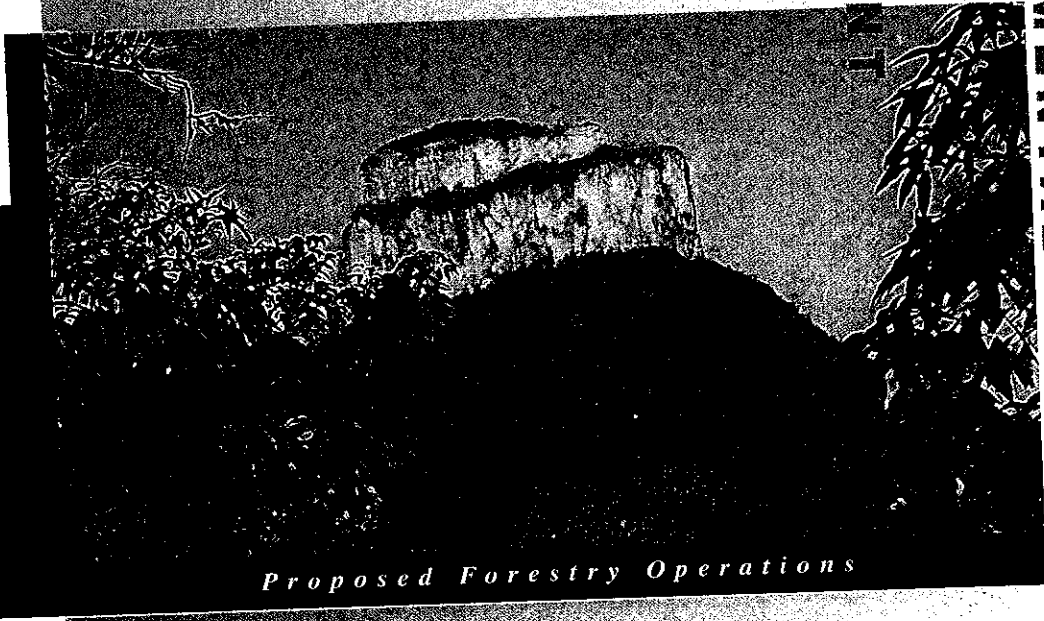


**ENVIRONMENTAL
IMPACT
STATEMENT**



Proposed Forestry Operations

MAIN REPORT volume

A

State Forests of NSW
December 1995

Proposed forestry operations
in the Urbenville Management Area

Volume A

Environmental
Impact Statement

MAIN REPORT

Cover photograph: Mount Lindesay from
Bellbird Rest Area in Mount Lindesay State Forest

Photograph by Phil O'Shea, SFNSW

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11. Fauna

11.1. Introduction

A specialist fauna investigation was undertaken by Austeco (1994) for this EIS. That investigation is summarised in this chapter. The full report is contained in Supporting Document 4 of the EIS. For each fauna group this document details the survey methods that were undertaken, the fauna communities and habitats that were found, some analysis of fauna guilds and their resource requirements, a discussion of species conservation significance, and proposals for impact assessment and mitigation. The report includes annotated species lists that show species habitat and habitat components, conservation status, and distribution within the UMA.

In addition, a Fauna Impact Statement (FIS) was prepared by Australian Museum Business Services (1995). The FIS is included in the EIS as Volume D. This document provides an overview of the habitats of the UMA, reviews the fauna surveys undertaken for the EIS and their results, discusses the proposed activities and their impacts on the management area, and outlines the conservation strategy and monitoring/research program. It includes annotated species lists of fauna showing presence/absence of fauna in the management area and fauna guilds. The pertinent results have been included in this chapter.

11.1.1. Review of past and present work

A chronology of previous fauna surveys in the UMA is detailed in Supporting Document 4. Past studies covered all major faunal taxa, however they tended to be highly localised, restricted to a specific forest type or focused on a limited range of special interest species. Information provided by these studies was useful for compiling species lists but had little value for habitat description and impact assessment. In addition, the areas sampled were not representative of the full range of habitats and tenures found in the region and few fauna records had sufficient latent value for analysis of habitat and land use associations.

11.1.2. Biogeography

The UMA lies within the zone of overlap of two major biogeographic regions which, coupled with contrasting geological, physiographic and climatic factors, has contributed to the ecological and environmental diversity of the area. The fauna is predominantly Torresian (north eastern or subtropical) with an intrusion of Bassian (south eastern) faunal elements. Distinct environmental gradients, topographic barriers and edaphic changes give rise to a mosaic of habitat types and associated faunal communities (many of which are at or near their geographic distributional limits in the area).

