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INSTITUTE OF ADVANCED STUDIES

CENTRE FOR RESOURCE AND ENVIRONMENTAL STUDIES [Bldg 43]

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20 May 2007

Re: Fire Submission

To whom it may concern,

I have been asked to write a short submission on fires in the Victorian forests. My submission is based on 24 years of experience working as a forest ecologist in the Victorian forests, in particular, the montane ash forests of the Central Highlands of Victoria. I have written over 150 peer-reviewed scientific articles and 6 books on these ecosystems including one that particularly focused on fire dynamics in the Central Highlands ash forests – *Wildlife, Fire and Future Climate* (CSIRO Publishing, Melbourne, 2002). I am currently finishing another textbook on post-fire forest management that will be submitted to the publisher in 4 weeks time (Island Press, Washington D.C., 2008). In addition, we have major fire studies now well underway in the Jervis Bay region of coastal New South Wales and at Tumut in southern New South Wales. My experience of fire and fire management in these areas has been used to further inform the basis for this submission.

Please do not hesitate to contact for further details regarding my submission or for access to supporting publications and books.

Yours Sincerely,

Professor David Lindenmayer, BSc, Dip. Ed., Ph.D, DSc.

Re: Fire Submission – Professor David Lindenmayer

I have been asked to write a short submission on fires in the Victorian forests. My submission is based on 24 years of experience working as a forest ecologist in the Victorian forests, in particularly the montane ash forests of the Central Highlands of Victoria. I have written over 150 peer-reviewed scientific articles and 6 books on these ecosystems including one that *particularly focused on fire dynamics in the Central Highlands ash forests – Wildlife*, Fire and Future Climate (CSIRO Publishing, 2002). I am currently finishing another textbook on post-fire (salvage) forest management that will be submitted to the publisher in 4 weeks time (Island Press, 2008).

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I have observed the extensive for clearing to make a "fire break" along the Yarra Track (Woods Point) road. I am fully aware of plans to extend the "fire break" throughout the Central Highlands forests in the coming years. I fully understand the need to undertake pre-emptive fire suppression actions. However, there is a need to proceed with the forest "fire break" approach with considerable caution – if it is to proceed at all. I raise this concern for several key reasons.

1. I am not convinced that the fire behaviour in ash-type forests means that the cleared area is actually a fire break at all. The bark streamers of ash forest means that these stands of "spot" well ahead of a typical fire front. Even if spotting did not occur, the height of ash-type trees also means that any given tree with a burning canopy could, if it collapsed, fall across the fire break, and readily set alight stands on the opposite side of the "fire break".
2. Several resource management staff have indicated to me that the linear cleared areas are in fact not fire breaks at all. Rather, they are to function as strategic points from which to conduct back burns. I can understand this logic in drier mixed species forests, but not in ash-type forests which are NEVER prescribed burned because they only natural fires in these vegetation types are major stand replacing or partial stand-replacing conflagrations. Indeed, attempts at back burning have the potential to bring a fire front immediately to the "fire break" and hence potentially endanger the lives of fire fighters. On this basis, my suggestion would be that if the "fire break" project were to continue, it should be focused on dry mixed species forests where back-burning is a practical and safe option.
3. The planned route for the extended "fire break" is through a large number of areas where I have established long-term monitoring sites throughout the Central Highlands of Victoria. These sites have a 24-year history of high quality data collection and are critical to assisting Parks Victoria, DSE and Vic. Forests determine how to best manage forest and biodiversity resources. Indeed, these sites are pivotal to attempts by the Victorian Government to claim they are managing forests resources in an ecologically sustainable way. Notably, Parks Victoria staff (in particular Glenn Mawson) made particular efforts to ensure that forest clearing to establish the "fire break" limited the damage to the monitoring sites, but nevertheless a number of important sites were lost prior to him taking over a senior management role for the "fire break" project. Within DSE lands where timber harvesting is broadly designated, there is an agreed 600 m buffer on all monitoring sites (sites are now recorded using high precision GPS and captured in state government GIS databases). Similar

provision would need to be made in catchment areas, if further clearing was to be undertaken to continue the "fire break" project in the water catchment areas.

4. The proposed "fire break" route will have potentially significant negative effects on threatened species such as Leadbeater's Possum (*Gymnobelidues leadbeateri*). The species is dependent on high levels of connectivity of the understory and overstorey layers of ash-type forests (Lindenmayer, 1996). This is strongly linked with the way the species moves in ash-type forests. The fire break project would, by default, disrupt this connectivity (as the attempt is to provide a mechanism to break fire connectivity patterns). In essence, this corresponds to a breach of the EPBC Act and the Flora and Fauna Guarantee Act. Notably, these same concerns were raised in the ill-fated ash-roading project (Department of Sustainability and Environment, 1989) when the environmental consequences of major road widening operations where recognized and subsequently largely abandoned. On this basis, if the "fire break" were to pass through ash-type forests, the habitat requirements of Leadbeater's Possum would need to be carefully mapped and clearing exemptions applied to ensure that impacts on this endangered species are negated.
5. It is well known from the hydrological literature that roads are major point sources of sediment in Melbourne's closed catchments (O'Shaughnessy and Jayasuriya. 1991). Efforts to establish a major "fire break" through the catchments need to carefully consider both the environmental impacts on water quality and the potential costs of additional treatments that might be required to maintain water quality at an appropriate level.
6. Finally, I believe there is a significant case for a careful economic analysis of trade-offs and opportunity costs associated with the "fire break" project. Establishing several hundred km of wide "roads" as a "fire break" though water catchments comes at a significant cost to the taxpayer. The costs of the maintenance of such a "fire break" are similarly non-trivial. I believe that it is appropriate for the agencies responsible for forest and fire management to conduct a set of trade-off analyses to determine what other management options might be conducted for the same level of expenditure that will take place to establish and maintain a major set of "fire breaks". It may be that a "fire break" is the most cost-effective strategy (but it will need to have a wide range of environmental caveats placed on it – as outlined above). Conversely, it may be that more cost-effective and better asset protection may be generated from other options that could be implemented for the same investment required for a "fire break".

Lindenmayer, D.B. 1996. Wildlife and woodchips: Leadbeater's Possum as a testcase of sustainable forestry. University of New South Wales Press, Sydney.

O'Shaughnessy, P., and J. Jayasuriya. 1991. pp. 341-363 in Managing the ash-type forest for water production in Victoria. Forest Management in Australia. F. H. McKinnell, E. R. Hopkins and J. E. D. Fox. (editors). Surrey Beatty and Sons, Chipping Norton.

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Professor David Lindenmayer, BSc, Dip. Ed., Ph.D, DSc.