

THE LITTLE CORELLA, *KAKATOË SANGUINEA* G., AND RICE CULTIVATION IN THE KIMBERLEY REGION, W.A.*

By R. CARRICK†

The river plains of northern Australia support large numbers of seed-eating birds, notably weaver-finches (Ploceidae), parrots and cockatoos (Psittaciformes), and ducks and geese (Anatidae). In accordance with a monsoonal climate with pronounced wet and dry seasons, and with considerable annual variation in the timing and extent of the rains and consequent seed harvests, most bird species are nomadic and gregarious and their numbers are subject to wide fluctuations. It is not surprising that current experiments in the search for suitable food crops and agricultural methods whereby this region might be developed for closer human settlement have attracted the attentions of such birds. The high value of experimental crops justifies expensive measures for their protection, but it is necessary to visualize what may be the eventual impact of these birds on a developed agriculture and to consider what knowledge of their ways may be necessary before effective and cheap control methods can be applied. The very different types of birds involved will present quite different problems. In this paper only the little corella, *Kakatoë sanguinea*, is considered in relation to rice cultivation at Kimberley Research Station, Ivanhoe, on the Ord River near Wyndham, in order to illustrate the general problem and to suggest how a knowledge of the bird's habits may reveal opportunities for control.

The Ord River plain does not flood naturally, and the experimental crops are being grown by irrigation with water pumped from permanent river pools. This means that a cultivated food supply will be present even in poor or late seasons when the wild seeds on which the corellas depend have failed or are late. In April 1955, Frith (1955)‡ observed many little corellas feeding on wild rice, *Oryza fatua* L., at a natural swamp on the plain, and only casual visits were paid to the rice fields. The situation was similar in July 1955, when the author examined 18 little corellas shot in the vicinity of the station and river. Their gizzard contents were:

Cultivated rice (fallen grains): 13 gizzards full, 3 partly filled.

Ribbon grass, *Chionachne hubbardiana* Henr.: 2 full, 1 partly filled.

Hogweed, *Boerhaavia diffusa* L.: 1 nearly full.

Barnyard millet, *Echinochloa crus-galli* Beauv.: 1 seed.

Grasses, *Chloris* spp.: 6 seeds.

Until it is harvested in April-May the experimental rice is protected by gun patrols, which involve considerable man-hours of work from early morning onwards but are effective in scaring those birds not actually shot, so long as their natural

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† Wildlife Survey Section, C.S.I.R.O., Canberra.

‡ FRITH, H. J. (1955).—Reconnaissance of bird depredations in N.W. Australia. C.S.I.R.O. Aust. Wildl. Surv. Sec. Intern. Rep.

food is also available. The suggestion by Mr. L. C. Lee and Mr. P. Slater that trained birds of prey might be used (as they are on airfields) is well worth consideration and could prove economical and effective. However, the efficacy of scaring methods is always related to the persistency and numbers of the pest, and in seasons when grass and weed seeds are scarce the irrigation area will become an attractive oasis where great numbers of foraging birds are likely to concentrate once they find it. Also, as larger areas come under cultivation, to move the birds from one property does little to solve the problem as a whole, and measures which will effect more permanent reduction of numbers are desirable.

The little corella nests in tree holes, so the number of these available would limit the breeding population. Although forest clearance is likely to accompany closer settlement, flock movements are still likely to result in larger numbers of birds, particularly young ones, settling in the cultivated area. This bird also requires trees for communal roosting at night, and these must be within daily flight distance of the feeding-grounds. At Ivanhoe, the roost is situated in the timber on the west side of the Ord River, and the flight over Kimberley Research Station to the feeding-grounds on the plain is not more than 5 miles. It is possible, however, that longer distances could be covered, for some species are known to make regular morning and evening flights of 25 miles or more. Frith (1955) has suggested that the roost might be destroyed by explosive methods as used in the United States against crows and blackbirds.

Another habit of the little corella, which might be turned to account in devising control measures, is that of congregating at staging-places *en route* to and from the roost. These daily routines often become constant for long periods, and the several thousand birds which camp by night in the Ivanhoe roost consistently stage at a billabong on Ivanhoe station. With a view to assessing the possibilities of this situation for the control of corellas, the author, accompanied by Mr. L. C. Lee and Mr. P. Slater, observed the birds going to roost on the evening of July 6, 1955, and emerging the next morning. The following diary extracts tell the story:

July 6, 1955

1600 hr.—Ivanhoe billabong. Large numbers in trees by river crossing and 1000+ at billabong, on ground—displaying; circling with bill on ground and wings raised; pecking at ground (possibly picking up grit); some drinking.

1730 hr.—Sunset. From hill west of timber, saw very large flock leave billabong and move over trees to settle in close group about 1 mile away; we could hear them calling, though 2 miles distant.

1800 hr.—Found small group c. 20 roosting near Ivanhoe station, so all birds do not occupy main roost.

July 7, 1955

0450 hr.—Dark; full moon. Soon heard corellas calling from trees.

0510 hr.—Calling increased, and long stream of 1500+ corellas came from roost and settled in trees at billabong; one baobab was completely covered.

0515 hr.—Smaller flocks followed, total fully 2500 birds. They began to settle on ground near baobab in dense mass, until two-thirds of them occupied an area about 30 by 30 yd. For fully 10 min they displayed (many in pairs) with much calling, pirouetting, and pecking ground.

0535 hr.—Birds on ground gradually spreading out and parties of several hundred flying across river toward feeding-grounds.

0545 hr.—Sunrise. 1000 birds still at billabong; parties constantly departing across river.

This habit of foregathering morning and evening at the same place to display, drink, and pick up grit may offer a suitable opportunity for control. A rocket net, as used to capture geese, could be shot over the dense mass of birds with a good chance of catching most of them in one operation. Alternatively, poisoning might be used, either incorporated in prepared "grit" or in drinking-water. Specimens subsequently collected by Mr. P. Slater confirmed that, at sunrise, a bird which had flown from the billabong had grit in the form of small pebbles in the gizzard, whereas one shot at 3 p.m. had a crop full of food but no grit in the gizzard. The necessity to replenish the grit frequently could arise from the hard seed-coats, e.g. hogweed.

Such localized poisoning would be safe, especially if the birds were conditioned to take grit or water from trays. Elimination of most of a roost during a favourable season at the opportune time would be likely to obviate much of the labour of scaring measures for long enough to secure the harvest. When other food for the corellas is scarce, some lethal method would be a constant necessity aimed at prevention of the build-up of numbers to serious pest proportions.

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