approval decision

**East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)**

I am writing to you in relation to a proposal to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program, which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria.

The above proposal was referred and assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for its impacts on listed threatened species and communities.

I am proposing to approve this proposal. My proposed decision is attached for your information.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'James Tregurtha'.

James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch

10 March 2014

UNCLASSIFIED

Dept. of the Environment, Water Heritage
and the Arts AWD

REFERRAL DECISION BRIEF – EAST GIPPSLAND SHIRE COUNCIL POPLAR
REMOVAL PROGRAM – GREY-HEADED FLYING-FOX (*PTEROPUS*
POLIOCEPHALUS) SUMMER CAMP, BAIRNSDALE, VICTORIA, (EPBC
2009/5017)

Brief No: N/A
Public Affairs Consulted: No
DEWHA File: 2009/16182

For:

Deadline and reason:

Michelle Wicks,
Acting Assistant Secretary, EAB

25th August 2009 statutory timeframe from database

Recommended Decision	NCA <input type="checkbox"/> NCA(pm) <input type="checkbox"/> CA <input checked="" type="checkbox"/> NO <input type="checkbox"/> CU <input type="checkbox"/>
Designated Proponent	East Gippsland Shire Council
Controlling Provisions	Threatened Species (s18 & s18A) See <u>Attachment B</u> for list
Public Comments	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Number: Ten, See <u>Attachment E</u>
Ministerial Comments	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Assessment Approach Decision	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> What: Preliminary Documentation. Bilateral Applies <input type="checkbox"/>
Related actions & indirect impacts	-The referred action is not considered by the Department to be a component of a larger action pursuant to section 74A of the Act. -There are no secondary or consequential impacts expected as a result of the proposed action. See <u>Attachment B</u> for details.
SPRAT	Has data been provided to SIS? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Recommendations:

We recommend that you:

- | | |
|--|-------------------------------------|
| 1. Consider your legal obligations for decision-making at <u>Attachment B</u> | 1. <u>Noted</u> / Please discuss |
| 2. Agree with the recommended decision | 2. <u>Agreed</u> /Not agreed |
| 3. Agree to the designated proponent | 3. <u>Agreed</u> /Not agreed |
| 4. Agree the action be assessed on Preliminary Documentation | 4. <u>Agreed</u> /Not agreed |
| 5. If you agree to 2 and 4, indicate that you accept the reasoning in the Departmental briefing package as the basis for your decision | 5. <u>Accepted</u> / Please discuss |
| 6. Sign the notice at <u>Attachment C</u> (which will be published if you make the recommended decision) | 6. <u>Signed</u> / Not signed |
| 7. Sign the letter(s) at <u>Attachment D</u> | 7. <u>Signed</u> / Not signed |

MW

Michelle Wicks
Acting Assistant Secretary EAB
25 August 2009

UNCLASSIFIED

Key Issues:

- The East Gippsland Shire Council (EGSC) proposes to remove approximately 0.5 hectares of poplar trees located adjacent to the northern side of the town of Bairnsdale (Victoria) on the Mitchell River (refer to Photographs in [Attachment A](#)). The EGSC has been undertaking a poplar removal program since 2003 along the Mitchell River to enhance the environment. The proposed action will involve the removal of poplar trees which are used by the Grey-headed Flying-fox (*Pteropus poliocephalus*) as 'summer camp' roost habitat. Removal is proposed to be undertaken at the end of March 2010 for a two week period.
- The poplars are targeted for removal as they are an environmental weed, in a state of senescence and pose a public safety threat in the near future due to dead branches and severe lean angles. The proposal indicates the trees will not be removed if bats are present at the time of the scheduled operations. Revegetation activities will commence following removal.
- The poplar removal program is supported by East Gippsland Shire Council, East Gippsland Catchment Management Authority and Bairnsdale Urban Landcare Group. The program has been nominated for State Landcare Awards in 2009.
- The referral fails to identify specific impacts of the tree removal program and ways in which they will be managed and mitigated. The referral states that suitable roosting habitat is available locally however there is no mention of a strategy for the relocation of the *P. poliocephalus* colony and no evidence of alternative camp roost sites has been identified. Whilst an alternative to the proposal involving staged removal was suggested in the referral, no detail has been provided. Further investigation needs to be undertaken to fully address potential impacts of the proposed action and how significant impacts can be reduced.
- The Department of Sustainability and Environment (DSE) have been involved in monitoring this colony since 1995. DSE were contacted in relation to background information see [Attachment B](#) (telephone conversation).

Summary of significant impacts

- The Bairnsdale *P. poliocephalus* colony averages approximately 3,000 individuals each year, with one season (2006) recording 34,000 individuals. This colony has been identified as an 'important population' as it is a key source population for breeding and dispersal (as outlined in EPBC Policy Statement 1.1).
- It is considered that the proposed action is likely to have a significant impact on the *vulnerable* Grey-headed Flying-fox (*P. poliocephalus*) due to:
 - The removal of an area containing poplar trees (0.5 hectares) known to provide a 'summer camp' for the *P. poliocephalus* which represents an area of occupancy of an important population.
 - Fragmentation of the existing important population into two or more populations. Partial or whole removal of camp habitat may lead the Bairnsdale *P. poliocephalus* colony to disperse thus there is the potential for the colony to split into smaller groups if suitable habitat is not available.
 - Disruption of the breeding cycle of an important population. The camp site has been identified as a maternity/nursery roost where young are reared by their mothers. The removal of roosting trees is likely to place stress on returning lactating females and young. Males have also been recorded at the roost site, therefore it is likely that courting activities occur late in the summer.
 - The removal of a 'summer camp' is likely to adversely affect habitat critical to the survival of this species.

Background:

- A referral was received on 28th July 2009 ([Attachment A](#)). The action was referred by the East Gippsland Shire Council who has stated their belief that the proposal is a controlled action for the purposes of the EPBC Act.
- The operational tree removal process will involve trees being completely removed on level ground or felled with stumps remaining in the ground on slopes. Tree poisoning is likely to occur three months prior to tree felling.

Submissions:

Public submissions

- The referral was published on the Department's website on 28th July 2009. The Department received ten public submissions (plus one ministerial) ([Attachment E](#)). All issues raised by the public were generally common across the submissions. Submissions were not directly opposed to the action, however considered the action a controlled action which is likely to have a significant impact on *P. poliocephalus* for the reasons outlined above. These submissions have been considered in the preparation of this advice.

Comments from State/Territory Ministers

- The Victorian Department of Planning and Community Development was also informed of the referral in a letter dated 29th August 2009, and invited to provide comment. No comments were received.

Discussion of likely significant impacts:

- A full discussion of the potential impacts on the matters of National Environmental Significance (NES) in particular the *vulnerable P. poliocephalus* is included at [Attachment B](#). One threatened ecological community, 14 listed threatened species and 13 listed migratory species were identified as potentially occurring within a five kilometre radius of the subject site using the EPBC Protected Matters Search Tool. It was determined using the significant impact guidelines that the proposed action is likely to have a significant impact on *P. poliocephalus*. It is unlikely that the proposed action will significantly impact on any other matters of NES.
- The proposed action site sits within the same catchment as the Gippsland Lakes Ramsar site. Formal advice received from the Wetlands Section indicates that a significant impact on the Gippsland Lakes Ramsar site is unlikely (refer to advice included in [Attachment B](#)).

Recommended Assessment Approach:

- Pursuant to s87(5) of the EPBC Act, you may decide on an assessment on preliminary documentation only if you are satisfied that the approach will enable an informed decision whether or not to approve the taking of the action. In this case, the number and complexity of relevant impacts is locally confined. Assessment on preliminary documentation is considered appropriate.

s22

Director
Victoria & Tasmania Section

Primary Contact

s22

Secondary Contact

s22

21 August 2009

Consultation: Wetlands Section

Attachments:

- A Referral
- B Information regarding impacts on matters of NES (includes Wetlands Section advice, correspondence with the Department of Sustainability and Environment)
- C Decision notice
- D Notification letters
- E Public Submissions

Decision on controlled action and controlling provisions

The following is the Department's advice against each of the relevant matters of national environmental significance protected under the EPBC Act.

The Department has reviewed the information in the referral against the EPBC Act Policy Statement 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (May 2006) and other relevant material. While these guidelines are not binding or exhaustive, the factors identified are considered adequate for decision-making in the circumstances of this referral, and there are no reasons to depart from these guidelines or consider additional factors. Adequate information is available for decision making for this proposal.

Based on the information available, the Department considers that significant impacts on matters protected under the EPBC Act are likely. The main issues for consideration relate to listed threatened species (s18 & s18A), in particular the *vulnerable* Grey-headed Flying-fox (*Pteropus poliocephalus*).

Under s75 of the EPBC Act, you must decide whether the action that is the subject of a proposal referred is a controlled action and which provisions of Part 3 (if any) are controlling provisions for the action. In making your decision you must consider all adverse impacts the action has, will have, or is likely to have on the matter protected by each provision of Part 3, and you must not consider any beneficial impacts on the matter.

You must also consider any comments received from the public, responsible Commonwealth Ministers and appropriate State or Territory Ministers, to the extent that they are relevant. Ten public comments (including one ministerial) were received, these have been included in [Attachment E](#). None of the public submissions directly opposed to the action however they were all concerned that the proposed action would likely have significant impacts on the Bairnsdale *P. poliocephalus* colony. The majority of the comments asked that the proposal be declared a controlled action to address potential significant impacts of the action. No comments from state or Commonwealth Ministers were received.

Section 74 (A)

Section 74A of the EPBC Act states that, if the Minister receives a referral in relation to a proposal to take an action by a person, and the Minister is satisfied the action that is the subject of the referral is a component of a larger action the person proposes to take, the Minister may decide to not accept the referral. Having regard to the objectives of the EPBC Act and the nature of the proposed action, the Department believes it is not part of a larger action in context of the referral, and can be accepted as a distinct action.

Precautionary principle (s391)

In making your decision, you are required to take account of the precautionary principle (s391). The Department has taken this principle into account in providing its advice.

Based on the information available, the Department is of the view that the proposed action is a **controlled action**.

If you agree that the action is a controlled action, you must decide on the approach for the assessment, in accordance with s87 of the EPBC Act. In making your decision you must consider the matters summarised in the table below:

Matter to be considered	Comment
Information relating to the action provided in the referral – s87(3)(a)	Relevant information from the referral is considered in the brief and discussed below. A copy of the referral is at Attachment A to the decision brief.
Any other information about the impacts of the action considered relevant – s87(3)(b)	Relevant information is discussed in the Department's advice on relevant impacts as set out below. Documents supporting the referral are at Attachment A and other relevant information sources are identified below.
Any comments received from a State or Territory minister relevant to deciding the appropriate assessment approach – s87(3)(c)	No comments were received from the Victorian Minister in response to an invitation under s74(2) for this proposal.
The matters prescribed by regulations – s87(3)(d) and s87(4A)	There are no relevant criteria or regulation for assessment approaches allowable under the EPBC Act (apart from assessment on referral information, which is not relevant).
Level of public comment/submission	Nine public submissions (plus one ministerial) were made in regards to the proposed action, refer to Attachment E . None of the submissions opposed the action, most were concerned that there would be a significant impact and that comprehensive assessment (Controlled Action) needs to be undertaken.

Pursuant to s87(5) of the EPBC Act, you may decide on an assessment on preliminary documentation only if you are satisfied that the approach will enable an informed decision whether or not to approve the taking of the action. In this case, the number and complexity of relevant impacts is locally confined. Assessment on preliminary documentation is considered appropriate.

Description of proposed action

The East Gippsland Shire Council (EGSC) has been undertaking a poplar removal program since 2003 along the Mitchell River, between Lind Bridge and the Princess Highway Bridge in Bairnsdale, Victoria. The poplars are targeted for removal by the ongoing program as they are an environmental weed, in a state of senescence and pose a public safety threat in the near future due to dead branches and severe lean angles. The program has been successfully ongoing for a number of years and is in accordance with the East Gippsland Environmental Sustainability Strategy 2008-2013.

The poplar programs next scheduled stage of action is the removal of trees used by the Grey-headed Flying-fox (*Pteropus poliocephalus*) as 'summer camp' habitat. The proposed action site is located adjacent to the northern side of the town of Bairnsdale on the Mitchell River approximately one kilometre downstream from the Lind Bridge. An area of approximately 0.5 hectares will be cleared of poplar trees and dense vegetation (refer to Photographs in **Attachment A**). It is proposed that the trees will be removed at the end of March 2010 (over a two week period) and burnt nearby during April 2010. The operational tree removal process will involve trees being completely removed on level ground or felled with stumps remaining in the ground on slopes. Tree poisoning is likely to occur three months prior to tree felling. The trees will not be removed if bats are present at the time of the scheduled operations. Revegetation activities will commence following removal.

The Victorian Department of Sustainability and Environment (DSE) are aware of the proposed action (pers. comm. s22, DSE, Wildlife Officer). The DSE have been involved in monitoring the Bairnsdale *P. poliocephalus* colony since they arrived in 1995. The colony averages approximately 3,000 individuals each year, with one season (2006) recording 34,000 individuals (pers. comm. DSE). *P. poliocephalus* has also been recorded overwintering at the camp site in 2003, young pups were recorded in October of that same year. The DSE will be involved in investigating other potential 'summer camp' locations where the *P. poliocephalus* may relocate (pers. comm. DSE).

Alternate Approach

The EGSC has identified an alternative approach to the removal of poplars at the project site along the Mitchell River. They have identified that the distribution of poplars along the Mitchell River in the program activity zone will allow for continued removal of poplar species. Staged removal of the area of poplars used by *P. poliocephalus* is an option while allowing the poplar program to continue. It is considered that staged removal could occur over a three year period allowing *P. poliocephalus* opportunities to relocate and present enhanced opportunities to manage the relocation to other suitable habitat.

The poplar removal program represents a concerted community effort by EGSC, East Gippsland Catchment Management Authority (EGCMA) and the Bairnsdale Urban Landcare Group. The program is being funded by the EGSC, EGCMA and Landcare.

Potential Impacts on Protected Matters

One threatened ecological community, 14 listed threatened species and 13 listed migratory species were identified as potentially occurring within a five kilometre radius of the subject site using the EPBC Protected Matters Search Tool (PMST).

The proposed action is located within close proximity to the listed Ramsar site – Gippsland Lakes.

Ramsar Wetland

Gippsland Lakes

The proposed action is to be conducted adjacent to the Mitchell River which runs into Gippsland Lakes Ramsar Wetland site.

