Inquiry into Ecosystem Decline in Victoria

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Introduction and background

I am a Professor of ecology and conservation science working at The Australian National University. I am widely regarded as one of the world's leading scientist in these fields and have been recognized for the quality of research and monitoring expertise through numerous national and international awards, election to the Australian Academy of Science, Fellow of the Ecological Society of America, and Officer of the Order of Australia (AO).

I have a very strong connection to the environments in Victoria, having worked in the wet forests of the Central Highlands of Victoria since July 1983 and the woodlands of central and northern Victoria since 2002. I have published more than 220 peer-reviewed scientific articles and more than 10 peer-reviewed scholarly books on the forest and woodland ecosystems of Victoria and the biodiversity that such ecosystems support. The Victorian Government funds my research team to conduct strategically important research in forests in various parts of the State (and has done so since the year 2000). My research team also works in close collaboration with Catchment Management Authorities in the northern part of Victoria.

My submission to the inquiry on Ecosystem Decline in Victoria is based on my long experience in high-level research and monitoring in the State over the past four decades. My submission is made in relation to the terms of reference for the Inquiry as set out on https://www.parliament.vic.gov.au/epc-lc/inquiries/article/4452.

Submission in response to terms of reference

(a) the extent of the decline of Victoria's biodiversity and the likely impact on people, particularly First Peoples, and ecosystems, if more is not done to address this, including consideration of climate change impacts;

I have been responsible for a long-term monitoring program for forest biodiversity in the wet ash-type eucalypt forests of the Central Highlands of Victoria for the past 37 years. This work receives funding from the Victorian Government. Data from the monitoring program have been subject to repeated empirical analyses on key trend patterns. These analyses have highlighted major declines in biodiversity and ecosystem condition in Victoria's Mountain Ash and Alpine Ash forests. The key findings from this work are that:

- All species of arboreal marsupials have declined significantly in the past 20 years [10].

- Levels of site occupancy in the Critically Endangered Leadbeater's Possum have declined by 50% in the past two decades [10, 19].

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- Levels of site occupancy in the vulnerable greater Glider have declined by 80% in the past two decades [10, 19].

- Almost half the species of native birds monitored in Mountain Ash and Alpine Ash forests have declined significantly in the past 20 years [19].

- Populations of hollow-bearing trees that are critical keystone structures in Mountain Ash and Alpine Ash forests have declined significantly in the past 20 years [10, 13, 19].

- The extent of old growth forest in Mountain Ash and Alpine Ash forests has declined significantly in the past 25 years [20].

- The Mountain Ash ecosystem has been formally classified as being Critically Endangered under the IUCN Red Listed ecosystem assessment process [6].

The drivers of decline in Victoria's Mountain Ash forests are clear. They are recurrent wildfire, widespread logging, post-fire salvage logging, climate change, and interactions between all of these drivers [17]. The planned additional logging under the timber release plan will not only further fragment these forests [27], but will take place in areas of high conservation value for Victoria's 70 species of threatened forest-dependent species [25], thereby further threatening the medium to long-term viability of populations.

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(b) the adequacy of the legislative framework protecting Victoria's environment, including grasslands, forests and the marine and coastal environment, and native species;

The current legislative framework for protecting Victoria's environment is inadequate and remains somewhat unresponsive to key scientific insights and peer-reviewed scientific information. For example, it is clear that Regional Forest Agreements have failed to adequately protect biodiversity (given major declines in a vast number of species, including many species of conservation concern, such as Leadbeater's Possum and the Greater Glider) [11]. Conversely, ongoing logging as mandated under Timber Release Plans [e.g. 31] will only increase levels of threats to biodiversity because logging operations will take place in forests that have high conservation value for threatened forest-dependent species [25]. From a scientific perspective, it appears inappropriate to continue logging in the Mountain Ash ecosystem which is classified as Critically Endangered [6].

Poor governance and regulation around forest logging

Other aspects of Victoria's governance of environmental laws are highly problematic. For example, VicForests has repeated broken forest management laws by logging areas on steep slopes and cutting extensive areas that were supposed to be Code Exclusion areas. Indeed, our latest analyses indicate that 75% of all logging coupes in the Upper Goulburn catchment had areas that exceeded 30 degrees in slope [26]. These areas should have been, by default, automatically excluded from timber harvesting. In addition, 72% of logging coupes in this special water supply catchment had Code Exclusion areas that should have been excluded from harvesting but were logged (Taylor and Lindenmayer, in review). It appears that the Office of the Conservation Regulator has, inexplicably, no power to proactively regulate VicForests so that steep slopes and Code Exclusion zones are exempt from logging prior to

harvesting operations taking place. That is, they have no preventative powers and can only highlight breaches after they have occurred. This is highly ineffective and demonstrates that there are major reforms needed to the OCR's regulatory powers. The fact that community groups have repeatedly and successfully won court cases against VicForests highlights the major systemic problems and extraordinary levels of inefficiency within existing regulatory frameworks. For example, it would be very straightforward for DELWP to use its own Digital Elevation Models to map those areas of forest that are above 30 degrees in slope (which by law must not be logged) to ensure that VicForests is aware of which areas must not be included in Timber Release Plans. With the availability and ease of use of such datasets in the year 2020, it is nonsensical that such pre-planning not take place on the part of both the OCR and VicForests.

Poor governance and regulation around protection of high conservation value forests

On related matters, it is also straightforward for DELWP to use its own Species Distribution Models to map areas of High Conservation Value forest that are critical habitats for threatened species dependent fauna [e.g. see 25]. It is entirely inappropriate for VicForests to be logging these areas and further threatening many species of conservation concern. Better legal and regulatory processes are needed to prevent VicForests from logging these areas. It is straightforward for DELWP and VicForests to produce these kinds of maps and ensure that High Conservation Value forests do not appear on any Timber Release Plans (just as forests on steep slopes should never appear as loggable areas on Timber Release Plans).

