

For the attention of the Federal Government - Department of Agriculture, Water and the Environment:

I am writing on behalf of Kinglake Friends of the Forest Inc. Thank you for the opportunity to comment on the eligibility of *Petauroides volans* for inclusion on the EPBC Act threatened species list in the Endangered category and the necessary conservation actions.

1) Submission on the eligibility of *Petauroides volans* (Greater Glider (southern)) for inclusion on the EPBC Act threatened species list in the Endangered category;

2) the necessary conservation actions for the above species.

Summary

1. Eligibility.

The Great Glider (southern) is heading for extinction. This is indicated by the rate of population decline over recent decades, combined with the fact that most of the threatening processes contributing to this decline continue largely unabated while others are increasing.

The situation is further exacerbated by two factors:

Firstly, the Black Summer fires destroyed almost 30% of Australia's Greater Glider habitat. Secondly, what was thought to be one species, *Petauroides volans*, is now considered to be three, with the addition of *Petauroides volans minor* and *Petauroides armillatus*. Clearly each of these species is now far less numerous and therefore at risk of extinction than the original combined group.

2. Conservation measures

- Cease native forest logging including “salvage logging”
- Better controls on tree removal on private land and roadside reserves
- Avoid prescribed burning of Greater Glider habitat
- Urgent, strong action on climate

We wish to address the following sections.

Part 1 - Information to assist listing assessment

Section C

6. Pre-logging surveys within Victoria are not adequate. Both Wildlife of the Central Highlands (WOTCH) and Kinglake Friends of the Forest continue to record Greater Gliders where the department pre-logging surveys fail to do so. Post-logging surveys are not conducted, so there can be no accurate understanding of population sizes. Therefore, the overall survey effort is not adequate to determine the national adult population of the Greater Glider.

7. The way the population size has been derived is not appropriate. This may be because of the inherent priority of making forest available for the timber industry. Citizen science groups, such as WOTCH and Kinglake Friends of the Forest continually find these animals where the Department fails to do so.

8. No, we cannot provide further estimates of the current population size of mature adults of the species because landscape-scale studies of the species have not been conducted adequately by the Department. Therefore, any estimates of total population are conjecture.

Section D

9. There is insufficient data concerning overall decline currently. However, localised studies and studies by David Lindenmayer indicate that the populations are in catastrophic decline.

10. Over the period 1997–2010, the Greater Glider declined by an average of 8.8 percent per year (a rate that if extrapolated over the 22 year period relevant to this assessment is 87 percent) (Lindenmayer et al., 2011).

12. The rapid decline in numbers of Greater Gliders was broadly accepted by the scientific community even before the 2019/20 Black Summer fires.

The Greater Glider Action Statement No. 267 states:

In its final recommendation report (SAC 2017), the Flora and Fauna Guarantee Scientific Advisory Committee found that:

- *the Greater Glider is in a demonstrable state of decline likely to lead to extinction;*
- *the Greater Glider is significantly prone to future threats that are likely to lead to extinction; and*
- *the threats are operating and are expected to continue to operate in the future at a level likely to lead to extinction.*

As stated by Professor David Lindenmayer, a world leading expert in forest ecology and biodiversity conservation as well as one of the worlds most highly cited scientists:

"In the montane ash forests of the Victorian Central Highlands, Lindenmayer et al. (2011) reported a decline over a 12-year period in the proportion of 160 long-term monitoring sites known to be occupied by Greater Gliders, with annual decline of occupied sites averaging 8.8%."

Professor David Lindenmayer's submission on the private members bill related to the Regional Forest Agreements and the Environment Protection and Biodiversity Conservation Act states:

"For example, populations of leadbeater's possum and the greater glider have declined by 50% and 80% in the past 20 years."

Part 2 - Information for conservation advice on threats and conservation actions

Section G

20. We do not consider that all major threats have been identified and described adequately. The following have not been robust enough in their explanations and evidence of how the threat affects the Greater Glider.

Threat: Increased temperature intensity and frequency

There is no adequate inclusion of how increased temperatures affect the Greater Glider's ability to digest food. The Greater Glider is particularly prone to the effects of climate change according to Kara Youngentob, Australian National University, who presented at the Greater and Squirrel Glider Symposium - digital symposium, 28 October 2020. When temperatures rise above 20 degrees, the metabolic rate of Greater Gliders increases and their food intake decreases. This is because of diet-induced thermogenesis and the fact that detoxification of food is more difficult at increased temperatures. Decreased food intake can cause dehydration because they are dependent on leaves for most of their water intake. Consequently, fasting for more than one night can be fatal. Wagner et al (Ecosphere, in Press) observed that Greater Glider declines in Victoria were associated with night-time temperatures over 20 degrees. An additional factor is that logging exposes forests to more sun and makes them warmer and drier.