The proposed action is approximately one kilometre north of the Ramsar wetland. Direct impacts on the wetland are not anticipated. Indirect impacts may occur, however due to the removal of a relatively small area of poplar trees (approx. 0.5ha) and the aims of the poplar removal program along the Mitchell River to increase the health of the river system and the riparian area, indirect impacts aren't considered likely. Erosion control measures to minimise run off from ground disturbance caused by the proposed action will be undertaken and work will not be undertaken in period of high erosion incidence. The site will also be revegetated following the poplar removal. These measures will reduce potential impacts to the Mitchell River and the associated Gippsland Lake Ramsar site.

Formal advice received from the Wetlands Section indicates that a significant impact on the Gippsland Lakes Ramsar site is unlikely (refer to advice included at the back of this Attachment).

On the basis of information provided to the Department, it is not expected or considered likely that the proposed action will lead to a significant impact on the ecological character of the Gippsland Lakes Ramsar site.

Threatened Ecological Communities

One ecological community was identified as likely to occur within the development site. However, it is not expected that the ecological community *Gippsland Red Gum (Eucalyptus tereticornis subsp. mediana)* Grassy Woodland and Associated Native Grassland would be impacted on as the proposed action would not be within or adjacent to an area where this community is present.

Threatened Species

Nine threatened species addressed in the following paragraphs have been identified as potentially occurring (likely or known habitat present) within a five kilometre radius of the study site.

Grey-headed Flying-fox (*Pteropus poliocephalus*)

The Grey-headed Flying-fox is listed as *vulnerable* under the EPBC Act. This species has been identified within the project site. It is also known to utilise habitat nearby (within the town of Bairnsdale).

Population Information (including Bairnsdale colony)

P. poliocephalus is highly mobile and the national population is fluid, moving up and down the east coast in search of food. There are no separate or distinct populations of Grey-headed Flying-foxes, with constant genetic exchange and movement between camps throughout the entire geographic range of the species. This indicates that there is one single interbreeding population. In considering whether or not this is an 'important population', this population is likely to provide an important source for breeding and dispersal. This colony is used as a maternity roost and nursery for several weeks in summer (December to March). It is therefore considered that the Bairnsdale Grey-headed Flying-fox colony is an important population in line with the definition provided in the Significant Impact Guidelines (EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance, May 2006).



The DSE was contacted regarding additional colony number counts since 1995 as they have been involved in monitoring the colony. They provided the Department with the following data in the Table below.

Year	1 st count	Last count	Lowest	Highest	Average	Comment
1995	12/04/1995			1870		
2002-2004	17/11/2002	27/06/2004	114	3500	1079	Only year overwintering recorded and pups present 17/10/2003
2006	13/03/2006	2/06/2006	947	34110	11634	
2007	6/02/2007	19/03/2007	100	500	267	
2008	22/12/2007	26/05/2008	122	3340	2320	
2009	12/12/2008	16/04/2009	200	4510	1775	Heat stress event – 330 recorded (57% male)

Other important information regarding the Bairnsdale colony is listed below:

- They are generally present at the site between December to March each year (one exception was in 2003 when they overwintered at the site).
- The site is likely to be used as a maternity site as young will still be present and dependent on the mothers. Lactating females would be present.
- Both males and females have been recorded at the site therefore it's likely that courting activities occur at the camp.

Habitat

P. poliocephalus requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, *Melaleuca* swamps and *Banksia* woodlands. It also feeds in introduced tree species in urban areas and in commercial fruit crops. The primary food source is blossom from *Eucalyptus* and related genera but in some areas it also utilises a wide range of rainforest fruits.

P. poliocephalus roosts in aggregations of various sizes on exposed branches, commonly of emergent trees. Roost sites are typically located near water, such as lakes, rivers or the coast. Roost vegetation includes rainforest patches, stands of *Melaleuca*, mangroves and riparian vegetation, but colonies also use highly modified vegetation in urban and suburban areas. The species can maintain fidelity to roost sites for extended periods, although new sites have been colonised in recent times.

Lifecycle

P. poliocephalus commence giving birth to young in late September / October and continue to late November or early December. A small number are born later in some years. Females have single young that begin to fly independently at approximately 12 weeks, and roost with their lactating mothers, to at least 16 weeks. There is a period from mid December to mid January when the normal birth phase is complete and all the season's young are roosting with their mothers. The 'summer camp' located at the project site is likely to be used as a maternity roost and used during the nursery phase of the life cycle (young pups have been recorded at the camp in 2003), therefore this site is of particular importance. Both males and females have been recorded at the camp site. During the nursery phase it appears the males rejoin the females. It is highly likely that the males attempt to court females with pair bonds being formed at this site.

Proposed Action and potential Impacts

The proposed action will involve the removal of a number of poplar trees (0.5 hectares) adjacent to the Mitchell River which have been identified as being utilised by *P. poliocephalus* as a 'summer camp'. The camp is currently used by approximately 3,000 - 5,000 individuals (on average) over summer. Generally flying fox camps are used as day refuges by animals that forage in surrounding areas over several weeks, and as short-term stopover sites during migration. For several weeks in late spring and summer they provide refuge for the flying foxes. This group of flying foxes is closely monitored by the DSE. The removal of the poplar trees is proposed to be undertaken in late March 2010. The bats should have moved away from the site by this time. If bats are present at the site, removal of poplar trees would cease. Removal will involve poisoning the trees three months prior to them being felled. Poisoning the trees will ensure that they do not regenerate and may cause the trees to shed leaves, however this is unlikely to disturb flying foxes if they are present.

The loss of roosting habitat has been identified as a threat to Grey-headed Flying-foxes (Draft National Recovery Plan July 2008). Little is known of the specific requirements Grey-headed Flying-foxes need for roosting habitat. The impact of the loss of long-term sites, or the degradation of small remnants to the point that they are no longer used, is also not known (SPRAT). The poplars which are to be removed are currently in a state of senescence and pose a public safety threat in the near future due to dead branches and severe lean angles. DSE have recognised that this stand of poplars are likely to be dead within five years time, hence the camp will be destroyed.

The EGSC has also suggested an alternative to the removal of the poplar trees. This would involve the staged removal of the area of poplars used by *P. poliocephalus* over a three year period allowing the flying foxes to relocate and present enhanced opportunities to manage the relocation to other suitable habitat. This may reduce the impacts on the bats however it still does not account for the destruction of a camp site for this species. It may in fact lead to the group of bats being divided and potentially made into two smaller populations (fragmentation). Knowledge of the movement patterns of Grey-headed Flying-foxes and the factors influencing the establishment and persistence of camps is currently limited.

In accordance with the *Significance Guidelines (EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance, May 2006)*, it is considered that the proposed action is likely to have a significant impact on *P. poliocephalus* due to:

- The removal of an area containing poplar trees (0.5 hectares) known to provide a 'summer camp' for the *P. poliocephalus* which represents an area of occupancy of an important population.
- Fragmentation of the existing important population into two or more populations. Partial or whole removal of camp habitat may lead to the Bairnsdale *P. poliocephalus* colony to disperse thus there is the potential for the colony to split into smaller groups if suitable habitat is not available.

- Disrupting the breeding cycle of an important population. The camp site has been identified as a maternity/nursery roost where young are reared by their mothers. The removal of roosting trees is likely to place stress on returning lactating females and young. Other factors such as lack of suitable roost habitat to deal with high risk weather events (high temperatures) may also result in young and adult fatalities.
- The removal of a 'summer camp' is likely to adversely affect habitat critical to the survival of this species. The Draft National Recovery Plan (July 2008) identifies roosting habitat critical to the survival of *P. poliocephalus* as the following:

On the basis of current knowledge, roosting habitat that meets at least one of the following criteria can be explicitly identified as habitat critical to survival, or essential habitat, for Grey-headed Flying-foxes. Roosting habitat that:

- 1. is used as a camp either continuously or seasonally in >50% of years*
- 2. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 10,000 individuals, unless such habitat has been used only as a temporary refuge, and the use has been of limited duration (i.e. in the order of days rather than weeks or months)*
- 3. has been used as a camp at least once in 10 years (beginning in 1995) and is known to have contained > 2,500 individuals, including reproductive females during the final stages of pregnancy, during lactation, or during the period of conception (i.e. September to May).*

The 'summer camp' that will be impacted as a result of the proposal meets all three of the above listed criteria. Therefore it is identified as habitat critical to the survival of this species.

Limited measures to avoid and reduce impacts stated in the referral include:

- Poplar trees will not be removed if the bats are present at the time of intended operations. If present operation works would be postponed until the bats have departed. Works are proposed after the bats have left the roost (end of March 2010).
- Staged removal of trees may help encourage the bats to find suitable habitat at another location and reduce sudden change in conditions at the site.
- A three year staged removal program would present a practical option for the limited size of the site if this option was required to be exercised.

The EGSC states that suitable roosting habitat is available locally for this species to disperse to, however no alternative roosting sites have been identified in the referral. To reduce potential impacts on this species further study and investigation needs to be undertaken to determine if and where suitable roosting habitat occurs locally. Management measures also need to be formulated to address how the *P. poliocephalus* will be encouraged to relocate to a new site and what measures would be in place to reduce potential disturbances to humans.

The referral fails to identify specific impacts of the tree removal program and ways in which they will be managed and mitigated. Further investigation needs to be undertaken to fully address potential impacts of the proposed action and how impacts can be reduced and appropriately managed.

Public Comments

Nine public comments were received in regards to this proposed action and the implications it might have on the *P. poliocephalus* colony in Bairnsdale. Public comments are provided in Attachment E. All issues raised by the public were generally common across the submissions. Submissions were not directly opposed to the action however considered it a controlled action which is likely to have a significant impact on *P. poliocephalus*. Below provides a summary of the main issues that were identified in the public submissions:

- Action is likely to have significant adverse impacts on *P. poliocephalus*.
- The referral should be assessed as a controlled action.
- Colony meets criteria to be considered critically important.
- Referral fails to identify alternative roosting habitat for the displaced flying foxes.
- Referral lacks details as to how flying foxes will be 'encouraged' to find alternative roost sites. Also sites that are of low human contention.
- Important site for rearing young.

- Site may be used by bats migrating east or west.
- A detailed assessment of potential impacts and further mitigations would be required to prevent a significant impact.
- Likely impacts to the flying foxes identified :
 - Disturbance to breeding cycle of the affected animals.
 - Fragmentation of existing colony.
 - Impacts on life-cycle (stress young and lactating mothers).
 - Risk of exposure to further dispersal action.
 - Dispersal of the camp (removing trees in stages is effectively a dispersal).
 - Deaths as a result of a heat event if the new site/s are poorly situated with regards to microclimate.

These issues were considered during the preparation of this advice.

The Department considers that the proposed action is likely to have a **significant impact** on the Grey-headed Flying-fox.

Swift Parrot (*Lathamus discolor*)

The Swift Parrot is listed as *endangered* under the EPBC Act.

L. discolor migrates from its Tasmanian breeding grounds to overwinter in the box-ironbark forests and woodlands of Victoria, New South Wales and southern Queensland. The proposed action is unlikely to impact on any known Swift Parrot habitat as no suitable habitat is present within the impact zone.

It is **not likely** that the proposed action will have a significant impact on *L. discolor*.

Giant Burrowing Frog (*Heleioporus australiacus*); Green and Golden Bell Frog (*Litoria aurea*); Growling Grass Frog (*Litoria raniformis*)

These three frog species are listed as *vulnerable* under the EPBC Act.

H. australiacus has been reported to occur in a wide range of forest communities including montane sclerophyll woodland, montane riparian woodland, as well as wet and dry sclerophyll forest. Mating occurs in ephemeral pools, slow or standing water such as small soaks formed in eroded sandstone drainage lines, and is rarely associated with permanent ponds or streams. The Mitchell River located adjacent to the project site provides potential breeding habitat for this frog. The poplar trees to be removed provide marginal habitat during colder months.

L. aurea in Victoria is predominantly found on the coastal plains and low foothills of the hinterland where it has been recorded in a range of lentic (still water) and terrestrial habitats. Breeding has been documented from dams in both forested and cleared areas, swamps in farmland, gravel pits, billabongs, marshes, coastal lagoon wetlands, wet swale herblands and isolated stream-side pools. The Mitchell River located adjacent to the project site may provide marginal breeding habitat for this frog.

L. raniformis mainly inhabits emergent vegetation in slow moving water bodies and is dependent on lagoons for breeding. Terrestrial vegetation and rocks are also used as basking habitat. *L. raniformis* has been recorded locally in Mitchell River. Marginal overwintering habitat is located within the project site (eg. logs, dense vegetation).

Whilst marginal habitat is located within or adjacent to the project site for these species of frog, erosion control measures to minimise run off from ground disturbance caused by the proposed action will be undertaken and work will not be undertaken in period of high erosion incidence. These measures will reduce any potential impact to the Mitchell River and associated populations of *H. australiacus*, *L. aurea* and *L. raniformis* should they be present. Marginal overwintering habitat is located within the project site however the proposed action is likely to be undertaken in March 2010 and is therefore unlikely to disturb any overwintering frogs.

It is anticipated that the long term removal of poplar trees and revegetation of the Mitchell River corridor will improve riparian habitat, hence enhance habitat for these listed species.

It is **not likely** that the proposed action will have a significant impact on *H. australiacus*, *L. aurea* and *L. raniformis*.

Eastern Dwarf Galaxias (*Galaxiella pusilla*); Australian Grayling (*Prototroctes maraena*)

The Eastern Dwarf Galaxias and Australian Grayling are listed as *vulnerable* under the EPBC Act.

G. pusilla is typically found in still waters such as swamps, drains, and backwaters of creeks and streams. It usually occurs in shallow waters (often less than 30 cm deep) with abundant aquatic vegetation. The Mitchell River adjacent to the proposed action site provides marginal habitat for *G. pusilla*. One local record is held for this species in the Macleod Morasses (Gippsland Lakes Ramsar site), which is approximately four kilometres from the action site. Other galaxias species have been recorded within the Mitchell River Basin.

P. maraena spends only part of its lifecycle in freshwater, where running ripe (ready to spawn) specimens have been captured. The newly hatched fry are presumably swept downstream to brackish water in an estuary or to the ocean where they remain for around six months. The Mitchell River adjacent to the proposed action site supports a known population of *P. maraena*.

Erosion control measures to minimise run off from ground disturbance caused by the proposed action will be undertaken and work will not be undertaken in a period of high erosion incidence. These measures will reduce any potential impact to the Mitchell River and associated populations of *P. maraena* and *G. pusilla* should they be present.

It is **not likely** that the proposed action will have a significant impact on *G. pusilla* or *P. maraena*.

Maroon Leek-orchid (*Prasophyllum frenchii*); Dwarf Kerrawang (*Rulingia prostrate*)

The Maroon Leek-orchid and Dwarf Kerrawang are listed as *endangered* under the EPBC Act.

