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Wildlife Conservation in the South-east Forests of New South Wales

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SUMMARY. The aim of this paper is to review existing information on wildlife conservation within the South-east Forests Region of NSW and on the effects of logging and associated practices on conservation values of these forests, and to then make recommendations based on this review. We consider land systems, forest types, plant communities, plant associations and individual animal species. We do not, however, consider individual plant species.

Our conclusions and recommendations are as follows:

1. Logging of forests brings about essentially permanent changes in the distributions and abundances of their plants and animals and destroys any wilderness value of the forests. There should therefore be reservation of some areas essentially free from the effects of logging and associated practices.
2. Present National Parks and other Reserves are essentially unlogged or unaffected by other unnatural disturbance (i.e., are essentially undisturbed) and have generally low timber value because of their rugged topography. These existing reserves should therefore form the basis of a reserve system in the South-east Forests Region. Additions to the reserve system should come from the region's State Forests as they contain almost all remaining undisturbed forest.
3. Five of the region's ten land systems, as defined by Keith & Sanders (1988, 1990), are inadequately conserved (i.e., Rainshadow Valley, Western Flat Country, Tableland, Granitic Hinterland, Escarpment). We expect the same should be true for the forest types (*sensu* Forestry Commission of NSW, 1989a), plant communities (*sensu* Keith & Sanders, 1988, 1990) and plant associations (*sensu* NSW National Parks and Wildlife Service, 1986a) associated with these land systems.
4. A number of animal species are rare or endangered within the region and are therefore of concern. These include 15 mammal, two bird and one fish species. Also of concern are the region's 18 microchiropteran bat species as their distributions are very poorly known and they are likely to be adversely affected by logging. The region has been inadequately surveyed for all animal groups.
5. The reasonably large Coolangubra Wilderness area is not totally included in the present reserve system.
6. The conservation values of each of the region's State Forests were assessed in terms of extent of undisturbed forest, presence of areas of poorly conserved land systems, wilderness area,

records of animal species of concern, potential to join with or link other reserve areas, and presence of areas of high predicted arboreal marsupial density. Based on these criteria, the Coolangubra Wilderness area and adjoining parts of Coolangubra State Forest have the highest conservation value.

7. We recommend that the Coolangubra Wilderness and State Forest be added to the reserve system. This would result in the reservation of the last remaining unreserved undisturbed area of poorly-conserved Western Flat Country, significant areas of Escarpment and Granitic Hinterland, which are also inadequately conserved, and an area containing many animal species of concern and high densities of arboreal mammals.
8. We also recommend reservation of:
   a) the last remaining unreserved undisturbed areas of the poorly conserved Tableland land system within Tantawangalo and Glenbog State Forest;
   b) additional undisturbed areas of the Escarpment Land System from within Murrabrine, Glenbog, Bemboka, and Tantawangalo State Forests, and
   c) all unreserved undisturbed areas of the Rainshadow Valley land system and any areas of this very poorly conserved and largely cleared land system that could be rehabilitated.

   Recommendations 8b and 8c will require further survey before appropriate areas can be identified.
9. The existing forestry practices in the region will in many respects, help to conserve wildlife. We have, however, identified the following deficiencies:
   a) the existing filter strips (20 m wide on either side of gullies with catchments exceeding 50 ha) and, to a lesser extent, the wildlife corridors (100 m or more wide along watercourses or gullies and connecting neighbouring catchments) will be inadequate for the long-term survival of species which require large home ranges such as the Yellow-bellied Glider and Powerful Owl. We recommend that these areas be expanded and/ or extended in areas where such species occur;
   b) results of the logging research program in the Waratah Creek Flora Reserve are not yet available, even though the initial logging was carried out in 1984. We recommend that high priority be given to the presentation and publication of results to date; and
   c) the present burning regime in the region's State Forests is overly simplistic in design and will result in fires that are too frequent, at too low an intensity and at the wrong season for some wildlife. We recommend that the burning regime be modified to ensure a reasonably high diversity of fire histories across forest areas, that many areas experience fire at ten to 25 year intervals rather than four to seven years, and that many areas experience hot, summer fires (or their equivalent, in terms of effects on the biota, if this can be established). We also recommend that controlled burning be used as a management tool to promote the long-term survival of rare or endangered species.
10. Conservation of fauna on private property poses a problem as important habitat is continuing to be cleared for both pulpwood and sawlogs. We therefore recommend that:
   a) communication be encouraged between private land-holders and the various individuals, groups and institutions interested in wildlife conservation;
   b) private landholders be encouraged to conserve wildlife values;
   c) with the agreement of land-holders, wildlife surveys of private forest be carried out, and
   d) private forest of high conservation value be protected from unnatural disturbance.
11. There is a great need for more wildlife-related research in the region and in general. We have identified the following subjects as being in particular need of study:
   a) relationships between written forestry practices and what actually happens in terms of retention of trees and other vegetation in logged forest and in terms of timing, intensity and extent of fires;
   b) effects of logging and burning on plants and animals, especially those that require tree hollows (e.g., arboreal marsupials, owls, microchiropteran bats) and those that are rare or endangered;
   c) population biologies of rare and endangered species, and
   d) distributions and abundances of species throughout the region.
12. Current estimates of future timber yields from the region's State Forests are based on assumptions that are overly simplistic and not well substantiated. In order to ensure that approximately constant timber yields will be available in perpetuity, it is essential that a comprehensive and accurate computer model of forest growth and harvest be developed. Such a model would also assist in the consideration of alternative short and medium term strategies for timber harvest.

