



## Pines are far from a biological desert

A significant number of native birds and other animal species live in or near pine plantations, which support a higher diversity of native species, than most areas of cleared agricultural land.

Remnant native vegetation left within pine plantations is most important for these species. State Forests recognises this and retains these areas for sustainable management.

### Studies

A study led by Dr David Lindenmayer, a forest ecologist with the Centre for Resource and Environmental Studies at the Australian National University, known as the Tumut Fragmentation Experiment, began in 1995, found that of the 214 species of bird recorded in the Tumut area, 110 are sighted in pine plantations, and nine of the 31 native mammals recorded are also found in the pine plantations.

The study found significantly more native bird species than expected in plantations, including the grey-shrike thrush, bassian thrush, rufous whistler, scarlet and flame robin.

Similar results were recorded by surveys in the State Forests' Bathurst management area, where about 50 per cent of all bird species recorded were within or closely associated with pine plantations; 12 species of birds in the area have been observed nesting within plantations.



*White-fronted chat and her young, Ettamogah Forest. Photo by Peter Merritt.*

A six-year study conducted by Klomp and Costello from Charles Sturt University and Fletcher Challenge Paper (now Norske Skog) at Ettamogah Forest, just north of Albury, also revealed that pine plantations are capable of supporting many wildlife species and actually attract new species of wildlife.

The study recorded 22 species of mammals, including three arboreal (tree dwelling) and nine bat species, 183 species of birds, 14 reptiles and 14 frogs in the area.

One of the most exciting finds was the presence of the pied heron, a native of Darwin, that has never before been sighted in NSW.

This study also revealed 50 per

cent more bird species in pine plantations than cleared pasture.

### Established on already cleared farmland

During the past 20 or more years, almost all pine plantations have been established on already cleared farmland.

State Forests and most private establishment companies moved towards purchasing cleared farmland for plantation establishment in the 1980s and more recently to partnerships with farmers.

This has allowed strategically located remnant native vegetation to be protected and regenerated through a reduction in grazing pressure.

Across the State, State Forests has left approximately 32,200 hectares (15 per cent) of native vegetation within its 210,000 hectares of softwood plantation.

Pine plantations increase the biodiversity value of retained/remnant patches of native vegetation.

Lindenmayer's study has shown that patches of native vegetation surrounded by pine plantations have more species and greater biodiversity values than patches of native vegetation surrounded by pasture.

The results of his ongoing study of 166 sites in State Forests and National Parks in the Tumut region show the value of areas of native vegetation left in pine plantations for biodiversity conservation.

Lindenmayer's study has found that pine plantations combined with remnant areas of native vegetation act as an important reserve system for animals such as wombats, eastern grey kangaroos, red-necked and swamp wallabies, possums and echidnas as they move from one area to the next.

Results from this project, show that in remnant areas of three hectares or more, there is a 50 per cent probability of finding an arboreal animal, while in areas exceeding 20 hectares there is an 80 per cent probability.

In particular, the survey noted that native vegetation in gully areas, if maintained or restored, is likely to make a significant contribution to conserving biodiversity.

### Future direction of biodiversity studies

Since the later part of 1999, the Tumut Fragmentation Experiment has focussed on remnant vegetation in and around pasture country and the State Forests' pine plantations recently established on cleared grazing land at 'Nanangroe' near



Greater glider, Tumut Fragmentation Study.

Adjungbilly north of Tumut.

Results of intensive surveys to date show more than 100 bird species and a range of small mammals, possums and reptiles, occurring in patches of remnant native vegetation.

Bird species recorded included woodland birds such as the restless flycatcher and the brown treecreeper, and rarer species like the brown goshawk and masked owl.

These patches of remnant native vegetation will be monitored to evaluate changes in the biodiversity, as the pastures surrounding them are replaced with newly established plantations.

The local community has also played an important part in the study by providing 50 native vegetation survey sites on neighbouring private property. These sites will remain surrounded by pasture and will be retained to evaluate any changes in their biodiversity.

The Tumut Fragmentation study will be an important source of

information for future plantation design as increasing areas of pastureland are converted to pine plantation.

### Further reading

- ▶ Friend G R (1980), 'Wildlife conservation and softwood forestry in Australia: some considerations'. *Australian Forestry*, vol. 43, no. 4, pp. 217-224.
- ▶ Friend G R (1982), 'Mammal populations in exotic pine plantations and indigenous eucalypt forests in Gippsland, Victoria'. *Australian Forestry*, vol, no. 1, pp. 3-18.

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