

## Birds in a Pine Plantation at Armidale, New South Wales

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During ecological studies on the Little Eagle *Hieraaetus morphnoides* (in prep.), I was able to keep a record through 1980 of the bird species occurring in Armidale State Forest. Armidale S.F. (30°30'S., 151°40'E.) is on the Northern Tablelands of New South Wales. The forest is 250 ha of mainly *Pinus radiata*, of various ages. The forest is long and narrow, about 2.5 km along its east-west axis. It has an irregular boundary and is divided into three discrete blocks separated by streams, cleared land and exotic deciduous trees.

The eastern (E) block is a uniform, thinned stand of mature (46-52 year-old) pines, with little ground cover except for prunings and occasional Blackberry *Rubus vulgaris* bushes, and is grazed mainly by sheep. The central (C) block is on the crest and southern face of a low hill. It contains mature (45-50 years-old) pines with a dense regrowth of saplings in many places, plus scattered Blackberry bushes, and is grazed mainly by cattle. The western (W) block contains mainly 55-60 years-old *P. radiata*, with some small plots of other *Pinus* species and exotic deciduous trees of the same age, and 48 year-old *P. radiata*. Many of the older pines are senescent and there is little ground cover. There is a dense belt of young pines (about 10-15 years old) along the northern edge of this block (see Map Figure 1).

The forest is actively managed for timber production, and during the observation period many old trees were being culled and some of the sapling regrowth was being thinned and pruned. The country surrounding the plantation is a patchwork of cleared land and eucalypt woodland (some affected by dieback disease).

Observations were made mainly in spring and summer, especially in December 1980 and early January 1981. No attempt was made to census

species in a regular manner, so only a subjective impression of abundance was obtained. Most observing was done in C block, and E block was travelled through more often than W block. Coverage was therefore not systematic and some species were missed, particularly in W block.

### SYSTEMATIC LIST

Unless otherwise stated, the following species were common in the pine forest and used its resources. "B" denotes breeding, based on active nests or dependent fledglings.

#### Rufous Night Heron *Nycticorax caledonicus*

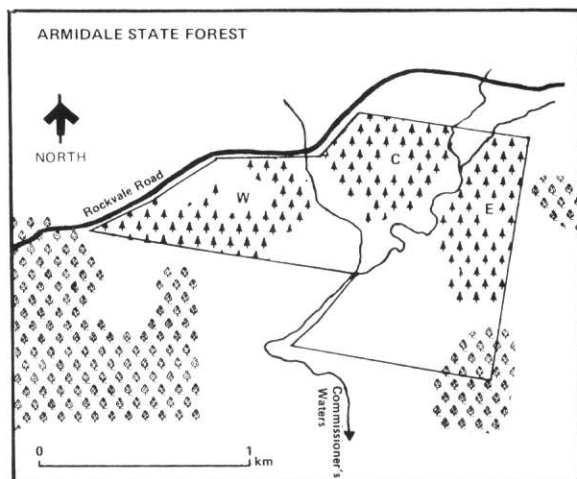
One flushed once from its roost in a pine beside a stream.

#### Brown Goshawk *Accipiter fasciatus*

B. One pair nested successfully in a pine in C block; at least one other pair frequented the plantation.

#### Collared Sparrowhawk *A. cirrhocephalus*

One record of a single bird, December 1980.



• Figure 1. Map of Armidale State Forest showing locations of Blocks W, C and E.

**Little Eagle** *Hieraaetus morphnoides*

B. One pair nested successfully in a pine in C block, and hunted mainly over the plantation.

**Peaceful Dove** *Geopelia placida*

Mainly in C block; seemed more numerous in the plantation than elsewhere in the district.

**Australian King-Parrot** *Alisterus scapularis*

A small flock passed through the plantation in August 1980.

**Eastern Rosella** *Platycercus eximius*

Common, mainly E block and edges of others.

**Red-rumped Parrot** *Psephotus haematonotus*

Common, mainly E block, especially near the edge.

**Brush Cuckoo** *Cuculus variolosus*

In the district it only occurred in C block of the plantation, where it was common and probably bred, judging from frequent excited calling by both sexes. First noted 19 October 1980.

**Fan-tailed Cuckoo** *C. pyrrhophanus*

One record for C block, December 1980.

**Shining Bronze-Cuckoo** *Chrysococcyx lucidus*

Occasional single birds in C block.

**Channel-billed Cuckoo** *Scythrops novaehollandiae*

Heard more frequently around the plantation, W block, than elsewhere in the district.

**Laughing Kookaburra** *Dacelo novaeguineae*

Common, all blocks. Observed to try (unsuccessfully) to excavate nest cavities in pines. Evidently resident pairs or groups, which defended territories in the forest.

**Rainbow Bee-eater** *Merops ornatus*

Present in numbers on passage in spring.

**Black-faced Cuckoo-shrike** *Coracina novaehollandiae*

Occasional in the forest generally.