With climate change, nights are warming faster than daytime in Victoria with serious consequences for nocturnal animals. On a microclimate level, intact forests are cooler in temperature than areas which have been cleared.

Threat: Habitat clearing and fragmentation

We do not agree that the trend of this threat is decreasing. Currently there are 3500 hectares of forest logged by VicForests every year, reducing the amount of forest available for Greater Glider habitat. The continual logging at the same hectare rate is an increase in the remaining habitat logged every year.

The species is absent from cleared areas, and has little dispersal ability to move between fragments through cleared areas; low reproductive output and susceptibility to disturbance ensures low viability in small remnants. Roadside clearing in state forests have destroyed many hollow-bearing trees previously left on the perimeter of logging coupes (Gippsland Environment Group pers. comm., 2015).

Threat: Removal of hollow bearing trees

VicForests dangerous trees safety protocol is problematic. VicForests removes large hollow bearing/habitat trees before and after fire which is extremely destructive to the Greater Glider habitat. Furthermore, clearing "dangerous trees" inside coupes as well as on roads occurs frequently and this is not included as 'harvesting'. The removal of these trees and lack of inclusion in VicForests' data means there is a lack of substantiated scientific evidence to investigate how the removal of these trees affects the Greater Glider.

Populations of large hollow-bearing trees (HBTs) are in rapid decline in some landscapes (Lindenmayer et al. 2017), due to timber production practices and bushfires (Lunney 1987; Lindenmayer et al. 2018). A decline or loss of HBTs reduces the numbers of Greater Gliders in the landscape (Mclean et al. 2018). The decline in HBT's is a concern for the Greater Glider as the development of hollows in suitable tree species can take up to 200 years (Mackowski 1984).

21. The degree to which the identified threats are likely to impact on the species/subspecies in the future is catastrophic/severe. (THREATENED SPECIES SCIENTIFIC COMMITTEE, Conservation Advice

Petauroides volans, effective from 5.5.2016, Table page 3)

22. The threats will vary across the populations as the populations exist within different climates, ecosystems/forest types and are exposed to varying levels of human interference through processes such as logging and prescribed burning.

23. Salvage logging post bushfires is a major threat to the habitat of Greater Gliders.

This practice can set forest regeneration back by decades, and for about 40 years these areas of forest carry an increased risk of canopy burns (setting the regeneration back repeatedly) which the Greater Glider requires for feeding on the leaves within the canopy. According to Lindenmayer, some species of animal that miraculously escaped the fires, if they are not killed in the logging process, are unlikely to return to logged areas for up to 180 years, if ever. This severely reduces the available habitat for Greater Gliders to occupy.

An assessment of the federal government's threatened species database and maps of the timber release plan shows that this logging would affect habitat for more than 34 threatened species, one of those being the Greater Glider. This current threat will adversely affect the species for all stages of its life cycle as habitat is removed, reduced and compromised in its ability to effectively support Greater Gliders.

Section H

25. The current planning, management and recovery actions in place are insufficient for the protection and recovery of the Greater Glider for a number of reasons.

VicForests states the following:

Habitat loss disturbance and modifications

“Establish and maintain effective prescriptions in production forests to support subpopulations of the Greater Glider (southern). This includes but is not limited to: appropriate levels of habitat retention, logging exclusion and logging rotation cycles, maintenance of wildlife corridors between logged patches, protection of existing hollow-bearing trees with appropriate buffers, and adequate recruitment of hollow-bearing trees.”

The summary of the timber harvesting threat from the document states that:

The sensitivity of Greater Gliders to logging has been well documented, and prime habitat coincides largely with areas suitable for logging (Braithwaite 1984). The degree of impact depends on forest type and logging intensity, with larger declines in more heavily logged sites (Tyndale-Biscoe & Smith 1969b; Lunney 1987; Kavanagh et al. 1995; Kavanagh & Webb 1998; Kavanagh 2000; McLean et al. 2018). There is a progressive decline in numbers of hollow-bearing trees in some production forests, as logging rotations become shorter and as dead stags collapse (Ross 1999; Ball et al. 1999; Lindenmayer et al. 2011, 2012). Recovery of subpopulations following logging is slow. Subpopulations in south-east NSW had not recovered 8 years after logging in sites retaining 62%, 52% and 21% of the original tree basal area (Kavanagh & Webb 1998). However, Kavanagh (2000) found that, in production forests in south-east NSW, Greater Glider subpopulations could persist post-logging if 40% of the original tree basal area was retained, provided (adjoining) riparian vegetation was also protected. In the regrowth Mountain Ash forests of Vic, Greater Gliders were absent post-logging until the forests were >38 years old (Macfarlane 1988).

It is assumed that if at least 40% basal area of Eucalypts is left across a logged coupe containing Greater Gliders, the population will survive. This is based on one study in NSW and it seems risky to extrapolate to Victorian conditions. It is not actually reflective of what is happening here, as Victoria has different forests. NSW does not have Mountain Ash.