The overlap of two biogeographic regions, and the diverse and complex range of plant and animal communities, results in the area's significant conservation values. Bassian faunal elements, in the higher elevation areas to the west, intrude into a predominantly Torresian (subtropical) region and provide important links with the drier vegetation and faunal communities of the New England and Western Slopes. Regionally significant examples of subtropical and dry rainforest occur in the McPherson and Richmond Ranges, Acacia Plateau and Unumgar and Beury State

growth forest provides, such as tree hollows and large log cover, advanced understorey development and infrequent fire (Smith *et al.*, 1994).

11.1.3.2. Fauna of regrowth habitats

A similar suite of animals was found to inhabit regrowth forests as in old growth forests. Most fauna survey plots were located in regrowth forests. The apparent similarity in the suites of animals in regrowth and unharvested forests is probably due to the proximate intermixure of regrowth and unharvested areas, the retention of old growth habitat resources within harvested areas, or to regrowth forests providing adequate foraging habitat.

11.1.4. Methods of fauna description

Fauna study

The method applied to the fauna study is fully described in Supporting Document 4. In general, the study included:

- Biological survey. This involved quantitative, standardised measurement of fauna distribution and abundance in different natural and cultural (wood production) environments.
- Literature review and consultation with experts. This involved reviews of impacts in similar landscapes elsewhere in Australia, autecological studies of endangered species that also occur in the UMA, impact models previously developed elsewhere in Australia, and consultation with relevant experts. Review of previous fauna surveys in the region and endangered species records were used to supplement the biological fauna survey in order to compile a comprehensive species list for the State forests of the UMA.
- Environmental survey. This involved quantitative measurement of natural and cultural environmental variables.
- Predictive modelling. This involved analysis of associations between faunal distributions and abundance, and natural and cultural environmental variables leading to the formulation of predictive models. Predictive models were used to estimate the likely magnitude of changes in species biodiversity under alternative management practices in each of the major habitat types, to the extent possible within constraints imposed by the survey design.
- Monitoring and review. This involved identifying priorities for further research and monitoring to test and monitor predictions and improve understanding where present knowledge is inadequate.

The field survey sites (Map 11-1) were selected to incorporate a range of broad vegetation types, past and present silvicultural practices, time since harvesting, and harvesting intensities.

11.1.5. Conservation significance of the UMA

Special features of the fauna of the UMA include:

- high biodiversity at the State and national levels;

- high diversity of rare and endangered species;
- the occurrence of populations of many species at, or close to, their geographic range limits;
- regional stronghold for an exceptional number of rare and endangered species and species of concern including:
 - the Southern Angle-headed Dragon (*Hypsiturus spinipes*), formerly considered to be an obligate rainforest species (see Smith *et al.*, 1989), but was found at Urbenville in harvested and unharvested moist hardwood forests
 - Marbled Frogmouth, Alberts Lyrebird (*Menura alberti*), Wompoo (*Philomphus magnificus*) and Rose-crowned Fruit Doves (*P. regina*)
 - the Koala (*Phascolarctos cinereus*) (detected in more sites than for other forest management areas in north eastern New South Wales) (Smith *et al.*, 1992, 1993; Supporting Document 4)
 - the Rufous Bettong (found in a higher percentage of sites than in other forest management areas in New South Wales (Smith *et al.*, 1992, 1993; Supporting Document 4)
 - the Yellow-bellied Glider (found at a higher percentage of sites than in other forest management areas including Grafton and Casino (Smith *et al.*, 1992, 1993; Supporting Document 4)
 - the *Phyllorhina* species including the Mountain Frog (*Phyllorhina kundagunganii*), which has a limited distribution in north east New South Wales and south east Queensland, and Loveridge's Frog (*Phyllorhina loveridgei*) and possibly a new undescribed species of *Phyllorhina*
 - populations of the Common Ringtail Possum in the region are of interest because they are relatively abundant and morphologically distinct from southern populations. Further taxonomic study may reveal the Urbenville form to be related to the Bunya Mountain subspecies (*Pseudacricetus peregrinus pulcher*) which has a rufous coloration;
 - locally significant examples of unharvested high quality moist hardwood forest habitat on Dome Mountain within the recently notified boundary of the proposed Toonambar National Park, including Duck Creek catchment, and parts of Toonambar State Forest; and
 - locally significant examples of rainforest (wet and dry) habitat in Richmond and Macpherson Ranges, Acacia Plateau, and Uhumgar and Beauty State Forests (Smith *et al.*, 1989).

