

## THE BROLGA, *GRUS RUBICUNDUS* (PERRY), ON SOME COASTAL AREAS IN NORTH QUEENSLAND: FLUCTUATIONS IN POPULATIONS, AND ECONOMIC ASPECTS

Brolgas are plentiful in the Townsville district during the dry seasons each year (Lavery and Hopkins 1963) and congregate on swamps (see Figure 1) while feeding both there and on suitable adjacent grasslands. In the wet season few birds are present in the district. Breeding is uncommon, and the few nests found had been built in lush swamp vegetation immediately after the wettest months.

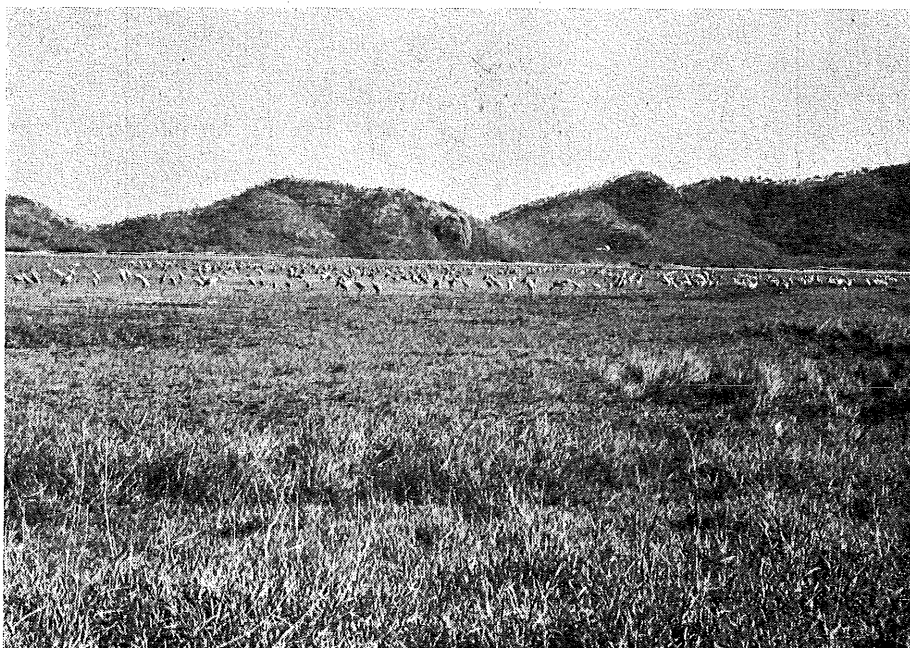


Fig. 1.—Brolgas on bulkuru sedge swamp, Cape Pallarenda Town Common, Townsville district, North Queensland.

From 1959 to 1963 monthly counts of all brolgas were made on and adjacent to wetlands in the Bohle River basin (Figure 2) as follows:

1. Mt. St. John; approximately 200 acres, including a large area of impounded water which is relatively permanent; deep-water (lagoon) vegetation abundant for some months while adjacent grassland food always available.
- \*2. West Mt. St. John; 150 acres of mixed wetland vegetation.
- \*3. Thornley Park, near Garbutt; 180 acres of mixed wetland vegetation.

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\*Of mainly shallow water which rapidly evaporates under dry-season conditions.

- \*†4. Belgian Gardens Town Common; 150 acres of low-level swamp dominated by sedges (*Eleocharis* species) in the shallows, and waterlilies (*Nymphaea* species) in the deeper water.
- \*5. Cape Pallarenda Town Common; approximately 500 acres, of which two-thirds are low-level swamp dominated by bulkuru sedge (*Eleocharis dulcis* (Burm. f.) Trin.).