P. frenchii grows mainly in open sedge swampland or in wet grassland and wet heathland generally bordering swampy regions. It occurs generally on low-altitude, flat, moist sites. The species occurs in Central Gippsland Plains Grassland and South Gippsland Plains Grassland, both these vegetation communities are not present at the project site.

In Victoria, *R. prostrate* grows on swampy land and lake margins. No suitable habitat is present within the project site.

The proposed action is not likely to result in a significant impact on any of these species which prefer wetter habitat that is not present in the impact zone.

Migratory Species

There are three listed migratory species identified as known or likely to occur within a five kilometre radius of the proposed action.

Satin Flycatcher (*Myiagra cyanoleuca*); White-bellied Sea-Eagle (*Haliaeetus leucogaster*); Sharp-tailed Sandpiper (*Calidris acuminata*)

Suitable habitat for the above mentioned species is not present within the project area. None of these species are expected to rely on habitat within the project area. Accordingly, it is considered that significant impacts on the above listed migratory species are not likely.

World Heritage

The proposed action is not being undertaken in a world heritage area and impacts on any world heritage area are not considered likely.

National Heritage

The proposed action is not being undertaken in a national heritage area and impacts on any national heritage area are not considered likely.

Commonwealth marine

The proposed action is not being undertaken in a Commonwealth marine area and impacts on any Commonwealth marine area are not considered likely.

Nuclear actions

The proposed action is not a nuclear action as defined under the EPBC Act.

Commonwealth action

This proposed action is not being undertaken by a Commonwealth entity.

Commonwealth land

The proposed action is not on or near Commonwealth land and is not being taken by the Commonwealth. A significant impact on the environment on Commonwealth land or on the environment from an action taken on Commonwealth land is not expected or considered likely.

References:

Australian Wetlands Database and Water Reform Division (Wetlands Advice)

Referral documentation (including Photographs)

SPRAT (Species Profile and Threats Database)

Draft National Recovery Plan for the Grey-headed Flying-fox (*Pteropus poliocephalus*) (July 2008)

DEWHA internal resources (EPBC Act Policy Statement 1.1 Significant Impact Guidelines Matters of National Environmental Significance, May 2006).

Personal Communication –

s22 [REDACTED]. The Department of Sustainability and Environment. Wildlife Officer (Bairnsdale). August 4th 2009. Telephone conversation (see back of this Attachment).



**Notification of
REFERRAL DECISION AND DESIGNATED PROPONENT – controlled
action
DECISION ON ASSESSMENT APPROACH**

**East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)**

This decision is made under section and section 87 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

proposed action	To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (<i>Pteropus poliocephalus</i>) in Bairnsdale, Victoria [see EPBC Act referral no. 2009/5017].
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decision on proposed action	The proposed action is a controlled action. The project will require assessment and approval under the EPBC Act before it can proceed.
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relevant controlling provisions	Listed threatened species and communities (sections 18 & 18A)
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designated proponent	East Gippsland Shire Council
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assessment approach	The project will be assessed by preliminary documentation.
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Decision-maker

Name and position	Michelle Wicks A/g Assistant Secretary Environment Assessment Branch
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Signature	
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date of decision	25 August 2009
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s22

Environment Officer
East Gippsland Shire Council
P.O. BOX 1618
BAIRNSDALE VIC 3875

Date: 25 August 2009
EPBC Ref: 2009/5017
EPBC contact: s22
Ph. 02 6475 s22
s22 @environment.gov.au

Dear Mr s22

Decision on referral

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)

This proposed action, to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria, has now been considered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

We have decided that the proposed action is a controlled action and, as such, requires assessment and approval by the Minister for the Environment, Heritage and the Arts before it can proceed.

It appears that the proposed action is likely to have a significant impact on the following matters protected by the EPBC Act:

- Listed threatened species and communities (sections 18 & 18A) – vulnerable Grey-headed Flying-fox (*Pteropus poliocephalus*)

For example, based on the information available in the referral, the proposed action is likely to have a significant impact because:

- it will involve the removal of an area containing poplar trees (0.5 hectares) known to provide a 'summer camp' for the *P. poliocephalus* which represents an area of occupancy of an important population.
- it is likely to cause fragmentation of the existing important population into two or more populations. Partial or whole removal of camp habitat may lead the Bairnsdale *P. poliocephalus* colony to disperse thus there is the potential for the colony to split into smaller groups if suitable habitat is not available.
- it is likely to disrupt the breeding cycle of an important population. The camp site has been identified as a maternity/nursery roost where young are reared by their mothers. The removal of roosting trees is likely to place stress on returning lactating females and young.
- the removal of a 'summer camp' is likely to adversely affect habitat critical to the survival of this species.

Please note that this decision only relates to the potential for significant impact on the specific matters protected by the Australian Government under Chapter 4 of the EPBC Act.

We have also decided that the project will need to be assessed through preliminary documentation.

Each assessment approach requires different levels of information and involves different steps. All levels of assessment will include a public consultation phase, *in which any third parties can comment on the proposed action.*

A copy of the document recording these decisions is enclosed.

While we have determined that your project will be assessed by preliminary documentation, we require some further information to be able to assess the relevant impacts of the action. Information required is outlined below.

A management strategy for the Bairnsdale *P. poliocephalus* colony needs to be developed. Within this document the following issues need to be included and addressed:

1. Detailed description of the proposed action with potential feasible alternatives (including do nothing scenario).
2. Details of the Bairnsdale *P. poliocephalus* colony. (eg. summer camp footprint, the role the camp plays in the lifecycle of the flying-fox, frequency and length of occupation and history of the camp's use, and native food resources available within 50kms).
3. Relevant potential impacts associated with the proposed action to the *P. poliocephalus* colony for example:
 - Potential direct, indirect and consequential impacts.
 - Nature and extent of long term and short term impacts to health and breeding cycle.
 - Potential fragmentation and dispersal of colony.
 - Statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible.
 - Analysis of significance of the relevant impacts. For example, risk assessment undertaken in consultation with relevant stakeholders, including the Victorian Department of Sustainability and Environment (DSE).
4. Any technical data and other information used or needed to make a detailed assessment of the relevant impacts.
5. Detailed analysis / survey of potential and suitable nearby roost sites to accept relocating *P. poliocephalus*, including discussion of the issues associated with relocation such as the risk to relocating flying foxes, overcrowding, defoliation, proximity to residential/urban areas, whether Grey-headed Flying-foxes have used these sites before, and the security of the sites in the long term. Long-term security and community acceptance of alternative sites is vital.
6. Proposed safeguards and mitigation measures. Information must be provided on mitigation measures. Measures must be undertaken to prevent, minimise or compensate for the relevant impacts of the action. This should include:
 - Investigation into alternative suitable sites for relocation (including historical camp sites) within the local area. New sites should contain native vegetation suitable for roosting (eg. riparian vegetation), have at least as large an area as the existing camp to support equivalent number of animals and have foraging resources that are at least equivalent to those accessible within 50 kms of the current site.
 - Methods utilised to encourage *P. poliocephalus* to take up residency at appropriate sites.
 - Contingencies for events such as *P. poliocephalus* relocating to areas that had not been identified as preferred relocation sites, the presence of pregnant or lactating *P. poliocephalus* or with young.
 - Details of on-going monitoring to ensure that relocation has been successful and impacts to the colony are recorded. Details of who would be involved in on-going monitoring and implementation of the management strategy. Ensure that the best possible outcome for flying-foxes and the community is planned for. Details on how the monitoring information will be utilised.
 - Animal Welfare - assess and plan for animal welfare.
7. Information on consultation and communication activities undertaken with government agencies, the local community and qualified ecologists or bat experts. As DSE has been involved in the ongoing monitoring of this species it is important that they are consulted throughout the development of a management strategy.

Once we have received the above information, you will be provided with clear instructions on the public consultation requirements to progress assessment of this project. Details on the assessment process for the project and the responsibilities of the proponent are set out in the enclosed fact sheet. Further information is available from the Department's website at <http://www.environment.gov.au/epbc>.

The assessment officer will contact you shortly to discuss the assessment process.

I have also written to the Victorian Department of Planning and Community Development (Planning Policy and Reform).

If you have any questions about the referral process or this decision, please contact the EPBC project manager and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely



Michelle Wicks
A/g Assistant Secretary
Environment Assessment Branch



Mr Jeff Gilmore
Executive Director
Planning Policy and Reform
Department of Planning and Community
Development
GPO Box 2392
MELBOURNE VIC 3001

Date: 25 August
EPBC Ref: 2009/5017
EPBC contact:

s22

environment.gov.au

Dear Mr Gilmore

Decision on referral

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)

This proposed action, to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria, has now been considered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

We have decided that the proposed action is a controlled action and, as such, requires assessment and approval by the Minister for the Environment, Heritage and the Arts before it can proceed.

It appears that the proposed action is likely to have a significant impact on the following matters protected by the EPBC Act:

- Listed threatened species and communities (sections 18 & 18A) – *vulnerable* Grey-headed Flying-fox (*Pteropus poliocephalus*)

For example, based on the information available in the referral, the proposed action is likely to have a significant impact because:

- it will involve the removal of an area containing poplar trees (0.5 hectares) known to provide a 'summer camp' for the *P. poliocephalus* which represents an area of occupancy of an important population.
- it is likely to cause fragmentation of the existing important population into two or more populations.
- it is likely to disrupt the breeding cycle of an important population.
- the removal of a 'summer camp' is likely to adversely affect habitat critical to the survival of this species.

Please note that this decision only relates to the potential for significant impact on the specific matters protected by the Australian Government under Chapter 4 of the EPBC Act.

We have also decided that the project will need to be assessed through preliminary documentation.

A copy of the document recording these decisions is enclosed.

I have also written to the proponent, East Gippsland Shire Council, to advise them of this decision.

Yours sincerely

Michelle Wicks
A/g Assistant Secretary
Environment Assessment Branch

s47F

Maleny Qld 4552

9th August 2009

Minister Peter Garrett,
Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

Re: Referral under the EPBC Act 2009/5017

Dear Minister Peter Garrett,

If the East Gippsland Shire Council are allowed to cut the poplar trees down, without making proper arrangements for the flying-foxes that use the site each summer, it will have a similar effect for the flying-foxes as disturbance.

Disturbances are associated with the risk of significant harm to the grey-headed flying-fox, a species listed under s.18 of the EPBC.

It is important that this action is a controlled action so that you can satisfy yourself that East Gippsland Shire Council are doing everything that needs to be done to eliminate the risk to the flying-foxes proposed by this action.

Please take care in your decision and protect these necessary creatures.

Sincerely,

s47F

6 August 2009

Minister Peter Garrett
Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and Arts
GPO Box 787
CANBERRA ACT 2601



Dear Mr Garrett,

RE: Referral under the EPBC Act 2009/5017

I write with some concerns about the ^①grey headed flying fox (GHFF) camp in ^②Riverine Street, Bairnsdale and the referral of this matter from the Environment Protection and Biodiversity Conservation (EPBC) Act. As you may know the trees the flying foxes use for roosting are all poplars and these trees are dying. I understand that getting rid of them will help complete the poplar eradication program and make the area safer as the dying trees are more likely to fall. I'm also aware there are trees that have been planted on the other side of the river, as part of the poplar eradication program. The Department of Sustainable Environment (DSE) has advised that those trees are not yet mature enough for the bats to roost in.

This is an extremely important camp for flying foxes as it has been used each year since at least 2002 (except in 2005) as a place for the bats to raise their pups. Animals have most commonly been present from December to April in large numbers, the last count being 4,600 at the end of January 2009.

Removal of the trees, either at one time, or staged over three years, without providing other roost trees in the same site, will effectively mean a dispersal of the bats.

The East Gippsland Shire Council (EGSC) acknowledges that the proposed action should be controlled because of the potential impact on the flying foxes and I agree with them. However, removing the trees in stages without taking any further action is inadequate as it does not provide any more roosting habitat at the site to replace the poplars being removed.

There are other camp sites within the local district that flying foxes have used; however, no usage of these sites has been recorded in the last decade. It is possible that the flying foxes may go to one of those sites but as the bats have not used them in the recent past, this is far from certain.

Although the trees are proposed to be removed while the bats are not there (i.e. in winter), it seems that the likely result is that the animals, upon their return, will find the nearest stand of trees to the Riverine Street colony site to roost in.

The bats most commonly return to Bairnsdale in early-mid December. At this time the young are still wholly dependent upon their mothers and returning to a camp site that is

partly or wholly removed is likely to be stressful for the flying foxes. Stressed lactating flying foxes may stop lactating or have reduced output which may put the young at risk.

The EPBC referral appears to have given no thought as to where the bats may relocate to, other than suggesting that 'where possible the bats will be encouraged to adopt habitat of low human contention.' (p 5, EPBC referral). There is no information about what would be used to 'encourage' the animals, how it would be applied or what circumstances it would be used in.

The risks to this very important colony of flying foxes are wide-ranging and include:

- fragmentation of the camp into smaller groups if the close stands of trees cannot manage the number the old stand could
- disturbance of breeding, including an impact upon the success of the raising of young – further disturbance if the new site/s are more inconvenient to people
- deaths in the result of a heat event if the new site/s are more poorly situated with regards to microclimate (NB there were 330 deaths at Bairnsdale in 2009, notwithstanding that it is on a river).

I would strongly request that you review this matter with some urgency. I understand that planning of the action is at a very early stage so there is a good opportunity still available for consultation and reduction of the risks to the flying fox colony. The desired outcome would be a controlled action over a longer period of time to give the flying foxes a chance to colonise their new camp with as little stress as possible. As the camp is not very contentious in the local community and has only a few direct neighbours with other houses across the street, this would appear to be the best way to approach the problem.

I look forward to your early response.

Yours faithfully

s47F

Moruya Heads NSW 2537

Email: **s47F** com.au

Received
Date: 11/8/09
By: CR
✓

s47F

EMAIL

Minister Peter Garrett

epbc.referrals@environment.gov.au

Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

RE: Referral under the EPBC Act 2009/5017

Dear Minister Garrett

I wish to draw to your attention the proposed action at Bairnsdale for the removal of trees by The East Gippsland Shire Council in Riverine St, Bairnsdale.

I would like to request that you ensure that this action is a controlled action so that you can satisfy yourself that East Gippsland Shire Council do everything necessary to eliminate risk to the flying-foxes who inhabit this area.

A number of Grey Headed Flying Foxes are known to use this area each summer. As I am sure you are aware – Grey Headed Flying Foxes are a listed species under s.18 of the EPBC.

If the East Gippsland Shire Council are allowed to cut the poplar trees down, without making proper arrangements for the flying-foxes that use the site each summer, it will have a similar effect for the flying-foxes as disturbance. Disturbances are associated with the risk of significant harm to the grey-headed flying-fox.

