ASPECTS OF THE BEHAVIOUR AND ECOLOGY OF THE WHITE COCKATOO (*CACATUA GALERITA*) AND GALAH (*C. ROSEICAPILLA*) IN CROPLANDS IN NORTH-EAST NEW SOUTH WALES

BY

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I certify that the substance of this thesis has not already been submitted for any degree, and is not being currently submitted for any other degree.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

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SUMMARY

In agricultural areas of New South Wales several species of parrots are pests to grain growing, causing damage to sunflower crops in particular. This problem was the subject of several studies by students of the University of New England. This thesis deals with the behaviour and ecology of the White Cockatoo and Galah, two of the most significant bird pests. I studied these two species for two and a half years in two areas (Swan Vale and Wallangra) on the North-west Slopes of New South Wales. Small mixed farms predominate at Swan Vale while Wallangra is in a region of larger farms with more intensive cropping.

I recorded all facets of the behaviour and ecology of the White Cockatoo, as this species has not previously been studied. Observations of the Galah were restricted to social and feeding behaviour as two previous studies have concerned this species.

The individual and social behaviour of the White Cockatoo and Galah were very similar, and comparable with those of other species of Australian cockatoos and parrots. Both species were gregarious, flocking throughout the year for most daily activities. The birds fed in the early morning and late afternoon, resting in the foliage of trees during the middle of the day. At night they roosted communally under the foliage of trees at relatively permanent sites.

At both field areas the number of White Cockatoos was greatest in the non-breeding season, from February to August, when they frequently formed large flocks (of up to 800 birds at Wallangra). The number of birds was lowest during the breeding season; birds were then more dispersed and feeding aggregations were relatively small (less than 100 birds at Wallangra). Birds which remained during the breeding season were considered to represent a sedentary population which included breeding adults as well

as non-breeding birds. The absence of a substantial proportion of the winter population during the breeding months, strongly suggested the existence of mobile populations which probably consist of young birds and possibly non-breeding adults. The movements and behaviour of these flocks during the breeding season is not known. The seasonal pattern of population fluctuations and flocking tendencies of the Galah parallelled those of the White Cockatoo.

The breeding season of the White Cockatoo extended from August to January. Pairs nested in large tree hollows which they maintained throughout the year. Nests were usually in large old trees, either scattered over a large area or concentrated in small forest stands as at Wallangra. There were non-breeding birds present during spring, and nestling success was relatively low (about one fledgling per pair). Humans and goannas were responsible for most nest predation of the White Cockatoo.

White Cockatoos and Galahs fed mainly on grain crops and less frequently on native and modified (exotic) pastures. Fifty-nine White Cockatoos and 103 Galahs were collected and their 'crops' examined. White Cockatoos ate sunflower and sorghum seeds almost exclusively in autumn and winter, and these seeds formed a major part (40-70% by dry weight) of the diet of the Galah in these seasons. Both species ate wheat, barley and oat seeds, particularly in spring and summer, when they comprised about 40% and 25% of the diets of White Cockatoos and Galahs respectively. Seeds from native and especially modified grassland comprised about 55% of the White Cockatoo's diet in spring and summer, but less than 4% in autumn and winter. Such seeds were more prevalent in the diet of the Galah. More seeds from native and exotic plants were eaten by both species at Wallangra than at Swan Vale.

The formation of large flocks of cockatoos in autumn and winter coincided with the period of apparent relative scarcity of native and

exotic seeds. However this was also the time when sunflower and sorghum crops were available. Consequently it was these crops which received the greatest damage from birds. Theoretical calculations of grain intake by the cockatoos and potential crop yields at each field area, revealed that less than 5% of overall crop yield was consumed by these birds each year. However, damage was not evenly distributed over the field areas, and appeared to be of greater economic significance to the individual small landholder, than larger agricultural concerns.

A combination of careful farm management, with the retention of uneconomic stubble areas for the use of the birds, or specially planted "decoy" crops; and of improved sunflower agronomic practices (e.g. early planting, reduced period of seed susceptibility to damage) could alleviate damage to both summer and winter crops. Only provision of alternative food sources would effectively remove birds from standing crops, and more cooperation between farmers living within the home ranges of cockatoos is necessary. Such practices of damage control would ideally suit both farmers and birds.

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