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Comments on the Draft National Recovery Plan for Leadbeater's Possum

May 2016

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The Interdisciplinary Conservation Science Research Group is a team of academic researchers based within the School of Global, Urban and Social Studies at RMIT University. Our research focuses on understanding the interaction between society and our environment. We recognise that managing biodiversity demands a multidisciplinary approach that reconciles ecological, social and economic concerns.

COMMENTS

We commend the efforts directed toward conserving Leadbeater's Possum, and the Draft National Recovery Plan is a great improvement on those of the past. We do, however, offer suggestions that we believe should be included in the Recovery Plan in order to have a reasonable chance to save the Leadbeater's Possum.

1. **All existing large old and hollow bearing trees must be protected:** The most critical action to conserve Leadbeater's Possum is affording protection to all existing large old and hollow bearing trees.¹ The need for this is crucial and has not been identified in Recovery Plan. Without this element, the Recovery Plan will lack credibility.

Recommendation: The Recovery Plan must explicitly state the need for all large old and hollow-bearing trees to be protected, on both public and private land.

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2. **All protected trees must be buffered with uncut forest:** As well as protecting all large old and hollow bearing trees, all protected trees need to be buffered with uncut forest.² This also is crucial for securing the future of Leadbeater's Possum, and must be included in the Recovery Plan. The first principle of restoration ecology is to protect what you already have.³

Recommendation: The Recovery Plan should explicitly state that all large old and hollow-bearing trees will be protected with a minimum buffer of 100 metres of unlogged forest.

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¹ Lindenmayer, D. B., D. Blair, L. McBurney, and S. Banks. 2013a. New Restoration Forest Management Prescriptions to Conserve Leadbeater's Possum and Rebuild the Cover of Ecologically Mature Forest in the Central Highlands of Victoria. Fenner School of Environment and Society, The Australian National University Canberra; Lindenmayer, D. B., D. Blair, L. McBurney, S. C. Banks, J. A. R. Stein, R. J. Hobbs, G. E. Likens, and J. F. Franklin. 2013b. Principles and practices for biodiversity conservation and restoration forestry: a 30 year case study on the Victorian montane ash forests and the critically endangered Leadbeater's Possum. *Australian Zoologist* **36**:441-460.; Lindenmayer, D. B., D. Blair, L. McBurney, and S. Banks. 2015b. *Ashes to ash: Recovery after Wildfire*. CSIRO Publishing Melbourne.

² Ibid

³ Lamb, D. 2011. *Regreening the bare hills: Tropical forest regeneration in the Asia-Pacific region*. Springer, Dordrecht, The Netherlands.

- 3. Complex logging and fire relationships must be managed:** The two greatest impacts on the habitat of Leadbeater's possum (and thus on its future) are logging and fire. However, the relationship between these threats has not been sufficiently recognized and accounted for in the Draft Recovery Plan. Rather than the potential impacts of logging and fire being mutually exclusive, logging actually increases the impact of fire on the remaining forest, thereby disproportionately increasing the risk posed to Leadbeater's possum.⁴ This inherently threatens the health of the entire forest and habitat for the Leadbeater's possum.

Recommendation: The Recovery Plan needs to acknowledge that as a result of logging, future fires will have far more significantly negative impacts on Leadbeater's Possum than fires of the past. One resolution to this issue is to significantly expand extent of the old growth forest estate by 30-50%.⁵

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- 4. Old growth forest must be protected and expanded to secure long-term habitat for Leadbeater's possum:** The relationship between old growth forest and the viability of saving Leadbeater's possum is clear.⁶ Increasing the extent of the montane forest is paramount to its long-term persistence, and thus also to ensuring habitat for Leadbeater's possum. To help achieve this:
- All old growth forest should be protected and extended through time;
 - The 1939 age cohort of forest must be protected to ensure age class diversity and future habitat possibilities for Leadbeater's possum; and
 - Younger forest areas should be designated and managed to secure future habitat and long-term viability of the Leadbeater's Possum.

Recommendation: The Recovery Plan needs to provide specific targets and actions to significantly expand old growth forest to ensure that a minimum 30% of the montane ash forest is protected.

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⁴ Taylor, C., M. A. McCarthy, and D. B. Lindenmayer. 2014b. Nonlinear effects of stand age on fire severity. *Conservation Letters* 7:355-370.

⁵ Lindenmayer et al. 2013a, above n1; Lindenmayer et al. 2013b, above n1.

⁶ Lindenmayer et al. 1991. The conservation of arboreal marsupials in the montane ash forests of the Central Highlands of Victoria, south-eastern Australia. III. The habitat requirements of Leadbeaters Possum *Gymnobelideus leadbeateri* and models of the diversity and abundance of arboreal marsupials. *Biological Conservation* 56:295-315.

5. The significance of the diverse values of the montane ash forest must be recognised: The Recovery Plan needs to expand further on the economic and other values of protected parks and forests, including:

- The detailed work on the economic value of water production from montane ash forest (which has been estimated to be 19 times the value of the timber). There is a range of reports on water values that can be included.
- The health and well-being benefits to society that the forests and parks provide.
- An assessment of a number of eco-tourism companies based on wildlife viewing that are now operating in the Central Highlands region.
- The Premier's Office in Victoria has provided information on the Regional Domestic Product generated by tourism in the Yarra Valley region. This is determined to be \$10 billion annually.

Recommendation: The Recovery Plan needs to include a broader and more thorough assessment of the ecological, social and economic benefits provided by the montane ash forest in the Central Highlands of Victoria.

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6. A thorough economic and accounting appraisal highlighting all costs and benefits must be included in the Recovery Plan: The recovery plan outlines a range of management actions proposed for improving the conservation of Leadbeater's Possum. It is notable that the costs exceed more than \$30 million. However, the costs of ongoing logging (e.g. on water production, tourism, carbon storage etc.) has not been examined. These costs ought to be evaluated to inform whether ongoing logging provides the best use of this resource. It would also be appropriate to re-evaluate the priorities under the recovery actions and focus on the ones that provide greatest cost-benefit and those most likely to succeed.

Recommendation: A full appraisal of the economic costs of logging ought to be conducted to understand whether ongoing logging is a reasonable use of the resource. Recovery action priorities should be re-assessed to ensure that funds are directed toward actions that provide the greatest cost-benefit and which are most likely to succeed.

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7. Research and Monitoring must be improved to better inform on-ground management: The Recovery Plan must better draw on previous monitoring and research to inform on-ground management. The Plan must also clearly articulate how best to undertake future monitoring. Currently, the draft Recovery Plan does not clearly outline the goals of the proposed monitoring program, what will be measured, how it will be measured, or what would indicate success. A successful monitoring program must identify appropriate variables to represent the change of interest and specify the degree of change that needs to be detected to indicate success.⁷

Recommendation: The Recovery Plan should incorporate previous research with a clearly defined systematic and on-going monitoring program that can be used to inform contemporary on-ground management.

⁷ Field, S. A., O'Connor, P. J., Tyre, A. J., Possingham, H. P., 2007. Making monitoring meaningful. *Austral Ecology* 32 (5), 485–491.