I thank you for your time and in anticipation that you will make the correct decision in this matter.

Yours faithfully

s47F

epbc.referrals@environment.gov.au

s47F sub to referral No 2009-5017 Clearing of Vegetation used as a camping site by Pteropus poliocephalus Grey Headed Flying Fox

My main concerns are as follows –

1/ The action proposed is to clear all the trees from a site currently used as a summer camp site by the Grey Headed Flying Fox (GHFF), where the numbers have reached as high as 25,000 individuals. Is the proposed action the only option? Could the site be fenced off until suitable habitat could be reconstructed there e.g. part clearing and replanting?

2/ The current site seems to be central to feeding sites for the bats i.e. to the south along the coast where the bats feed on banksias, etc. and to the north where the bats feed on eucalypts etc. Is there an alternative site that will be used by the GHFF as a roosting site and will that site give adequate protection? (Large numbers of bats are killed by summer heat waves – more than 2,300 in one day in Yarra Bend Park last summer).

3/ The camp at Bairnsdale may well be a site used by bats migrating east or west along the coast to preferred feeding areas. There is a large population of bats at Yarra Bend Park in Melbourne, which fluctuates in numbers, characteristically being much reduced in winter. It is likely bats from Melbourne migrate east then north along the coast, passing through the Bairnsdale area and back again. What will be the impact on the GHFF population if the camp at Bairnsdale is removed and not replaced?

Note: there does not seem to be a GHFF camp at Lakes Entrance at present, although there has apparently been some in the past.

4/ Why are GHFF camps (apparently) increasingly in urban areas? If we don't understand this we will have ongoing problems. Some reasons for this trend might be -

- a/ land clearing
- b/ logging of native forest removes the older trees which flower more profusely large areas of Victoria's native forest are on increasingly short rotation
- c/ persecution by farmers
- d/ food trees planted in urban environments
- e/ security in urban sites from natural predators and farmers
- f/ bushfires – repeated severe fires takes out blossom production for a while
- g/ increasing incursion on GHFF habitat in coastal areas



Ku-ring-gai Bat Conservation Society Inc.

Post Office Box 607, Gordon NSW 2072 Australia

10 August 2009

Minister Peter Garrett
Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

Dear Minister,

**RE: East Gippsland Shire Council/Natural resources
management/Bairnsdale/VIC/Poplar Tree Removal Program - Grey Headed Flying Fox
Zone - Reference Number: 2009/5017**

Thank you for providing an opportunity to comment on the proposed poplar tree removal program by East Gippsland Shire Council. The Ku-ring-gai Bat Conservation Society Inc. (KBCS) considers that this tree removal program may have significant impacts on the Grey-headed Flying-fox and a more in-depth assessment and further mitigation actions would be required to prevent this from happening.

The Bairnsdale flying-fox camp is a 'summer camp', and as such, is important for the rearing of young. Flying-foxes return to the camp in early to mid December when young are entirely dependent on their mothers. Removing the roost trees, partially or entirely, from the camp site is likely to be very stressful for returning animals and is likely to result in the reduction or cessation of lactation in mothers, thereby putting the young at risk. The suggestion of staged removal of the trees will not mitigate this stress in the absence of alternative suitable roosting habitat at the site.

The time lag between the removal of the poplar trees currently used by flying-foxes for roosting and the availability of alternative roosting trees at the camp site will inevitably lead to dispersal of the camp. East Gippsland Shire Council do not consider the possible implications of the tree removal program on the flying-fox colony, particularly that it will result in the dispersal of the flying-foxes which could fragment the camp into smaller groups, disturb breeding by impacting on young, flying-foxes may settle in areas of high human contention leading to further disturbance, and may increase vulnerability to death from extreme heat events.

The principle that needs to be adopted and implemented in every case where there is a call to remove flying-fox camp habitat, is that first alternative habitat is grown. For example, a grove of fast growing Acacias inter-planted with tall growing eucalyptus and understorey species on nearby land could provide suitable habitat. The site needs to be away from human habitation but close to the site originally chosen by the flying-foxes. As camps are located close to food sources, removal of trees from a camp site could prevent flying-foxes from

using the nearby food sources and may cause the flying-foxes to move to another area to find food which will impact on other flying-fox colonies. Alternative habitat needs to be provided as close to the original site as possible so as to avoid this. Although, there is still a lot to learn about why flying-foxes chose their camp sites, there are common elements of most camps such as the tallest trees in the area, near water and in many cases the site is protected by the topography from adverse winds or human disturbance.

We ask that the potential impacts of this tree removal program be considered in greater depth and the proposal be declared a controlled action to avoid potential significant impacts to the Grey-headed Flying-fox.

Sincerely

A stylized signature consisting of the letters 'S47F' in a bold, black, sans-serif font, set against a light gray rectangular background.

Honorary Secretary

s22

From: s22
Sent: Monday, 10 August 2009 9:57 AM
To: s22
Cc: s22
Subject: FW: Referral under the EPBC Act - Reference Number: 2009/5017
[SEC=UNCLASSIFIED]

Categories: UNCLASSIFIED

Good morning,
Please find below a submission for 2009/5017.

Regards

s22

From: s47F
Sent: Monday, 10 August 2009 9:43 AM
To: EPBC Referrals
Subject: Referral under the EPBC Act - Reference Number: 2009/5017

To: Minister Peter Garrett

After examination of the material provided in the referral application 2009/5017, the referral is incomplete at this stage with insufficient planning to ensure that there are appropriate alternative sites for any affected animals.

Should these trees be removed (gradually or all at once), animals would be returning to the area with young and will likely take up residence nearby. There will be many potential risks caused by this stressing event for the animals, including a high risk of fragmentation, possible worse exposure to heat stress events and more inconvenience to people depending on the location of the chosen new site(s).

Suggesting that "[w]here possible the bats will be encouraged to adopt habitat of low human contention" (page 5, EPBC referral) is inappropriate as there no information about how the animals would be "encouraged", and what controls/processes would be applied.

I request that this matter is considered a controlled action and dealt with accordingly as there are many potential risks for the grey headed flying foxes.

Yours sincerely

s47F

s22

From: s22
Sent: Thursday, 6 August 2009 10:03 AM
To: s22
Cc: s22
Subject: FW: Referral under the EPBC Act 2009/5017" [SEC=UNCLASSIFIED]

Categories: UNCLASSIFIED

Hi s22

Public submission below in relation to 2009/5017

Regards

s22

Business Entry Point - Referrals
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
T: (02) 6275 s22

-----Original Message-----

From: s47F cyberspace.net.au]
Sent: Wednesday, 5 August 2009 4:19 PM
To: EPBC Referrals
Subject: Referral under the EPBC Act 2009/5017"

Dear Mr Garrett:

I write concerning the proposal by East Gippsland Council to remove the poplar trees in Riverine St, Bairnsdale. I have been told this is a roost colony for grey-headed flying foxes. Studying the information I have received regarding this proposal, I find a few worrying problems.

- * The trees they have planted for the bats to relocate to at the same site, are not mature enough for the bats to use immediately.
- * Though the trees are weed trees and are dying, the flying foxes are calling them home at present.
- * The flying foxes are using these trees as a maternity colony to raise their dependent young. To summarily reduce the amount of colony trees for them to return to for baby rearing will be to stress the animals at an already stressful time.
- * Removing the trees, even in stages over a few years, is effectively a dispersal. You cannot guarantee that the flying foxes will go to other stands where previously they have roosted but at which they haven't been seen in the last decade. After all - if they deserted the other colonies, there must have been a reason.
- * The proposal intends to encourage the bats to relocate to sites of low human contention. No mention of how this is to be achieved has been specified.

Thank you for reading this letter.

s47F
WIRES bat carer.

9th August 2009

The Hon Peter Garrett
Minister for Environment, Heritage and Arts
Referral Business Entry Point
Environment Assessment Branch
Department of the Environment, Water, Heritage and the Arts
GPO Box 787
CANBERRA ACT 2601

Re: Referral under the EPBC Act 2009/5017

I write on behalf of the Friends of Bats Victoria regarding the proposal by the East Gippsland Shire Council to remove all poplar trees on the camp site in Riverine St, Bairnsdale. The replacement of these senescent trees with other species is supported, however, we are concerned that the sudden removal of roost trees will effectively be a dispersal of a colony of *Pteropus poliocephalus* (Grey headed flying fox) that roost in these trees seasonally. This species that is listed as vulnerable to extinction and during the severe weather in February 2009 the species experienced a very high death rate (between 20% and 25%) in Victoria.

To manage the risks to this species, we support the proposal that the removal of roost trees at Bairnsdale be made a controlled action

Yours sincerely,

s47F
Spokesperson
Friends of Bats Victoria

s47F
Carlton North Vic 3054

The Hon Peter Garrett AM MP
Minister for the Environment, Water, Heritage and the Arts
c/o Referrals Section (EPBC Act), Approvals and Wildlife Division
Department of the Environment and Water Resources
GPO Box 787
Canberra, ACT 2601
epbc.referrals@environment.gov.au

Your reference 2008/5017

10th August 2009

Dear Minister,

This letter and attached submission are comments by Bat Advocacy NSW on referral 2008/4646 (East Gippsland Shire Council/Natural resources management/Bairnsdale/VIC/Poplar Tree Removal Program - Grey Headed Flying Fox Zone) under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999.

We argue, in our submission, that the actions described in this referral, if carried out, are likely to have significant adverse impacts on the grey-headed flying-fox (*Pteropus poliocephalus*), a federally listed vulnerable species, and it should be rejected or, at very least, assessed as a controlled action.

We believe that the key factors are:

- That the colony meets all criteria to be considered critically important to the survival of the species
- The failure to provide or identify alternate roosting habitat for the displaced flying-foxes
- The likely impacts on the breeding cycle of affected animals
- The absence of any detail as to how flying-foxes will be "encouraged" to find alternative roosting habitat

We hope our submission assists in your consideration and look forward to your response. Please feel free to contact s47F on s47F or bansw@fastmail.com.au should you have any questions about our submission.

Sincerely

s47F

Bat Advocacy

Bat Advocacy

Referral:	2009/5017
Referral Title:	East Gippsland Shire Council/Natural resources management/Bairnsdale/VIC/Poplar Tree Removal Program - Grey Headed Flying Fox Zone
Proponents:	East Gippsland Shire Council
Document Purpose	Assessment of referral document and associated documentation

The East Gippsland Shire Council (EGSC) proposes to remove a stand of poplar trees in Riverine St Bairnsdale as part of a long term poplar eradication programme. The affected trees, which are nearing the end of their life span and are likely to create a hazard to the public, are currently used as a camp site by a colony of grey-headed flying-foxes (*Pteropus poliocephalus*).

The Victorian Department of Sustainability and the Environment (DSE) provided the following information about the flying-fox colony at Bairnsdale (personal correspondence, s22, 3rd August 2009):

1. The camp has been used in eight of the fifteen years since 1995
2. In 2006, a count indicated the presence of 34,100 animals
3. The camp has been used by more than 2,500 animals in the following years - 2002, 2003, 2004, 2006, 2008 & 2009 and that,
 - Pups were born in the camp in 2003
 - Lactation occurred in the camp in 2002, 2003, 2004, 2007, 2008 and 2009
 - Conception occurred in the camp in 2003, 2004, 2006, 2008 and 2009

Based on this information, the camp at Bairnsdale meets all three of the criteria used to define that a roosting site is "critically important to the survival of the [grey-headed flying-fox]" as described by the draft National Recovery Plan (Eby, P. 2006).

Effect of the action

The suggestion by EGSC that it stage the tree removal over a period of three years provides no mitigation for the loss of roosting habitat. The flying-foxes will still be required to find an alternate camp site and EGSC have made no suitable provision for this within its proposal.

Removal of the trees, regardless of the time frame for the removal, without providing alternative roost trees at the same location constitutes a dispersal of the colony.

Possible Outcomes and Risks to the Flying-foxes

Generally dispersals carry a range of risks for flying-foxes.

These risks can include:

- Fragmentation of the camp into smaller groups. This will depend on how the flying-foxes react to the absence of their previous roost site and the capacity of local alternate habitat to accommodate all of the displaced animals
- Disturbance of breeding through late term abortions
- Impacts that may affect the successful raising of young
- The need for ongoing follow-up disturbance if the dispersed flying-foxes select an alternate roost that brings them into conflict with humans

Although the proposal is for the trees to be removed during the winter months when there are no flying-foxes roosting at the site, this simply delays the problem until the bats return to roost at the

camp in spring. At that time, the bats will be forced to find an alternative roost site and it seems that the likely result will be that the animals will simply camp in a stand of trees close to the previous camp site.

Both DSE and the EGSC have indicated that there are trees on the opposite side of the river that have been planted as part of the poplar removal/bush regeneration project that could provide alternate habitat however DSE have informed us (personal communication, s22 [REDACTED], 29th July 2009) that, in its view, these trees are neither substantial nor numerous enough to accommodate the flying-foxes.

The majority of pregnant grey-headed flying-foxes will give birth over a three week period that commences between late September and early November (Hall, L. & Richards, G. 2000). Typically, the flying-foxes that use the Bairnsdale camp return there to the site between November and December. At this time it is most likely that the newborn young will still be wholly dependant upon their mothers. Returning to a camp site that is partly or wholly removed is likely to create stress conditions for the flying-foxes. Stressed females may stop lactating or have reduced milk output, which may put the young at risk. Stress may also affect those females that have not yet given birth and may create conditions under which the number of late-term stress related abortions would increase (McIlwee, A.P. & Martin, L. 2002).

The EGSC appear to have given no thought as to where the dispersed flying-foxes might be likely to relocate to or to have identified any sites it would consider suitable as alternative roosts. There is anecdotal information of other flying-fox camp sites within the local district however; no record exists of these sites being used in the last decade. Additionally, there are no records of the actual locations of these sites so it is possible that the previous roosts sites are no longer suitable habitat. Should these sites still be suitable habitat, it is possible that the flying-foxes may go to one of them. The lack of recent occupancy suggests that such an outcome is far from certain.

The EGSC state that "[w]here possible the bats will be encouraged to adopt habitat of low human contention" (page 5, EPBC referral). This gives a broad statement of intent but is not supported by any specific commitments or actions to suggest that they understand what will actually be required to encourage the bats to adopt suitable habitat.

The referral lacks any detail on

- What methods will be used to "encourage" the animals to adopt suitable habitats
- How the methods will be applied and under what circumstances they would be used
- How stress factors that impact the flying-foxes will be monitored
- What actions will be taken in response to any adverse impacts on the animals
- What measures will be taken for the welfare of animals that may come into care as a consequence of the action
- How the public will be informed about the action, its timing and possible outcomes

These must be addressed before EGSC proceeds with its planned poplar removal programme. The Coffs Harbour Camp re-sculpting project (EPBC referral number 2007/3771) provides a good model for how this project could be approached in a manner that minimises the likely impact on the grey-headed flying-foxes. A project of this type should enable flying-foxes to be managed in their present location while still allowing the removal of the poplars. The EGSC should be encouraged to review projects of this nature and to determine how best they could be adapted to the local conditions at Bairnsdale.

