Additional Information from Professor David Lindenmayer in response to a question from Mrs McArthur

21 March 2021

Inquiry into Ecosystem Decline in Victoria

Question Mrs McArthur

So what about the other over 90 per cent of the forest? What are we doing wrong there that we are not protecting the ecosystems and the native species.

Answer from Professor Lindenmayer

Thankyou for the question. As made quite clear in my testimony, logging has significant negative impacts on forest biodiversity. Where logging occurs it conflicts with biodiversity conservation because logging (under the current Timber Release Plan) is concentrated in places which have high value for Victoria's 70 threatened forest-dependent vertebrates (Taylor and Lindenmayer 2019). Logging is heavily fragmenting some forest types, especially those dominated by Mountain Ash and Alpine Ash in the Central Highlands of Victoria where 70% of all of Victoria's logging is concentrated (Taylor and Lindenmayer 2020). Logging also leads to elevated fire severity (Taylor et al. 2014, Lindenmayer et al. 2020b), with fires then having major negative impacts on forest biodiversity (Lindenmayer et al. 2013, Lindenmayer et al. 2019, Lindenmayer et al. 2020a). Logging also has major negative impacts on forest structure such as the abundance of large old hollow-bearing trees (Lindenmayer et al. 2018a, Lindenmayer et al. 2018b) – which in turn impacts the loss of forest biodiversity (Lindenmayer and Sato 2018, Lindenmayer et al. 2020a). Logging is also changing the composition of the forest in ways that make landscapes unsuitable foraging environments for animals such as the Koala and Greater Glider (Au et al. 2019).

Outside of wood production forests, there is an array of factors influencing Victoria's ecosystems and the State's biodiversity. These include the direct effects of climate change (such as through extreme temperatures) (Steffen et al. 2009), altered fire regimes (which are also influenced by climate change and logging) (Boer et al. 2020) (Lindenmayer and Taylor 2020b), the loss of old growth forest (which is also driven by climate change, fire and logging) (Lindenmayer and Taylor 2020a), and the impacts of feral animals (Woinarski et al. 2015). How these drivers of decline manifest will vary between ecosystems and species

(Lindenmayer and Burgman 2005). Therefore actions to halt decline and facilitate recovery also will vary between ecosystems, species and types of threats (Lindenmayer and Burgman 2005).

It is quite clear that Victoria (and Australia generally) does not spend nearly enough to secure its biodiversity (Wintle et al. 2019). Current estimates are that spending is one-tenth of what it needs to be to arrest species declines and extinctions (Wintle et al. 2019). There are good models to leverage high value from government investments to achieve very positive outcomes for the environment and for biodiversity in Victoria. An excellent example is the Threatened Species Hub – currently funded by the Australian Government – but which will, sadly, be terminated at the end of 2021. Through partnerships between government and universities (and other entities), good science-based management, and evidence-based policy will help better secure the biodiversity of Victoria and lead to more ecologically effective and more cost-effective outcomes. The ability to do this is demonstrated in the USA where appropriate legislation and associated management interventions, appropriate levels of funding and logistical support, coupled with targeted monitoring, lead to many species being secured and often then downlisted on threatened species lists (see (Wintle et al. 2019)). If Victoria adopted this approach, it would be a world leader in ecosystem and species conservation.

In summary, and in answer to your question, logging is a key driver of species decline in wood production forests. The evidence to demonstrate this is strong and compelling. Outside of wood production forests, there is a range of drivers of decline. Often how these drivers manifest will be species specific and ecosystem specific. That is why it is often best to develop targeted responses to arrest decline and facilitate species recovery. This is most ecologically effective and cost effective management actions are those supported by good science, appropriate funding, and robust monitoring. There is ample evidence to show that this approach leads to successful conservation outcomes (Garnett et al. 2018).

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