13. Most of the remaining undisturbed forest in the region's state forests is of high conservation value. Alternatives to logging these areas should therefore be fully explored and any increases in availability of timber should be used to enable additional undisturbed forest areas to be added to the reserve system. Any logging of the remaining undisturbed forest should be postponed as long as possible; if it occurs it should begin in areas of lowest conservation value.
14. Alternative strategies to logging the remaining undisturbed forest, such as those proposed by the South-east Forest Alliance, have not been adequately considered. We recommend a comprehensive and detailed evaluation of the range of alternatives along the lines of the current Resource Assessment Commission's Inquiry into Australia's Forest and Timber Resources.
15. Documentation of past land-use decisions (e.g., State Forest versus National Park) and their justifications is poor while that for land-management decisions (e.g., control burning regime) is reasonable. There is also little opportunity for interested parties to comment on land-use and land-management proposals. We therefore recommend the establishment of improved procedures for the preparation of supporting documentation in association with proposals for National parks, Flora Reserves and National Estate Listing, for soliciting and evaluating comments from interested parties on these proposals, and for comparison and combination of competing proposals. Advisory Councils, with appropriate expertise and representatives from a variety of interests, could make well-considered recommendations to the State and Federal Governments concerning the operations of the Forestry Commission and other Government Bodies.

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Introduction

Land management within the South-east Forest Region of New South Wales has been the subject of considerable discussion and dispute since the beginning of pulp logging in 1969 (e.g., Lunney & Moon, 1987) Plans have been made for the logging of the remaining unlogged State Forest of the region (Harris-Daishowa (Australia), 1986a; Forestry Commission of NSW, 1988a, appendix 2). Such logging is seen by the timber industry as necessary to maintain jobs (Harris-Daishowa (Australia), 1986a; Forestry Commission of NSW, 1988a, appendix 2). On the other hand, high intensity logging of an area affects wildlife and completely destroys its wilderness quality (Recher *et al.*, 1980; Wilderness Working Group, 1986; McIlroy, 1978; Harris-Daishowa (Australia), 1986a). It has been argued that the present system of protected areas such as National Parks leaves many species, plant communities, vegetation associations and land systems poorly conserved (Recher *et al.*, 1980, National Parks & Wildlife Service of NSW, 1986a, 1987; Keith & Sanders, 1988, 1990). Consequently a number of proposals have been made for preserving areas of present State Forest in new National Parks (Total Environment Centre, 1985a,b, 1986; National Parks & Wildlife Service of NSW, 1986a; Broadbent, 1987; South-East Forest Alliance, 1988). Much disagreement remains amongst interested parties (Pryor, 1989; South-East Forest Alliance, 1989; Forestry Commission of NSW, 1990).

The aim of this review is to summarise existing information on wildlife and wilderness conservation within the South-east Forest Region and on the effects of forestry practices on conservation values and to make recommendations to Government based on this review. Both State and Federal Governments, who, between them, will decide the future of these forests, recognise a need for such a review (Joint Scientific Committee, 1989, 1990). Australian Museum staff have been involved in research and wildlife management issues within this region since 1969 (e.g., Recher, Clark & Milledge, 1975; Recher, 1976; Recher *et al.*, 1980).

In this review we shall consider land systems, plant communities, forest types, vegetation associations, and individual animal species, but not individual plant species. For discussion regarding individual plant species see (Binns, 1988; Keith & Sanders, 1990; Joint Scientific Committee, 1989, 1990).

For scientific names of animal species see Tables 3 to 7 (Appendices 5 to 9).

Description of South-east Forest Region

The South-east Forest Region is roughly the same as the Eden Woodchip Agreement Area (National Parks & Wildlife Service of NSW, 1987). The region extends from near Bermagui in the north to the Victoria border in the south and from the coast to near Bombala in the west. The total area involved is approximately 630,000 ha and encompasses the Eden Native Forest Management Area (290,000ha) (Forestry Commission of NSW, 1988a, appendix 2). About 39% of the area is freehold and has been largely cleared for farming. The remaining area consists mostly of National Parks and Nature Reserves (63,123 ha), Flora Reserves and Forest Preserves (14,447 ha), State Forest excluding Flora Reserves and Forest Preserves (262,734 ha) (referred to from now on as simply "State Forest") and vacant Crown Land (about 19,200 ha).

Within the State Forest about 71,190 ha are reserved from logging under the Preferred Management Priority System in addition to Flora Reserves and Forest Preserves (e.g., wildlife corridors, areas that are too steep or rocky for logging). As of July 1986 about 174,295 ha were available for both pulpwood and sawlog production of which about 70,000 ha had already been logged. Most of the rest of the State Forest has either been subject to relatively light selective logging over a period of about 150 years or has never been logged (e.g., Lunney & Moon, 1989). Consequently, as of January 1990, there remain approximately 100,000 ha of forest that is essentially unlogged and is scheduled for integrated logging. It is this forest that has been