Conclusion

Planning for this action appears to be at a very early stage with very little consideration having yet been given to the impacts of it on a federally listed vulnerable species. DEWHA needs to be assured

that the EGSC are able to plan and implement the project appropriately plan in a manner that mitigate against the risk to the listed species.

In its current form, the referral creates a number of risks to the grey-headed flying-foxes currently using the Bairnsdale camp site.

These risks include

- Fragmentation of an existing colony
- Impacts on the life-cycle of the flying-foxes in this population
- The risk of exposure to further dispersal action

The East Gippsland Shire Council (EGSC) acknowledges that the proposed action should be a controlled action because of the potential impact on the grey-headed flying-fox.

We agree with the assessment by EGSC. Given the status of the colony as “critically important to the survival [of the species]” and the likelihood of colony fragmentation and life-cycle impacts, it is clear that the proposal is likely to have a significant impact on the grey-headed flying-foxes that currently utilise the site and consequently, the referral should be determined to be a controlled action.

References:

Eby, P. 2006 Draft National Recovery Plan for the Grey-headed Flying-fox, *Pteropus poliocephalus*. NSW Department of Environment and Conservation, Sydney

Hall, Leslie, & Richards, Greg, 2000, **Flying-foxes Fruit and Blossom Bats**, UNSW Press

McIlwee, A.P. & Martin, L. (2002) On the intrinsic capacity for increase of Australian flying-foxes (*Pteropus* spp. Megachiroptera). *Aust Zool.* **32**, 76-100



VICTORIAN ADVOCATES *for* ANIMALS Inc.

"An end to harming..."

Vafa

PO Box 377

Carlton North, Vic. 3054.

Telephone: **s47F**

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www.vafa.org.au



10.8.09

Referral under EPBC Act 2009 / 5017

The Hon. Peter Garrett
Minister for Environment

Referral Business Entry Point
Environment Assessment Branch
Dept of Environment Water Heritage and the Arts
GPO Box 777
Canberra ACT 2601

Min No: C	Link:
Division: AWD	Date: 17/8/09
DLO: ce	
RECEIVED 14 AUG 2009	
EHA MINISTER	
<input type="checkbox"/> Covering Brief	<input type="checkbox"/> Departmental Reply
<input type="checkbox"/> VIP Reply	<input type="checkbox"/> Appropriate Action
<input checked="" type="checkbox"/> Minister Reply	<input type="checkbox"/> For Information (NFA)
<input type="checkbox"/> CoS/Adviser Reply	<input type="checkbox"/> Campaign
<input type="checkbox"/> Refer to:	

Dear Sir

I am writing in regard to the proposal cited above by the East Gippsland Shire Council to remove the roost trees (poplars) occupied by a colony of Grey-headed flying foxes (*pteropus poliocephalus*) without sufficient consideration for the relocation or welfare of the same.

Because of the importance of this camp for Victoria's Grey-headed flying foxes we believe any actions involving them should be a controlled action under EPBC.

The bats have used the current camp site at Bairnsdale almost exclusively for over a decade and it remains an uncontroversial one with the local community. It is an important stopover camp for the bats as they transit along the coast and is also used as a maternity site each year during the December period. Significant stress and loss of young may occasion a camp disturbance at this time.

While the removal of poplars from the environment may, in general, have merit. The EPBC referral appears perfunctory in its failure to acknowledge the importance of this particular stand of poplars for the bats - a federally listed and declining species.

Moreover, serious consideration needs to be given to the February 2009 heat event that according to ARCUE (Australian Research Centre for Urban Environment) killed some twenty five percent of Victoria's population of Grey-headed flying foxes. With forecasts predicting a similar Summer this year losses may well be catastrophic for this species in Victoria.

Removal of poplars, if necessary at all, should only be undertaken when mature alternative roost trees have been established at the current site and following a thorough evaluation of the impact management planning process. Something that appears lacking in the application in its current form.

Thank you.

Regards

s47F

President VAFA

C09/14121

FOI 180819
Document 26

The Hon. Peter Garrett AM MP
Minister for the Environment, Heritage and the Arts
Parliament House
Canberra ACT 2006

11 August, 2009

Dear Minister,

RE: Referral under the EPBC Act 2009/5017

Min No: C	Link:
Division: AWD	Date: 11/8/09
DLO: CE	
RECEIVED 11 AUG 2009 EHA MINISTER	
<input type="checkbox"/> Covering Brief	<input checked="" type="checkbox"/> Departmental Reply
<input type="checkbox"/> MP Reply	<input type="checkbox"/> Appropriate Action
<input type="checkbox"/> Minister Reply	<input type="checkbox"/> For Information (NFA)
<input type="checkbox"/> CoS/Adviser Reply	<input type="checkbox"/> Campaign
<input type="checkbox"/> Refer to:	

I am asking you as Federal Minister for the Environment to consider the proposed tree removal in the Bairnsdale Flying Fox colony as a controlled action.

The East Gippsland Shire Council should not be permitted to remove trees from the Bairnsdale Flying Fox colony without due consideration to effects this could have on the summer roosting habitat of the Grey-headed Flying Fox listed as vulnerable under the Threatened Species Act.

The species are listed under s.18 of the EPBC. It is vital that the action be fully considered in order to eliminate the potential impacts and risks to the flying fox colony and species.

I look forward to your response.

Yours sincerely,

s47F

KURRAJONG NSW 2758



Contact:
Telephone No:
Email: s22 vic.gov.au

25 March 2014

s22

Senior Assessment Officer
South-Eastern Australia Environment Assessment Branch
Department of the Environment
PO Box 787
CANBERRA ACT 2601

Corporate Centre
273 Main Street (PO Box 1618)
Bairnsdale Victoria 3875
Telephone: (03) 5153 9500
National Relay Service: 133 677
Residents' Information Line: 1300 555 886
Facsimile: (03) 5153 9576
Email: feedback@egipps.vic.gov.au
ABN: 81 957 967 765

Dear s22

Re: Draft Conditions – Referral 2009/5017, East Gippsland Shire Council

Thankyou for the opportunity to comment on the Draft conditions relating to this referral. I have enclosed 2 copies of the draft conditions with East Gippsland Shire Council's comments included in red text, and have advised the same via email. Please do not hesitate to get in touch at any time and I will respond as early as I possibly can.

Yours sincerely

s22

Roadside Pest Plant Officer



Proposed Approval

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted East Gippsland Shire Council

proponent's ABN 81 957 967 765

proposed action To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position James Tregurtha
Assistant Secretary
South-Eastern Australia Assessment Branch

signature **NOT FOR SIGNATURE – DRAFT ONLY**

date of decision

Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (Grey-headed Flying-fox)**:

1. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
2. The person taking the action must implement and comply with the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.
 - *If possible, can a condition be added into that will allow EGSC to complete the necessary changes to the Management Action Plan after the decision date, for approval at a later date.*
3. The person taking the action must ensure that:
 - a) Prior to the **removal of habitat** at the **Mitchell River Roost Site** a **Hotline** with a dedicated contact phone number and email address is set up to respond to public enquiries;
 - *Council already has in place a 24hr contact service as part of its regular operations. Is a separate line a requirement or will advertising the main Shire numbers suffice given that a 24 hr service already is in operation?*
 - b) Prior to the **removal of habitat** at the **Mitchell River Roost Site** neighbouring Councils are notified of the proposal and provided with contact details to respond to enquiries;
 - *This involves notifying five Councils, 4 of which are located a great distance from the Roost Site – Council needs to understand the rationale for such notifications.*
 - c) Undertake revegetation of long-term **Grey-headed Flying-fox habitat** within the Bairnsdale area, in accordance with expert advice on **Grey-headed Flying-fox** ecology, subject to negotiation with and approval by, the **Department**. If a long-term **Grey-headed Flying-fox** camp is not established within the Bairnsdale area then revegetation or improvement of **Grey-headed Flying-fox habitat** within the Bairnsdale region must be undertaken; and
 - *Can we please define Bairnsdale 'area' and Bairnsdale 'region'.*
 - *Can some clarification be requested in the condition about where revegetation will occur (ie: Council's own land or any tenure). Who will determine which site is suitable for revegetation and improvement, DEPI and/or DE? What is the role of DE in negotiation and approval?*
 - d) At least \$5,000 is spent on community education resources relating to **Grey-headed Flying-fox**, including, but not limited to, educational signage at a site of **Grey-headed Flying-fox habitat**.
 - *Is this expenditure required over the period of the action – or some other timeframe?*
4. If, following the **removal of habitat** at the **Mitchell River Roost Site**, the person taking the action proposes to undertake a separate **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;

- e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
- f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
- g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

- *What are the parameters and requirements around the decision for undertaking a dispersal? Will this information be required to be incorporated into the Management Plan, given the absence of this information with the removal of the Response Plan from the Management Plan? Are the conditions within the Response Plan sufficient to make this decision?*
 - *Time constraints on approval? Can a pro-forma management plan be developed in the time prior to any dispersal occurring (ie. prior to September) for approval by the **Department** as to the information and data required to report sufficiently for a faster turn-around of approval once compiled?*
5. The person taking the action may undertake an **emergency dispersal**. Unless *otherwise* negotiated with the **Minister** and approved, an **emergency dispersal** must be undertaken in accordance with the following requirements:
- A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
 - During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
 - During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
 - **Emergency dispersal** must not be undertaken between 1 August and 30 September;
 - For the period 1 October to 31 March in any given year, **emergency dispersal** activities must not be undertaken if **flightless dependant young** are present (as determined by a **suitably qualified ecologist**);
 - **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **Grey-headed Flying-fox** have time to settle elsewhere before the heat of the day;
 - **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - Once **Grey-headed Flying-fox** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
 - Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.
 - *An emergency dispersal situation may arise during the period of August to September, and is likely between October and March. The restriction on undertaking dispersal during these periods limits the ability of EGSC to respond to an emergency event. Given dispersals are to be supervised by a suitably qualified ecologist, their expertise will be able to determine the method for the least impact to GHFF.*
6. Within one month from the completion of Stage One of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or

emergency dispersal occurs, the person taking the action must submit a report to the **Minister** that addresses the following:

- *This was not clearly interpreted; I have attempted to re-write to make the condition clearer.*

*“A report must be submitted to the Minister one month after the completion of Stage One of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**). A report will need to be submitted on the same date of each subsequent year where **removal of habitat** or **emergency dispersal** occurs. The report must address the following points.”*

- a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
 - b) Details of the associated outcomes of these activities;
 - c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
 - d) The status of **Grey-headed Flying-fox** colonies in the Bairnsdale region;
- *Please define what information is required regarding ‘status’*
 - e) Details of how information gained has been incorporated into the future management of **Grey-headed Flying-fox** (adaptive management), including, but not limited to, the future **removal of habitat** or **dispersal** activities associated with the action;
 - *Is this specifically for the Mitchell River site as relates to the project or how ESGC will manage other GHFF sites on their managed land, or is it broader?*
 - f) Details of any activities planned to occur in the following year;
 - g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
 - h) Raw data must be made available to the **Department** upon request.
- *It is anticipated that the works for Stage One (and each other Stage) will be completed prior to the GHFF arriving on site, but dispersals may be required after the completion of these works given uncertainty of the reaction of GHFF to the action? We would consider that the definition of removal of habitat is purely removal of Poplars, which would only occur when GHFF are absent from the area, resulting in no information pertaining to GHFF to put into the report for Stage One. Perhaps the completion of Stage One report can be considered to be at a later date. If this was as GHFF depart the area, works will be commencing again which leaves little time to inform future management actions for Stages 2 and 3. This needs to be considered.*
 - *The period of stop work between 1st August to 30th September severely restricts the capacity of the revegetation component to be completed before the GHFF arrive back on site (ie. they are typically absent during this period). The revegetation method proposed contains no machinery, and is purely persons onsite. Would there be capacity to potentially undertake works during this period with limitations (ie no machinery)? Given that we have Stop Work Triggers in place already to identify presence of GHFF at all times whilst workers are onsite, the risk of impact to GHFF is very limited. If we require more time to undertake the revegetation, could this be up to the discretion of D of E to approve on an as needs basis?*
 - *Is there potential to determine the exact content of the required report to be pre-approved by D of E, to ensure that the expectations of both D of E and EGSC are met prior to reporting requirements to ensure appropriate data collection.*
7. Five days prior to the **commencement** of the action, the person taking the action must advise the **Department** verbally and in writing of the actual date of **commencement**.

8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the **Department** within 48 hours of the non-compliance occurring.
10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.
12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.
13. If, at any time after five years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.

Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, DRAFT Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013*.

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not be limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at Appendix A as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Appendix A





Proposed Approval

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted East Gippsland Shire Council

proponent's ABN 81 957 967 765

proposed action To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position James Tregurtha
Assistant Secretary
South-Eastern Australia Assessment Branch

signature **NOT FOR SIGNATURE – DRAFT ONLY**

date of decision

Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (Grey-headed Flying-fox)**:

1. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
2. Prior to the **removal of habitat** the person taking the action must submit the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan** to the **Department** for approval. The person taking the action must implement and comply with the approved **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.

- *If possible, can a condition be added into that will allow EGSC to complete the necessary changes to the Management Action Plan after the decision date, for approval at a later date.*
- *Response – Yes, amended as above.*

3. The person taking the action must ensure that:

- a) Prior to the **removal of habitat** at the **Mitchell River Roost Site** a **Hotline** with a dedicated contact phone number and email address is set up to respond to public enquiries;
 - *Council already has in place a 24hr contact service as part of its regular operations. Is a separate line a requirement or will advertising the main Shire numbers suffice given that a 24 hr service already is in operation?*
 - *Response – Yes, the existing line will suffice as long as this is clearly advertised and an email address is also provided for contact.*
- b) Prior to the **removal of habitat** at the **Mitchell River Roost Site** neighbouring Councils are notified of the proposal and provided with contact details to respond to enquiries;
 - *This involves notifying five Councils, 4 of which are located a great distance from the Roost Site – Council needs to understand the rationale for such notifications.*
 - *Response – the rationale was to alert neighbouring Councils as to the increased risk of GHFF moving into their areas following the removal of habitat. A letter to notify the Councils will suffice with contact details to allow queries to be answered. If EGSC would like to suggest the most relevant Councils to notify and why we may be able to amend this condition.*

EGSC would like to suggest that Wellington Shire is the only local council adjacent to this Shire that would be impacted by our action. We have an existing MOU with Wellington Shire which enables a co-operative relationship between neighbouring Shires. The distance between other Shires (Toowong and Alpine) and EGSC in the State of Victoria are significant and their location not likely to be suitable for GHFF populations. Other shires are interstate with some likely to already have GHFF present, and are also subject to different State legislation.