11.1.6. National parks and conservation reserves

One of the Key principles of forest management in the UMA is the conservation and management of fauna habitats in a regional context, so that reserved areas in State

forests complement those in national parks and other conservation reserves (Map 3-1: Conservation Resource). This is essential for the effective long-term conservation of flora and fauna over broad landscape areas.

A number of World Heritage national parks and nature reserves are located within or bordering the UMA. These conservation areas are spatially linked with the State forests of the UMA to form broad tracts of forested land which can be managed in an integrated manner for fauna conservation.

National parks and nature reserves of relevance to the UMA include Main Range National Park, Mt Barney National Park, Mt Chinghee National Park, Border Ranges National Park, Lamington National Park, and Limpinwood Nature Reserve. Descriptions of these national parks are provided by DASET (1992) in the World Heritage Nomination proposal.

The vegetation of Main Ranges National Park includes cool subtropical rainforest, tall open forest, woodland, tall shrubland and rock outcrops. Mt Barney also has a significant area of cool subtropical rainforest and the largest single stand of *Nothofagus* rainforest in the region, as well as tall open eucalypt forests and montane heath shrublands. Mt Chinghee National Park, Border Ranges National Park, Lamington National Park and Limpinwood Nature Reserve form a contiguous conservation reserve along the Border Ranges. Vegetation cover is dominated by warm subtropical rainforest, with gallery fringe rainforests along lower elevation watercourses. Cool subtropical rainforest occurs at elevations above 800 m, and dry hoop pine rainforest at lower elevations. At mid to low altitudes extensive tall open forests of brush box occur, often with a well developed mid-stratum of subtropical rainforest. Other tall open forest communities include Sydney blue gum, tallwood and flooded gum, all widespread within the conservation areas. Above 600 m altitude wet sclerophyll forests of New England blackbutt occur with an understory gradient from closed mid-storey rainforest to sclerophyll shrubs. A number of shrub dominated communities occur on exposed rocky knolls and cliff lines, including montane heathlands.

These national parks and reserves have a rich and diverse fauna. The distribution of fauna groups within the parks is shown in Tables 11-4 to 11-13. It can be seen from these tables that the national parks and reserves form a conservation resource for many species that have a patchy distribution or are uncommon on State forests, and are a distribution strong-hold for many rare species.

These national parks have a diversity of frog species second only to that of the Wet Tropics of Queensland World Heritage Area, with 45 species recorded representing 25 per cent of the total frog fauna of Australia (two of the four families and 11 of the 25 genera of frogs). The areas contain 110 of the 140 species of snakes and lizards occurring on the east coast of Australia. They have among the most diverse avifauna of any area in Australia, with more than 270 species in 175 genera and 71 families recorded - about 38 per cent of Australia's bird species. The parks also have one of the most diverse mammal faunas in Australia, with a total of 75 species, or 30 per cent of Australia's terrestrial mammals recorded. A diverse array of invertebrates also occur, many endemic to the region. (DASET 1992).

Approximate areas of the national parks that comprise this conservation resource are listed in Table 11-2 and comprise 50,790 ha in Queensland and 46,975 ha in New South Wales.

Table 11-2: National park areas (ha) of conservation significance to the UMA

State	National Park	Area (ha)
Queensland	Springbrook	2,480
	Lamington	20,500
	Mt. Chinghee	1,100
	Mt. Barney	9,710
	Main Range	11,500
	Mt. Mistake	5,500
New South Wales	Border Ranges	31,508
	Mt. Warning	2,380
	Nightcap	4,945
	Boonoo Boonoo	2,692
	Bald Rock	5,450
Total		97,765

11.2. Description

11.2.1. Mammals

For descriptive purposes mammal fauna has been subdivided into a series of 'guilds'. A guild is defined as a group of fauna of similar habitat substrate, or habit. The guilds in this section are:

- non-flying mammals
 - arboreal mammals : possums and gliders
 - kangaroos and wallabies : grazer/browser
 - dasyurids, bandicoots, rodents, echidna and potoroo
 - carnivores
 - scansorial insectivores
 - ground insectivores
 - soil insectivores
 - aquatic rodents
 - terrestrial rodents
- bats
 - insectivores
 - frugivores

The guilds generally follow those described in the EIS Fauna Report (Supporting Document 4) and Fauna Impact Statement (EIS volume D).