Poor levels of protection of old growth forest

A further issue of considerable concern in an environmental protection context is the arbitrary nature of old growth classification in Victoria. Recent analyses indicate that Victoria has lost 564,588 ha or ~ 79% of its old growth (across a range of Ecological Vegetation Class (EVC) groups) since 1995 [20]. A total of 11,164 ha of old growth has been logged since 1995. A 2009 review by the Victorian Government of the 12,145 ha that had been burned to some degree in the 2007 and 2009 fires removed 11,518 ha from old growth classification and protection. This included 1564 ha which had been only very lightly burned and that still contained large old hollow habitat trees [20] – a key structural attribute of old growth forest [16]. In 2013, the definition of "old growth" was narrowed by the Victorian Government from forest older than 150 years to forest older than 250 years, thus allowing logging of indisputably old forest [2]. Many Australian mammals such as the Greater Glider, Yellow-bellied Glider and Leadbeater's Possum use hollows typically found in trees about 170 years old and older [14]. The change in classification will have major negative effects on these threatened species [10].

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(c) the adequacy and effectiveness of government programs and funding protecting and restoring Victoria's ecosystems;

Some agencies within the Victorian Government are adept at ignoring scientific evidence. VicForests and OCR are prime examples. For example, the CEO of VicForests has stated publicly that science on post-fire (salvage) logging from The Australian National University is "opinion" and not empirical evidence (letter can be provided on request). This is despite the fact that the work is based on detailed field-based studies conducted in Victoria [e.g. 3-5,

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18]. There are also major global studies showing the substantial negative impacts of salvage logging on biodiversity and key ecological processes [e.g. 9, 29]. This calls into question the underlying philosophy of evidence-based policy and evidence-based management on the part of agencies such as VicForests. This problem has been borne out by rulings such as those by Justice Mortimer regarding logging impacts on threatened species. It would appear that a culture change is required within agencies such as VicForests to rectify the failure to adhere to the principles of evidence-based policy and evidence-based management. Similarly, it is clear from work on reserve adequacy undertaken by Victorian Government scientists [30], and corroborated by independent scientists [24], that a major increase is needed in the size of the protected area estate to ensure the conservation of some high-profile threatened forest-dependent species. Government responses to that science have been less than adequate to date and are, again, not consistent with the principles of evidence-based policy and evidence-based management.

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(d) legislative, policy, program, governance and funding solutions to facilitate ecosystem and species protection, restoration and recovery in Victoria, in the context of climate change impacts;

There is no doubt that the climate change is having major impacts on forest condition and biodiversity in Victoria. For example, there is evidence of a link between extreme temperatures and rainfall deficits and elevated tree death in the State – for example in the wet forests of the Central Highlands of Victoria [15]. There are also well established links between climate change and major ecosystem processes such as wildfire [8]. It is clear that large areas of wood production forest are now being burned in wildfires, sometimes on a repeated basis [21]. For example, ~ 30% of forest that was planned for logging in the next 5 years under the current Timber Release Plan was burned in 2019-2020. In East Gippsland, ~ 60% of planned areas for cutting under the Timber Release Plan was burned in 2019-2020. What occurs when large parts of the areas planned for logging burn is that the remaining "green" areas are cut instead, to maintain the mandated sustained yield of timber. These remaining areas should be off limits as alternative areas for logging, as they have increased value for biodiversity because they escaped previous fire, and especially because so much old growth forest has been lost state-wide in the past 25 years [20]. Without efforts to substantially reduce the amount of logging across Victoria in the coming 5-9 years, the impacts of disturbance on biodiversity and ecosystem condition will be even more significant than it already is, and more prolonged [20]. A related issue is that ongoing logging increases the risk of high-severity, crown-burn fires [28]. There is compelling evidence that logging increases such risks [21, 22], including from evidence in papers by pro-forestry advocates [1]. In fact, the work by pro-forestry advocates [1] shows the same logging-fire relationships as found by Taylor et al 2014 [28].

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(e) opportunities to restore Victoria's environment while upholding First Peoples' connection to country, and increasing and diversifying employment opportunities in Victoria; and

Many Victorian forest ecosystems are in need of restoration programs [12]. These include protection of more areas to grow them through to an old growth stage [20] and to control of pest species such as Sambar Deer that appear to be widespread in some forest ecosystems [7,

23]. There are valuable opportunities for First Nations people to be involved in key restoration activities such as: **(1)** implementing protective burning practices to reduce fire severity and, in turn, increase the extent of old growth forest (even though burning should not be directly applied in some wet forests – i.e. burning is conducted might be applied in adjacent areas), **(2)** replanting forests in areas where there has been regeneration failure after logging, and **(3)** controlling populations of feral herbivores such as deer that may impair forest growth.

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(f) any other related matters.

The marked decline in biodiversity, in the extent of old growth forest, and other attributes of forest condition (e.g. populations of large old trees) highlights major problems in the legislative framework for the protection of, and on-the-ground management of, forests in Victoria. These problems are reflected in successful legal prosecutions against VicForests, very low levels of community support for ongoing native forest logging, poor regulation by the OCR, and substantial conflicts between the aims of some government initiatives (like those for biodiversity conservation versus maintenance of subsidies for ongoing logging). There are clear opportunities for Victoria to benefit economically, socially and environmentally from better policies for forest and biodiversity conservation, including a rapid transition to a plantation-only industry. I have made extensive submissions to the Victorian Government about these opportunities and I would be delighted to provide a copy of those documents to the Inquiry on Ecosystem Decline in Victoria.

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