- c) Undertake revegetation of long-term **Grey-headed Flying-fox habitat** within the **Bairnsdale region**, in accordance with expert advice on **Grey-headed Flying-fox** ecology, subject to negotiation with and approval by, the **Department**. If a long-term **Grey-headed Flying-fox** camp is not established within the **Bairnsdale region** then revegetation or improvement of **Grey-headed Flying-fox habitat** within the **Bairnsdale region** must be undertaken; and

- *Can we please define Bairnsdale 'area' and Bairnsdale 'region'.*
- *Response – Yes. This has been amended for consistency and defined below. If you have a suggested definition please provide.*
- *Can some clarification be requested in the condition about where revegetation will occur (ie: Council's own land or any tenure). Who will determine which site is suitable for revegetation and improvement, DEPI and/or DE? What is the role of DE in negotiation and approval?*
- *Response – The condition has been worded so that, depending on where the GHFF relocate to, revegetation works will be chosen at the site most likely to benefit the colony; however, if the GHFF leave the region altogether revegetation or improvement works can benefit the GHFF in the long-term. Whether this land is Council's or any tenure is a matter for the EGSC. It is expected that expert advice will be sought to ensure that the site of revegetation will be of benefit to the GHFF. Who provides that advice is a matter for the EGSC but will need to be justified to the Department prior to approval. The Department's role is primarily in determining that the revegetation proposed is appropriate and will be of benefit to GHFF in the long-term.*

d) At least \$5,000 is spent on community education resources relating to **Grey-headed Flying-fox**, including, but not limited to, educational signage at a site of **Grey-headed Flying-fox habitat**.

- *Is this expenditure required over the period of the action – or some other timeframe?*
- *Response – Yes, this expenditure is required over the period of staged vegetation removal to increase community awareness of the GHFF.*

4. If, following the **removal of habitat** at the **Mitchell River Roost Site**, the person taking the action proposes to undertake a separate **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:

- Proposed methodology for **dispersal**;
- Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
- The presence of pregnant **Grey-headed Flying-fox**;
- The presence of **dependant young**;
- A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
- Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
- Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

- *What are the parameters and requirements around the decision for undertaking a dispersal? Will this information be required to be incorporated into the Management Plan, given the absence of this information with the removal of the Response Plan from the Management Plan? Are the conditions within the Response Plan sufficient to make this decision?*
- *Response – The EGSC can make a decision regarding dispersal according to their own requirements; however, the Department will need to consider the individual circumstances of the proposed dispersal and the potential impacts to the GHFF in considering the dispersal plan.*
- *The dispersal plan will not need to be incorporated into the Management Plan, which will be a stand alone document. The Response Plan will form the basis of the dispersal plan but will need to be adapted to the individual circumstances and*

address the above criteria. The EGSC may choose to use the information in the Response Plan in making a decision as to whether or not a dispersal is desired.

- Time constraints on approval? Can a pro-forma management plan be developed in the time prior to any dispersal occurring (ie. prior to September) for approval by the Department as to the information and data required to report sufficiently for a faster turn-around of approval once compiled?*
- Response – The Response Plan is a good basis for a dispersal plan but will need to address some outstanding matters that have not been addressed, such as the methodology for the dispersal. The key requirements of the dispersal plan are captured above in condition 4 and should form the basis of information provided in the dispersal plan.*

5. The person taking the action may undertake an **emergency dispersal**. Unless *otherwise* negotiated with the **Minister** and approved, an **emergency dispersal** must be undertaken in accordance with the following requirements:

- A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
 - During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
 - During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
 - **Emergency dispersal** must not be undertaken between 1 August and 30 September;
 - For the period 1 October to 31 March in any given year, **emergency dispersal** activities must not be undertaken if **flightless dependant young** are present (as determined by a **suitably qualified ecologist**);
 - **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **Grey-headed Flying-fox** have time to settle elsewhere before the heat of the day;
 - **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - Once **Grey-headed Flying-fox** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
 - Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.
-
- An emergency dispersal situation may arise during the period of August to September, and is likely between October and March. The restriction on undertaking dispersal during these periods limits the ability of EGSC to respond to an emergency event. Given dispersals are to be supervised by a suitably qualified ecologist, their expertise will be able to determine the method for the least impact to GHFF.*
 - Response – As these times correlate to a particularly vulnerable time of the GHFF's breeding cycle the Department considers that these measures are necessary to reduce potential impacts to the GHFF during the critical breeding season and to reduce the likelihood of significant stress, aborted foetuses, dropped young and the desertion of young. It is understood that an emergency response may need to be undertaken quickly in order for the GHFF not to settle and thus negotiation and approval by the Minister has been included to ensure that human health is considered alongside the management of potential impacts to GHFF.*

6. **One month prior to the commencement of Stage Two** of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or **emergency dispersal** occurs, the person taking the action must submit a report to the **Minister** that addresses the following:

- *This was not clearly interpreted; I have attempted to re-write to make the condition clearer.*

*"A report must be submitted to the Minister one month after the completion of Stage One of the **removal of habitat** (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**). A report will need to be submitted on the same date of each subsequent year where **removal of habitat** or **emergency dispersal** occurs. The report must address the following points."*

- a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
 - b) Details of the associated outcomes of these activities;
 - c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
 - d) **Information about the health and condition** of **Grey-headed Flying-fox** colonies in the **Bairnsdale region**;
- *Please define what information is required regarding 'status'*
 - *Response – Amended. The condition is intended to encapsulate an overview of the species in the region to indicate changes.*
- e) Details of how information gained has been incorporated into the future management of **Grey-headed Flying-fox** (adaptive management), including, but not limited to, the future **removal of habitat** or **dispersal** activities associated with the action;
- *Is this specifically for the Mitchell River site as relates to the project or how ESGC will manage other GHFF sites on their managed land, or is it broader?*
 - *Response – This is intended to relate to actions at the Mitchell River Site and future dispersals that are associated with the removal of habitat but may also include other actions that are a consequence of the removal of habitat that are not specifically mentioned, such as ongoing management of roost sites.*
- f) Details of any activities planned to occur in the following year;
 - g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
 - h) Raw data must be made available to the **Department** upon request.
- *It is anticipated that the works for Stage One (and each other Stage) will be completed prior to the GHFF arriving on site, but dispersals may be required after the completion of these works given uncertainty of the reaction of GHFF to the action? We would consider that the definition of removal of habitat is purely removal of Poplars, which would only occur when GHFF are absent from the area, resulting in no information pertaining to GHFF to put into the report for Stage One. Perhaps the completion of Stage One report can be considered to be at a later date. If this was as GHFF depart the area, works will be commencing again which leaves little time to inform future management actions for Stages 2 and 3. This needs to be considered.*
 - *Response – The completion of Stage One of the removal of habitat includes all the management actions following that first stage of removal, such as revegetation, determining the GHFF response, improving site amenity and increasing community knowledge (as described in the Management Plan, p. 41). Information will not be able to be finalised until these activities are concluded. If you would like to suggest a date other than one month following Stage One we would be happy to consider (e.g. one month prior to the commencement of Stage Two?).*

- *If this relates to condition 6(c) the data collected and 6(h) the raw data it is expected that this information would be available at the end of Stage One.*
 - *The period of stop work between 1st August to 30th September severely restricts the capacity of the revegetation component to be completed before the GHFF arrive back on site (ie. they are typically absent during this period). The revegetation method proposed contains no machinery, and is purely persons onsite. Would there be capacity to potentially undertake works during this period with limitations (ie no machinery)? Given that we have Stop Work Triggers in place already to identify presence of GHFF at all times whilst workers are onsite, the risk of impact to GHFF is very limited. If we require more time to undertake the revegetation, could this be up to the discretion of D or E to approve on an as needs basis?*
 - *Response – This relates to the timing of works at 10.3.2 of Management Plan and will be considered when approving the Management Plan. Given the stop work condition and the absence of machinery the Department would consider allowing works during this period on a needs basis.*
7. Five days prior to the **commencement** of the action, the person taking the action must advise the **Department** verbally and in writing of the actual date of **commencement**.
 8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
 9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the **Department** within 48 hours of the non-compliance occurring.
 10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
 11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.
 12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised

management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.

13. If, at any time after five years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.

Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, Strategic Management and Action Plan, East Gippsland Shire Council, 2013*.

Bairnsdale Region means the administrative district of the city of Bairnsdale.

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not be limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at [Appendix A](#) as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Appendix A





Australian Government
Department of the Environment

Proposed Approval

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted East Gippsland Shire Council

proponent's ABN 81 957 967 765

proposed action To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch

signature ~~NOT FOR SIGNATURE – DRAFT ONLY~~

date of decision

Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (Grey-headed Flying-fox)**:

1. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
2. Prior to the removal of habitat the person taking the action must submit the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan** to the Department for approval. The person taking the action must implement and comply with the approved **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.

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3. The person taking the action must ensure that:
 - a) Prior to the **removal of habitat** at the **Mitchell River Roost Site** a **Hotline** with a dedicated contact phone number and email address is set up to respond to public enquiries;
 - b) Prior to the **removal of habitat** at the **Mitchell River Roost Site** the **Wellington Shire** neighbouring Councils ~~is are~~ notified of the proposal and provided with contact details to respond to enquiries;

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 - c) Undertake revegetation of long-term **Grey-headed Flying-fox habitat** within the **Bairnsdale region**, in accordance with expert advice on **Grey-headed Flying-fox** ecology, subject to negotiation with and approval by, the **Department**. If a long-term **Grey-headed Flying-fox** camp is not established within the **Bairnsdale region** then revegetation or improvement of **Grey-headed Flying-fox habitat** within the **Bairnsdale region** must be undertaken; and

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 - d) At least \$5,000 is spent on community education resources relating to **Grey-headed Flying-fox**, including, but not limited to, educational signage at a site of **Grey-headed Flying-fox habitat**; within twelve months of the completion of Stage Three (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**).
4. If, following the **removal of habitat** at the **Mitchell River Roost Site**, the person taking the action proposes to undertake a separate **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
 - g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

5. The person taking the action may undertake an **emergency dispersal**. Unless **otherwise** negotiated with the **Minister** and approved, an **emergency dispersal** must be undertaken in accordance with the following requirements:

- A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
- During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
- During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
- **Emergency dispersal** must not be undertaken between 1 August and 30 September;
- For the period 1 October to 31 March in any given year, **emergency dispersal** activities must not be undertaken if **flightless dependant young** are present (as determined by a **suitably qualified ecologist**);
- **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **Grey-headed Flying-fox** have time to settle elsewhere before the heat of the day;
- **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
- Once **Grey-headed Flying-fox** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
- Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.

6. **One month prior to the commencement of Stage Two** ~~Within one month from the completion of Stage One of the removal of habitat~~ (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or **emergency dispersal** occurs, the person taking the action must submit a report to the **Minister** that addresses the following:

- a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
- b) Details of the associated outcomes of these activities;
- c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
- d) ~~The status~~ **Information about the health, and condition and location** of **Grey-headed Flying-fox** colonies in the **Bairnsdale region**;
- e) Details of how information gained has been incorporated into the future management of **Grey-headed Flying-fox** (adaptive management), including, but not limited to, the future **removal of habitat** or **dispersal** activities associated with the action;
- f) Details of any activities planned to occur in the following year;
- g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
- h) Raw data must be made available to the **Department** upon request.

7. Five days prior to the **commencement** of the action, the person taking the action must advise the **Department** verbally and in writing of the actual date of **commencement**.

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8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the **Department** within 48 hours of the non-compliance occurring.
10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.
12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.
13. If, at any time after five years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.

Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, ~~DRAFT~~ Strategic Management and Action Plan, East Gippsland Shire Council, November, 2013* 2014.

Bairnsdale Region means the an administrative area, division, or district of the city of Bairnsdale. A rural area with its own elected council;

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not be limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

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Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at [Appendix A](#) as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Appendix A



**Approval**

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted East Gippsland Shire Council

proponent's ABN 81 957 967 765

proposed action To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (*Pteropus poliocephalus*) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved.

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 1 July 2022.

Decision-maker

name and position James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch

signature

date of decision 11 APRIL 2014

Conditions attached to the approval

The following measures must be taken to ensure the protection of **listed threatened species and communities** (sections 18 & 18A), specifically the **Grey-headed Flying-fox (Grey-headed Flying-fox)**:

1. The person taking the action must not remove or adversely impact more than 0.5 hectares of **Grey-headed Flying-fox habitat** at the **Mitchell River Roost Site**.
2. Prior to the **removal of habitat** the person taking the action must submit the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan** to the **Department** for approval. The person taking the action must implement and comply with the approved **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**.
3. The person taking the action must ensure that:
 - a) Prior to the **removal of habitat** at the **Mitchell River Roost Site** a **Hotline** with a dedicated contact phone number and email address is set up to respond to public enquiries;
 - b) Prior to the **removal of habitat** at the **Mitchell River Roost Site** the Wellington Shire Council is notified of the proposal and provided with contact details to respond to enquiries;
 - c) Undertake revegetation of long-term **Grey-headed Flying-fox habitat** within the **Bairnsdale region**, in accordance with expert advice on **Grey-headed Flying-fox** ecology, subject to negotiation with and approval by, the **Department**. If a long-term **Grey-headed Flying-fox** camp is not established within the **Bairnsdale region** then revegetation or improvement of **Grey-headed Flying-fox habitat** within the **Bairnsdale region** must be undertaken; and
 - d) At least \$5,000 is spent on community education resources relating to **Grey-headed Flying-fox**, including, but not limited to, educational signage at a site of **Grey-headed Flying-fox habitat** within twelve months of the completion of Stage Three (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**).
4. If, following the **removal of habitat** at the **Mitchell River Roost Site**, the person taking the action proposes to undertake a separate **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
 - g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

5. The person taking the action may undertake an **emergency dispersal**. Unless otherwise negotiated with the **Minister** and approved, an **emergency dispersal** must be undertaken in accordance with the following requirements:
- A **suitably qualified ecologist** must be engaged to advise of best practice **dispersal** methodology;
 - During **emergency dispersal** a **suitably qualified ecologist** must be present to oversee best practice **dispersal** methodology, undertake **behavioural monitoring** and document the outcomes of the process;
 - During **emergency dispersal** the person taking the action must comply with all recommendations and guidance from a **suitably qualified ecologist**;
 - **Emergency dispersal** must not be undertaken between 1 August and 30 September;
 - For the period 1 October to 31 March in any given year, **emergency dispersal** activities must not be undertaken if **flightless dependant young** are present (as determined by a **suitably qualified ecologist**);
 - **Emergency dispersal** must be undertaken 1.5 hours pre-dawn and finish one hour post-dawn to ensure **Grey-headed Flying-fox** have time to settle elsewhere before the heat of the day;
 - **Emergency dispersal** must not be undertaken during a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - Once **Grey-headed Flying-fox** have not returned to the site of **emergency dispersal** for more than five consecutive days and while absent from the site of **emergency dispersal**, the person taking the action must implement **passive measures**; and
 - Within five days of the completion of **emergency dispersal**, the person taking the action must submit a report to the **Minister** detailing the **dispersal** methodology implemented and the outcome achieved.
6. One month prior to the commencement of Stage Two (as detailed in the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**) and on the same date every subsequent year in which **removal of habitat** or **emergency dispersal** occurs, the person taking the action must submit a report to the **Minister** that addresses the following:
- a) Details of the activities undertaken that year relating to **removal of habitat** or **emergency dispersal**;
 - b) Details of the associated outcomes of these activities;
 - c) The data collected (in accordance with these conditions of approval and the **Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan**);
 - d) Information about the health, condition and location of **Grey-headed Flying-fox** colonies in the **Bairnsdale region**;
 - e) Details of how information gained has been incorporated into the future management of **Grey-headed Flying-fox** (adaptive management), including, but not limited to, the future **removal of habitat** or **dispersal** activities associated with the action;
 - f) Details of any activities planned to occur in the following year;
 - g) Written and signed confirmation by a **suitably qualified ecologist** verifying the accuracy of the data, information, analysis and conclusions contained within the report; and
 - h) Raw data must be made available to the **Department** upon request.
7. Five days prior to the commencement of the action, the person taking the action must advise the **Department** verbally and in writing of the actual date of **commencement**.