**White-winged Triller** *Lalage sueurii*

Common, especially E block. Probably bred.

**Rose Robin** *Petroica rosea*

Single bird in C block (?), late in 1980 (P. Metcalfe pers. comm.).

**Flame Robin** *P. phoenicea*

Common, mainly E block.

**Red-capped Robin** *P. goodenovii*

Single bird December 1980, during a general influx of the species into the district late in 1980.

**Eastern Yellow Robin** *Eopsaltria australis*

B. Common, especially C block.

**Crested Shrike-tit** *Falcunculus frontatus*

Small numbers; foraged on the bark of pines in C block, deep in the plantation some distance from eucalypts.

**Golden Whistler** *Pachycephala pectoralis*

Occasional in C block.

**Rufous Whistler** *P. rufiventris*

Common, all blocks.

**Grey Shrike-thrush** *Colluricincla harmonica*

B. Common, all blocks.

**Jacky Winter** *Microeca leucophaea*

Common, edge of E block.

**Leaden Flycatcher** *Myiagra rubecula*

Occasional in C block, summer.

**Grey Fantail** *Rhipidura fuliginosa*

Common, especially C block.

**Willie Wagtail** *R. leucophrys*

Common, mainly E block.

**Superb Fairy-wren** *Malurus cyaneus*

Common, especially C block.

**White-browed Scrub-Wren** *Sericornis frontalis*

In rank low vegetation and flood debris along the stream separating C and W blocks (near the edge of the pines).

**Speckled Warbler** *S. sagittatus*

Frequently present in small numbers, C block.

**Brown Thornbill** *Acanthiza pusilla*

Small numbers, C block.

**Buff-rumped Thornbill** *A. reguloides*

Small numbers, E block.

**Yellow-rumped Thornbill** *A. chrysorrhoa*

Common, E block and open areas.

**Yellow Thornbill** *A. nana*

Small numbers, E block.

**White-throated Treecreeper** *Climacteris leucophaea*

Common all blocks.

**Red Wattlebird** *Anthochaera carunculata*

Numbers roosted in deciduous exotics along a stream, adjacent to pines in C block.

**Noisy Friarbird** *Philemon corniculatus*

Occasional on the edge of C block.

**Yellow-faced Honeyeater** *Lichenostomus chrysops*

Occasional in C block.

**Striated Pardalote** *Pardalotus striatus*

Occasional in E block, near eucalypts at edge.

**Silvereye** *Zosterops lateralis*

Small numbers in C block, probably attracted to Blackberry.

**European Goldfinch** *Carduelis carduelis*

Common, especially E block.

**Red-browed Firetail** *Emblema temporalis*

B. Common, mainly C block.

**Diamond Firetail** *E. guttata*

Common in E block.

**Double-barred Finch** *Poephila bichenovii*

Common, mainly C block.

**Olive-backed Oriole** *Oriolus sagittatus*

Small flock, C block early January 1981.

**White-winged Chough** *Corcorax melanorhamphos*

Flock resident in C and W blocks.

**White-browed Woodswallow** *Artamus leucorhynchus*

Common overhead, all blocks.

**Dusky Woodswallow** *A. cyanopterus*

Common E block, where it probably bred.

**Grey Butcherbird** *Cracticus torquatus*

Occasional, edge of E block.

**Australian Magpie** *Gymnorhina tibicen*

B. Common, especially in open areas.

**Pied Currawong** *Strepera graculina*

Occasional in the forest generally.

**Australian Raven** *Corvus coronoides*

B. Resident pair E block, others frequently overhead in all blocks.

In addition, several falcon species used the air space over the pines, although they did not actually enter the forest: Australian Kestrel *Falco cenchroides*, Brown Falcon *F. berigora*, Black Falcon *F. subniger*, Peregrine Falcon *F. peregrinus*. All soared low over the forest and may have hunted in the open areas.

I noted about 110 species of forest and woodland birds in the Armidale district in 1980, perhaps 80 of which could be considered common and regular. Fifty-three species were noted in the pine forest, about 40 of which were common. Thus the pines support about 50% of the local forest and woodland species, but the proportion breeding would be smaller. The species noted in the pine forest agree well with those found in pine plantations on the Central Tablelands of New South Wales (Driscoll 1977).

In accordance with previous studies (reviewed by Lamothe 1980), my observations suggest that (1) the plantation avifauna is depauperate compared with that of surrounding wooded habitats, especially in breeding species (notably hole-nesters) and (2) the avian diversity in the plantation is probably a result of the proximity of native woodland and the plantation's structural diversity. The irregular boundary and division into discrete blocks greatly increases the edge effect, and the variety of age classes provides more feeding niches than would a single uniform stand. The small insectivorous species were well represented, but not surprisingly the honeyeaters were not. Avian diversity in the plantation could be maximised by maintaining a mosaic of stands of different ages, as has been suggested by other authors.

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## References

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