We are concerned about VicForests ability to fulfil their own prescriptions to ensure that logging can and does support southern Greater Glider populations. Large hollow bearing trees are consistently removed, along roadsides and within coupes deemed 'dangerous' to forestry operations and these are not included in their harvesting data. It has also been found that regeneration burns often escape the boundaries and destroy wildlife corridors between logged patches, 'habitat islands' and trees retained for habitat. There are often no habitat corridors left and the islands are fragmented and consist of trees that are completely unsuitable for habitat as they are much too young and lack hollows.

We do not believe that through this prescription, they are able to ensure the viability of the population and we know that they are in ongoing decline, and require an uplisting to Endangered.

Furthermore the Conservation Regulator has been completely ineffective in holding VicForests to account with this prescription. Please refer to the attached breach reports from Kinglake Friends of the Forest concerning VicForests' failure to retain at least 40% of the basal area across coupes where Greater Gliders had been detected. Neither report was acted upon nor did the group submitting the report receive a satisfactory response. There are many similar examples.

26. We make the following recommendations for the survival of the species.

a. Cease all native forest logging in Victoria with immediate effect and transition to plantation timber. Until this is in place, the Conservation Regulator needs to fulfil its responsibility to regulate VicForests' activities to ensure that laws and prescriptions are strictly adhered to. Where breaches are detected there should be real consequences for VicForests. These actions occur in publicly-owned forest and the public should be apprised of breaches and what consequences have followed. When members of the public or community groups submit breach reports, these should be genuinely investigated.

b. Enact stricter controls to prevent the destruction of Greater Glider habitat on private property and roadside reserves.

c. Avoid prescribed burning in Greater Glider habitat that is not adjacent to human habitation.

d. Take stronger and more urgent action on climate change and preserve our forests for carbon sinks

27. We do not recommend translocation as we do not believe the animals would be likely to survive. There is no evidence to show that translocation is likely to be successful.

According to the DELWP website, [Managing Wildlife](#) :

"While the removal of wildlife to a new location is often suggested as an alternative to destruction, this approach can rarely be successfully applied. For example, a Deakin University study has shown that the translocation of possums to new territory is usually fatal to the animal."

If this is true for the opportunistic and adaptable Brushtail Possum, the Greater Glider is unlikely to fare any better.

Section I

28. No

29. Yes. Personal communication has indicated that they are animal totems to First Nations clans such as the Wurundjeri and Taungurung.

30. There are various community forest protection groups with expertise and robust knowledge which should and could be utilised to inform future management and recovery strategies for the species. eg. Kinglake Friends of the Forest Inc., Friends of Leadbeater's Possum Inc. Nillumbik Friends of the Great Forest, Wildlife of the Central Highlands Inc., Rubicon Forest Protection Group, Warburton Environment Inc., Goongerah Environment Centre.

32. Awareness of Greater Gliders is limited to those who take an interest in the natural world or who are directly attempting to conserve the species. As a result of logging, our forests have become less accessible and less appealing to tourists as the roads have become more dangerous to travel upon due to log trucks. The beauty of the scenery has been reduced because of large, ugly logged areas which are still bare or struggling to regenerate.

When people are introduced to the Greater Glider, for example at a Kinglake Friends of the Forests spotlight night, they are invariably enchanted. Lack of awareness is purely the result of lack of exposure. With wider public awareness, the Greater Glider has the potential to be as beloved as the koala. The interest of the wider populations is increased through such experiences.

a. Yes there are areas of habitat which are particularly important to the community.

A few examples include:

1. The following Toolangi coupes: Updownies, Sundownies, Lowdownies and Longdownies coupes where there have been 49 Greater Gliders detected. Updownies was temporarily protected by a court injunction in the WOTCH case, however this injunction lapsed before judgement. Various community groups and members have been actively opposing the logging.

2. Rubicon State Forest - Murrindindi Shire council motion to protect several coupes on top of Dry Creek Hill road where a high density of Greater Gliders have been detected. This was the result of community actions such as surveying and council engagement.

3. Mt. Robertson State Forest where the community signed a petition to retain the forest for Greater Gliders protection.

4. Narbethong State Forest - coupes of particular interest Mozambique 309-507-0014 Malawi 309-507-0013 where high densities of Greater Gliders were detected.

Part 3 - Any other information

33. Logging preferences areas of forest which seem to be prime Greater Glider habitat. Native forest logging and the survival of Greater Gliders as a species are in direct competition with one another. This is particularly true for Kinglake, parts of which were severely burnt in the 2009 Black Saturday bushfires.

We need as many preserved areas as possible due to such a loss of habitat. The time it takes for burnt forests to recover and regenerate actually exceeds the time frame within which these forests are recurrently harvested. The cycle doesn't allow for mature mixed species forest to recuperate or the Greater Glider to survive such drastic alterations to its habitat.