8. The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
9. Within three months of every 12 month anniversary of the **commencement** of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. Non-compliance with any of the conditions of this approval must be reported to the **Department** within 48 hours of the non-compliance occurring.
10. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
11. If the person taking the action wishes to carry out any activity otherwise than in accordance with the management plans as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that management plan. The varied activity shall not commence until the **Minister** has approved the varied management plan in writing. The **Minister** will not approve a varied management plan unless the revised management plan would result in an equivalent or improved environmental outcome over time. If the **Minister** approves the revised management plan, that management plan must be implemented in place of the management plan originally approved.
12. If the **Minister** believes that it is necessary or convenient for the better protection of **listed threatened species and communities** to do so, the **Minister** may request that the person taking the action make specified revisions to the management plans specified in the conditions and submit the revised management plans for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved management plan must be implemented. Unless the **Minister** has approved the revised management plan, then the person taking the action must continue to implement the management plan originally approved, as specified in the conditions.
13. If, at any time after five years from the date of this approval, the person taking the action has not **substantially commenced** the action, then the person taking the action must not **substantially commence** the action without the written agreement of the **Minister**.
14. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within one month of being approved.

Definitions

Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan means the document titled *Mitchell River Revegetation Program, Bairnsdale Grey-headed Flying Fox Roost Site, Strategic Management and Action Plan, East Gippsland Shire Council, 2014*.

Bairnsdale Region means the administrative district of the city of Bairnsdale.

Behavioural monitoring means the monitoring by a **suitably qualified ecologist** of **Grey-headed Flying-fox** behaviour to identify behaviour outside of normal patterns of behaviour and changes in those patterns. As a guide, behaviour outside of normal patterns may include **Grey-headed Flying-fox** exhibiting sickness, malnutrition, abnormal flight, disorientation, injury, aggression towards a person undertaking an activity evidence of abandoned young, evidence of aborted young or, at worst case, death.

Commencement means any preparatory works associated with the **removal of habitat** from the **Mitchell River Roost Site**, such as the tagging of trees, introduction of machinery or clearing of vegetation, excluding fences and signage.

Department means the Australian Government Department administering the *Environment Protection and Biodiversity Conservation Act 1999*.

Dependant young means:

- Newborn – totally dependent and carried by mother;
- Flightless dependant young – dependent on mother, but no longer carried large distances, unable to move easily around the camp; and
- Flying dependant young – dependent on mother, but able to move around the camp, can fly short distances.

Dispersal means any action, including, but not limited to, active physical harassment, taken to remove **Grey-headed Flying-fox** from a site of habitation.

Emergency dispersal means a **dispersal** response to be undertaken if **Grey-headed Flying-fox** relocate to an area where:

- a) Public health is at immediate risk (this includes, but is not limited to, within 100 metres of a hospital or educational institution);
- b) There is potential for the spread of disease through vectors (this includes, but is not be limited to, within 100 metres of a racecourse or horse stud property); and
- c) Anything else, as agreed with the **Department**.

Grey-headed Flying-fox means the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

Grey-headed Flying-fox habitat means any patch of land, including non-native vegetation, which may be used by the native flying-fox species *Pteropus poliocephalus* listed as vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*, to forage, breed, shelter or disperse, as determined by a **suitably qualified ecologist**.

Flightless dependant young means **Grey-headed Flying-fox** that are dependent on their mother, but no longer carried large distances and that are unable to move easily around the camp.

Heat Stress Event means a hot weather event lasting one day or more that is extremely stressful and harmful to animals, defined as when temperatures exceed 35°C before 31 December or 38°C over consecutive days from 1 January.

Hot Day means a day when the ambient temperature is predicted to reach 30°C before 10am AEST, or reach greater than 35°C over the day.

Hotline means a point of contact, where members of the public can contact the person taking the action to report any injured **Grey-headed Flying-fox**, the establishment of a new camp of **Grey-headed Flying-fox** and to discuss general concerns regarding **Grey-headed Flying-fox**.

Listed threatened species and communities means a matter listed under sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999*, specifically the **Grey-headed Flying-fox**.

Mitchell River Roost Site means the 0.5 hectare area defined at Appendix A as **Grey-headed Flying-fox habitat** along the Mitchell River, Bairnsdale, within which **removal of habitat** is to occur.

Minister means the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

Passive measure means actions that do not involve active physical harassment of **Grey-headed Flying-fox**, which allow for ongoing maintenance of a successful dispersal area and that act as a deterrent against the animals re-establishing at the site, including, but not limited to, the trimming of branches and removal of limbs. It does not include the permanent **removal of habitat** critical to the survival of **Grey-headed Flying-fox**.

Removal of habitat means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ring-barking, uprooting or burning of **Grey-headed Flying-fox habitat**.

Stop work triggers means site or animal conditions that indicate that the activity should cease.

Substantially commence means the **removal of habitat** at the **Mitchell River Roost Site**.

Suitably qualified ecologist means a practising ecologist with tertiary qualifications from a recognised institute and demonstrated expertise in scientific methodology, animal or conservation biology in relation to the **Grey-headed Flying-fox**.

Appendix A





Australian Government
Department of the Environment

EPBC Ref: 2009/5017

Ms Kate Nelson
Director Planning & Community
East Gippsland Shire Council
P.O. BOX 1618
BAIRNSDALE VIC 3875

Dear Ms Nelson

Decision on approval
East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)

I am writing to you in relation to a proposal to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program, which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria.

I have considered the proposal in accordance with Part 9 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and have decided to grant an approval to the East Gippsland Shire Council. The details of my decision are attached. The proposal must be undertaken in accordance with the conditions specified in the approval.

I would appreciate your assistance by informing me when you start the action and also who will be the contact person responsible for the administration of the approval decision.

Please note any plans required as conditions of approval will be regarded as public documents unless you provide sufficient justification to warrant commercial-in-confidence status.

You should also note that this EPBC Act approval does not affect obligations to comply with any other laws of the Commonwealth, state or territory that are applicable to the action. Neither does this approval confer any right, title or interest that may be required to access land or waters to take the action.

The Department has an active audit program for proposals that have been referred or approved under the EPBC Act. The audit program aims to ensure that proposals are implemented as planned and that there is a high degree of compliance with any associated conditions. Please note that your project may be selected for audit by the Department at any time and all related records and documents may be subject to scrutiny. Information about the Department's compliance monitoring and auditing program is enclosed.

The Department has recently published an *Environmental Impact Assessment Client Service Charter* (the Charter) which outlines the department's commitments when undertaking environmental impact assessments under the EPBC Act. A copy of the Charter can be found at: <http://www.environment.gov.au/epbc/publications/index.html>. Should you have any feedback on the environmental impact assessment process, please send them through to ElAclientfeedback@environment.gov.au.

If you have any questions about this decision, please contact the project manager,
s22 [redacted] by email to s22 [redacted]@environment.gov.au, or telephone 02 6274
s22 [redacted] and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely



James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch
// April 2014

cc. s22 [redacted] Roadside Pest Plant Officer, East Gippsland Shire Council



EPBC Ref: 2009/5017

The Hon Matthew Guy MLC
Minister for Planning
Level 20
1 Spring Street
MELBOURNE VIC 3001

Dear Minister

**Decision on approval
East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)**

I am writing to you in relation to a proposal by the East Gippsland Shire Council to remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council's poplar removal program, which provide a 'summer camp' roost site for Grey-headed Flying-foxes in Bairnsdale, Victoria.

I have considered the proposal in accordance with Part 9 of the *Environment Protection and Biodiversity Conservation Act 1999* and have decided to grant an approval to the East Gippsland Shire Council. A notice of my decision is attached for your information.

If you have any questions about this decision, please contact the project manager, s22 by email to s22 @environment.gov.au, or telephone 02 6274 s22 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

James Tregurtha
Assistant Secretary
South-Eastern Australia Environment Assessments Branch
11 April 2014

To: Assistant Secretary Shane Gaddes (for decision)

Variation to condition 4 of approval: East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

Timing: 13 April 2015 as the Council is anxious to progress this matter.

Recommendations:

1. That you agree to the request by the East Gippsland Shire Council to vary condition 4 of EPBC Approval 2009/5017 to enable the Council to undertake minor, non-emergency dispersal of Grey-headed Flying-fox from portions of the existing camp to remove dangerous trees and to commence the proposed action despite uninterrupted occupation of the GHFF camp.

Agreed / Not agreed

2. If you agree to 1., that you sign the variation instrument at **Attachment A** to vary condition 4 attached to EPBC Approval 2009/5017.

Signed / Not signed

3. That you sign the letter provided at **Attachment B** advising the East Gippsland Shire Council of your decision.

Signed / Not signed

Assistant Secretary Shane Gaddes: *S. Gaddes*

Date: *10/4/15*

Comments:

Key Points:

1. The Delegate approved, on 11 April 2014, the East Gippsland Shire Council to remove 0.5 ha of poplar trees which support a small part of the Grey-headed Flying-fox ('GHFF', *Pteropus poliocephalus*) 'Summer Camp', at Bairnsdale, Victoria (EPBC 2009/5017) (**Attachment C**).
2. The approval assumed that the poplars could be cleared during a period when GHFF had seasonally vacated the camp. Condition 4 restricts planned dispersal of GHFF to only occur AFTER the action has commenced. However, GHFF have not vacated the camp since 2013. In 2014 over 80,000 GHFF occupied the 'Sumer Camp' and vegetation adjacent to it and on the river bank opposite. This was well above previous recorded levels of occupation.
3. The roost is based in a stand of poplars which are entangled by invasive weeds. While this creates a moist microclimate preferred by the GHFF, the combination of defoliation by GHFF and Council's inability to manage the weeds without disturbing the GHFF has resulted in poplars dying and becoming dangerous, particularly to people who use the riverside walking trail which passes adjacent to the camp.

4. The East Gippsland Shire Council has experienced considerable public concern about the impact of the colony on public paths and neighbouring residents while being unable to undertake the approved tree removal unless all the GHFF happen to vacate the camp at the time of year when works are approved to occur. Council officers have told Departmental officers that some residents have left their homes and have been unable to sell them as a result of the smell, noise and concern about health risks from GHFF which have occupied their gardens and the exterior of their houses.
5. The East Gippsland Shire Council initiated discussions with the Department and the Victorian Department of Environment, Land, Water and Planning in September 2014 to develop options to enable them to proceed with the approved action. Officers from both Departments met with the Council and inspected the site on 23 October 2014.
6. Officers from the Department also inspected the substantial native revegetation which has been successfully established over many years on the opposite bank of the river which is well away from any residences. Officers of East Gippsland Shire Council and the Victorian Department of Environment, Land, Water and Planning confirmed that during periods of peak GHFF colony occupation, this native vegetation supports large numbers of GHFF, suggesting that the GHFF have a suitable place to relocate if dispersed and following vegetation removal in accordance with the approved action.
7. The Department has indicated to the East Gippsland Shire Council that, if it can provide evidence that specific poplar trees pose an immediate risk to the safety of people, the Council may remove such trees without the Department taking compliance action, so long as removal is managed in accordance with a management plan that protects the GHFF. The Department has asked that such emergency tree removal be detailed in a revised version of the Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan.
8. The Department proposed to the Council in January 2015 that condition 4 be varied to enable non-emergency dispersal of GHFF prior to vegetation removal so that hazardous tree removal and/or the approved action can be undertaken without GHFF in the vicinity of the tree felling work. Currently condition 4 only enables dispersal of GHFF **after** vegetation removal. The only current condition allowing GHFF dispersal prior to vegetation removal is condition 5 which is designed to address the circumstance of the GHFF colony relocating to a public facility such as a school.
9. On 25 March 2015 East Gippsland Shire Council confirmed in writing (**Attachment D**) its request to have condition 4 varied as discussed. The Department has advised the East Gippsland Shire Council that they will need to submit a revised Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan containing details of how it proposes to undertake non-emergency dispersal and hazardous tree removal. The Council has indicated that it is currently revising the approved plan and, if the proposed variation is approved, it will submit this plan to address the requirements of the varied condition.
10. The East Gippsland Shire Council is aware that it will also need to obtain authorisation under the *Victorian Wildlife Act 1975* to carry out works in the presence of GHFF and to disturb GHFF (**Attachment E**).
11. The Department recommends that you vary condition 4 attached to EPBC Approval 2009/5017 as shown in the attached proposed decision notice instrument (**Attachment A**).
12. Victoria and Tasmania Assessment Section has been consulted in the preparation of this brief. This advice emphasised the importance of ensuring that a management plan is in place that will ensure the GHFF are protected should their habitat be removed.
13. The Department has prepared the attached reply to the East Gippsland Shire Council for your signature (**Attachment B**).

14. The Minister has delegated you as decision maker for this matter pursuant to section 515(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

s22

A/Director
Post Approvals Section
Ph: 6275 **s22**
9 April 2015

Contact Officer: **s22**
Post Approvals Section
Ph: 02 6274 **s22**

Attachments

- A: Variation instrument for condition 4 attached to EPBC Approval 2009/5017 (**for signature**)
- B: Proposed letter to East Gippsland Shire Council advising East Gippsland Shire Council of your decision (**for signature**)
- C: Approval: East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017)
- D: Email to the Department from East Gippsland Shire Council dated 25 March 2015 requesting that you vary condition 4 for the Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria project (EPBC 2009/5017)
- E: Email to the East Gippsland Shire Council from the Victorian Department of Environment, Land, Water and Planning advising East Gippsland Shire Council of its requirement to obtain authorisation under the Victorian Wildlife Act 1975



VARIATION TO CONDITIONS ATTACHED TO APPROVAL

East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox (*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017).

This decision to vary conditions of approval is made under section 143 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Approved action

Person to whom the approval is granted	East Gippsland Shire Council ABN: 81 957 967 765
--	---

Approved action	To remove 0.5 hectares of poplar trees as part of the East Gippsland Shire Council poplar removal program which provide a 'summer camp' roost site for Grey-headed Flying-foxes (<i>Pteropus poliocephalus</i>) in Bairnsdale, Victoria [see EPBC Act referral 2009/5017].
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Variation

Variation of conditions of approval	The variation is: Delete condition 4 attached to the approval dated 11 April 2014 and substitute the condition specified below.
-------------------------------------	--

Date of effect	This variation has effect on the date the instrument is signed
----------------	--

Person authorised to make decision

Name and position	Shane Gaddes Assistant Secretary Compliance and Enforcement Branch
-------------------	--

Signature

Date of decision	10 April 2015
------------------	---------------

Condition attached to the approval

see over.

Condition attached to the approval

4. If the person taking the action proposes to undertake a **dispersal** then a management plan must be submitted for the **Minister's** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
 - g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.



Australian Government
Department of the Environment

Ms Kate Nelson
Director Planning and Community
East Gippsland Shire Council
PO Box 1618
Bairnsdale VIC 3875

Dear Ms Nelson

**East Gippsland Shire Council Poplar Removal Program – Grey-headed Flying-fox
(*Pteropus poliocephalus*) Summer Camp, Bairnsdale, Victoria (EPBC 2009/5017) -
Variation to condition 4 of approval**

I refer to your email of 25 March 2015 to the Department, requesting a variation to condition 4 of the Approval dated 11 April 2014.

As delegate of the Minister for the Environment I have decided to approve your request to vary condition 4 of the approval in accordance with the provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Condition 4 must now be undertaken in accordance with the attached variation notification. This will require the East Gippsland Shire Council to submit for approval a revised Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan. The East Gippsland Shire Council must not commence dispersal of Grey-headed Flying-fox in accordance with condition 4 until the revised Bairnsdale Grey-headed Flying-fox Roost Site Strategic Management Action Plan has been approved.

The variation of conditions of approval does not relieve the person to whom it has been granted from an obligation to comply with any other law of the Commonwealth, state or territory that is applicable to do the action and to have any right, title or interest that is required to access land or waters and to do the action. I understand that the Victorian Department of Environment, Land, Water and Planning has advised you of requirements under state law that must also be satisfied in order to implement condition 4 as now varied.

Please ensure that East Gippsland Shire Council maintains accurate records of all activities associated with, or relevant to the conditions of approval, so that they can be made available to the Department on request. Such documents may be subject to audit and used to verify compliance. Summaries of results of audits may be published by the Department. Information about the monitoring and audit program can be found on the Department's website at www.environment.gov.au/epbc/compliance/auditing.html.

You should note that any transfer of this approval to another person must have the consent of the Minister for the Environment under section 145B of the EPBC Act.

Should you require any further information please contact Mr s22 Assistant
Director, Post Approvals Section, on 02 6274 s22 or by email:
s22 @environment.gov.au.

Yours sincerely



Shane Gaddes
Assistant Secretary
Compliance and Enforcement Branch
10 April 2015

Att.

s22

From: Kate Nelson s22 >
Sent: Wednesday, 25 March 2015 4:07 PM
To: s22
Cc: s22 Ryan.Incoll@delwp.vic.gov.au;
s22 @depi.vic.gov.au
Subject: RE: Bairnsdale flying fox - progress with Commonwealth advice [SEC=UNCLASSIFIED]
Follow Up Flag: Follow up
Flag Status: Flagged
Categories: to file

Hi s22

Thanks for the opportunity to discuss your proposed amendments as set out below and for your subsequent clarification of my questions.

I would like to confirm that East Gippsland Shire would like to pursue amendment of the current conditions as you have proposed.

Please let me know if you require anything further to commence this process.

Thanks, Kate

■ **Kate Nelson** ■ *Director Planning and Community*

 Please consider the environment before printing this e-mail.

From: s22 @environment.gov.au]
Sent: Wednesday, 4 February 2015 12:57 PM
To: Kate Nelson
Cc: s22
Subject: FW: Bairnsdale flying fox - progress with Commonwealth advice [SEC=UNCLASSIFIED]

Hi Kate

Just checking if my proposal below is helpful or if there are any alternatives you seek, and if you would like me to organise a phone meeting.

Cheers

s22
Post Approvals Section

Phone: 02 6274 s22

From: s22
Sent: Friday, 23 January 2015 3:59 PM
To: 'Kate Nelson'
Cc: s22 'Ryan.Incoll@delwp.vic.gov.au'
Subject: RE: Bairnsdale flying fox - progress with Commonwealth advice [SEC=UNCLASSIFIED]

Hi Kate, Ryan and s22

Further to our meeting last year and subsequent communications, the variation I propose to EPBC 2009/5017 is as follows:

In condition 4 remove the phrase “following the **removal of habitat** at the **Mitchell River Roost Site**,” and the later word “**separate**”.

This would then allow a dispersal to take place which is not an ‘emergency’ dispersal, to facilitate vegetation removal. A management plan (largely based on the current approved one) would be required, which could, for example, detail a strategy for combined minor dispersal and gradual vegetation removal starting from the vicinity of the houses, so that, ideally, just the GHFF closest to the houses move, and they just cross the river. The revised plan could include proposed adaptive management responses so that action could be altered on the spot to deal with how the GHFF respond.

The revised condition would read:

4. If the person taking the action proposes to undertake a **dispersal** then a management plan must be submitted for the **Minister’s** approval. The management plan must be approved by the **Minister** prior to the commencement of **dispersal** activities. At a minimum, the plan must address:
 - a) Proposed methodology for **dispersal**;
 - b) Potential direct, indirect, cumulative and facilitative impacts to **Grey-headed Flying-fox** from the proposed **dispersal** activity;
 - c) The presence of pregnant **Grey-headed Flying-fox**;
 - d) The presence of **dependant young**;
 - e) A commitment that the **dispersal** will not be undertaken on a **Hot Day** or on or within two days of a **Heat Stress Event**;
 - f) Proposed avoidance and mitigation measures addressing potential impacts to **Grey-headed Flying-fox**, which must at a minimum include, **stop work triggers**; and
 - g) Monitoring and reporting protocols.

Condition 4 does not apply to an **emergency dispersal**.

Cheers

s22

Post Approvals Section

Phone: 02 6274 s22

From: s22
Sent: Thursday, 22 January 2015 11:32 AM
To: 'Ryan.Incoll@delwp.vic.gov.au'; 'Kate Nelson'
Cc: s22
Subject: RE: Bairnsdale flying fox - progress with Commonwealth advice [SEC=UNCLASSIFIED]

Hi s22 and Kate

I had hoped to have briefed the delegate by now, but other pressing cases keep pushing it back.

If nothing new blindsides me, I can come to you with a proposed variation tomorrow afternoon and get a brief to the delegate next Tuesday.

Cheers

s22

Post Approvals Section

Phone: 02 6274 s22

From: Ryan.Incoll@delwp.vic.gov.au [<mailto:Ryan.Incoll@delwp.vic.gov.au>]
Sent: Thursday, 22 January 2015 11:27 AM
To: 'Kate Nelson'; s22
Cc: s22
Subject: Bairnsdale flying fox - progress with Commonwealth advice

Hi s22 and Kate

Has there been any progress with advice from Commonwealth on variations to the current EPBC approval for works at the Bairnsdale Grey-headed Flying Fox camp?

We are keenly aware that if there is to be on-ground actions taken in April/May based on a variation to the approval, the planning for these actions would need to begin immediately. There may also need to be associated Victorian Government approvals.

regards

Ryan Incoll | Regional Manager Environment & Natural Resources | Gippsland

Regional Services | Department of Environment, Land, Water & Planning

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From: s22 <s22@environment.gov.au>
To: 'Kate Nelson' s22 <s22@environment.gov.au>,
Cc: "Ryan.Incoll@delwp.vic.gov.au" <Ryan.Incoll@delwp.vic.gov.au>, s22
s22
Date: 05/12/2014 07:29 PM
Subject: RE: Draft news release - flying fox update [SEC=UNCLASSIFIED]

Thanks, Kate.
I'll aim for very early January.

Cheers

s22
Post Approvals Section

Phone: 02 6274 s22

From: Kate Nelson [<mailto:s22@environment.gov.au>]

Sent: Friday, 5 December 2014 4:38 PM

To: s22

Cc: Ryan.Incoll@delwp.vic.gov.au; s22

Subject: RE: Draft news release - flying fox update [SEC=UNCLASSIFIED]

Thanks s22

If you are able to do something before Xmas that would be excellent, but probably not essential as I am unlikely to be in a position to do anything with it until early January in any case!

Thanks for the update. I will let s22 know what is going on.

Regards, Kate

■ **Kate Nelson** ■ *Acting Chief Executive Officer*

 Please consider the environment before printing this e-mail.

From: s22 @environment.gov.au]
Sent: Thursday, 4 December 2014 10:18 AM
To: Kate Nelson
Cc: Ryan.Incoll@depi.vic.gov.au; s22
Subject: RE: Draft news release - flying fox update [SEC=UNCLASSIFIED]

Hi Kate

I have a variation that should help in mind, but have been snowed for that last weeks with a lot of other urgent work including a massive FOI (unrelated).

I am hopeful of getting back to you with a proposed approach before Christmas but can't promise because I keep being blindsided by new urgent things.

We finally have some new staff joining the section, although they need a bit of induction before they can fully speed things up.

I read the new NSW policy and agree with your earlier email that it looks good (and very different from the news coverage surrounding it!). I haven't heard any more about release of the Commonwealth Camp Management document.

Cheers

s22
Post Approvals Section

Phone: 02 6274 s22

From: s22 @bigpond.net.au]
Sent: Wednesday, 3 December 2014 9:00 PM
To: 'Kate Nelson'
Cc: Ryan.Incoll@depi.vic.gov.au; s22 @depi.vic.gov.au
Subject: RE: Draft news release - flying fox update

Hi Kate

How are you, Ryan, and s22 going with the process of applying for a dispersal for next April in the case the GHFF don't leave for the winter?

s22
M: s22

-----Original Message-----

From: s22 @bigpond.net.au]
Sent: Friday, 7 November 2014 10:35 AM
To: 'Kate Nelson'; 'Ryan.Incoll@depi.vic.gov.au'; s22 @depi.vic.gov.au'
Subject: RE: Draft news release - flying fox update

Thanks Kate

I'm about to go out for the rest of the day.

I haven't change your document, but believe my quote should read something like this –

"We have been working with the agencies involved to explore legal options to allow work to proceed, but whilst there are no immediately accessible options to allow any relief at this time, we have requested the agencies work together to apply for an approved dispersal action to take place around next April" s22 said.

s22

s22

-----Original Message-----

From: Kate Nelson [<mailto:s22>]

Sent: Friday, 7 November 2014 10:22 AM

To: Ryan.Incoll@depi.vic.gov.au; s22 @depi.vic.gov.au

Subject: Draft news release - flying fox update

Hi Everyone

Here is the draft press release for your consideration and editing – if you would like to make changes can you do this a Mark Ups so that I can see what you are after?

If you can have a look for me asap, that would be appreciated.

We also have the photo and will put this with the release once finalised.

Regards, Kate Nelson

s22

From: s22 @delwp.vic.gov.au
Sent: Wednesday, 1 April 2015 4:31 PM
To: s22
Cc: s22 @egipps.vic.gov.au; Kate Nelson;
Ryan.Incoll@delwp.vic.gov.au; s22 @delwp.vic.gov.au;
s22 @delwp.vic.gov.au
Subject: Authorisation under Vic Wildlife Act for GHFF disturbance
Categories: to file

Hi s22 ,

As you are aware the EGSC would also require a authorisation under the Victorian Wildlife Act 1975 to carry out the vegetation removal at the flying-fox camp site when bats are present at the site.

The authorisation would be required to disturb the bats in preparation for the clearing works. The requirement to have a authorisation is about the flying-foxes not the vegetation or tree removal.

Following relevant section for your information.

Section 28A (1A) The Secretary may give written authorisation to a person to disturb wildlife or cause wildlife to be disturbed if the Secretary is satisfied that the authorisation is necessary—

(a) because the wildlife is damaging any building, vineyard, orchard, crop, tree, pasture, habitat or other property, owned, occupied or administered by the person to whom the authorisation is to be issued or property adjacent to or in proximity to such property; or

(b) to support a recognised wildlife management plan.

For purposes of 28A (1A) (b) we would consider a recognised wildlife management plan to be matters covering the flying-foxes in the Shires vegetation plan.

For an authorisation to be issued we would require an application covering (and not restricted to);

- Reason for the disturbance
- Triggers and decision making to commence the disturbance
- When will the disturbance be done
- Who is going to carry out the disturbance
- How will be the disturbance be done and what methods will be used
- What equipment will be used
- What area is the disturbance aimed at
- What will be the radius/distance from the planned works and disturbance site for bats to be excluded before works commence
- Information that welfare of the bats has been considered, covering possible injuries, heat stress or young bats
- Monitoring of the bats during works
- Information about media and community engagement and awareness
- Stop work triggers

Conditions of the authorisation will include and take into account the information provided. Some of the information has already been covered in the vegetation plan submitted to the Commonwealth.

It would be appropriate to highlight in your application that the application for disturbance is aimed at 'nudging' the bats further down or across the river rather than a dispersal aimed at driving the bats away altogether.

It may be appropriate to arrange a meeting to explain and clarify what we are after.

To help with planning and your decision making, static counts conducted late March estimate the population in Bairnsdale at just under 7000 and Maffra just over 1000. This indicates the population in both camps to be dropping. It is anyone guess if the bats leave this year or a number stay over winter like last year. This is why the triggers and deciding when the disturbance and works goes ahead is important.

We will continue to conduct monthly fly out counts and do static counts each fortnight.

Regards

s22 | Program Manager Resource Protection & Management

Environment & Natural Resources | Regional Services

Department of Environment, Land, Water & Planning

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