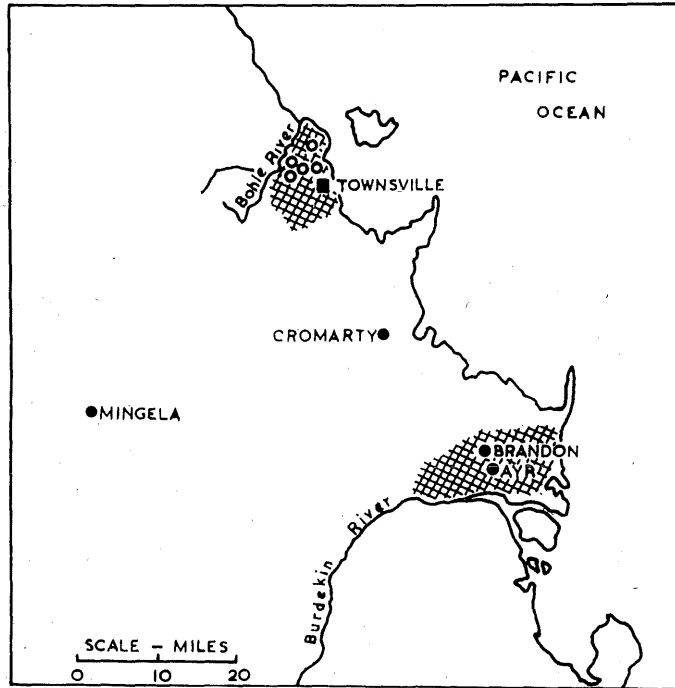


Fig. 2.—Brolga studies, Townsville District, 1959-1963. Study areas hatched; wetlands in the Bohle River basin ringed.

Counts were made with binoculars during midday hours, when general flights of even small flocks were uncommon. The counts for the Bohle River basin and relevant rainfall records are presented in Figure 3; those for the individual wetlands are given in Figure 4.

Over the five years the ranges of maximum and minimum populations were  $2650 \pm 50$  to  $2000 \pm 50$  and  $265 \pm 5$  to  $17 \pm 5$ , and seasonal appearances were remarkably consistent. The highest wet season and dry season populations, respectively  $265 \pm 5$  and  $2650 \pm 50$ , were experienced during 1961, one of the driest years on record in northern Queensland.

\*Of mainly shallow water which rapidly evaporates under dry-season conditions.

†This area drained and consequently abandoned by most birds from July 1961 (see Figure 4, A-B).

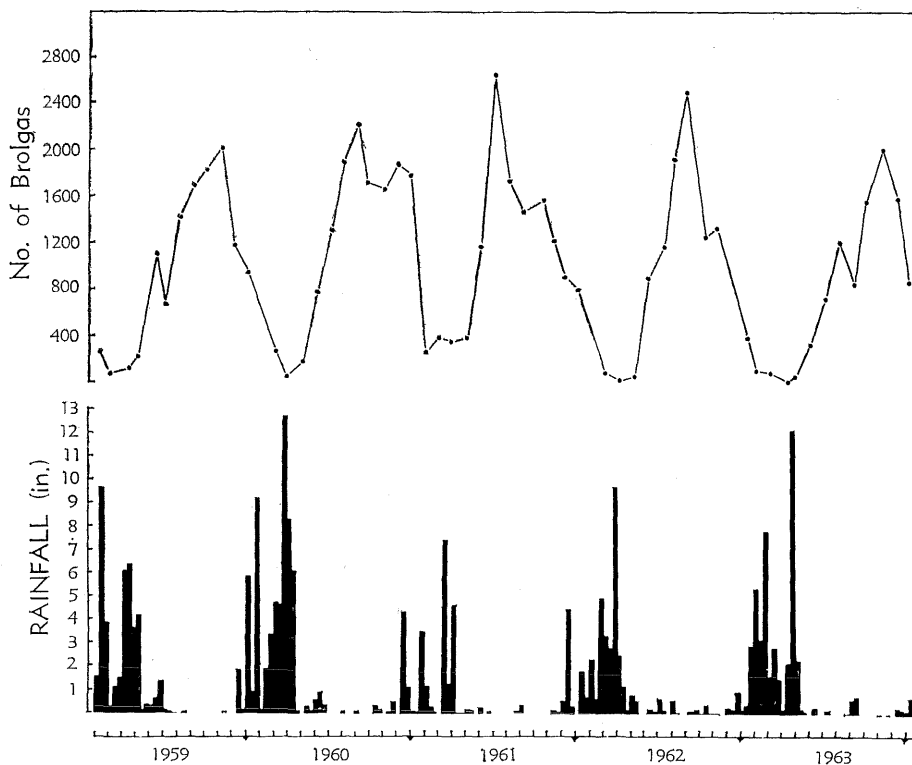


Fig. 3.—Total numbers of brolgas present compared with rainfall each month in the Bohle River basin, North Queensland, January 1959 to December 1963.

Clearly the largest populations occurred on the bulkuru sedge swamps of the Cape Pallarenda Town Common (Figure 4).

During a wet season the small scattered populations were generally as pairs or as single birds. Immediately after the rains the brolgas congregated on the swamps at Cape Pallarenda; few, if any, were seen around deeper waters (Belgian Gardens Town Common, Mt. St. John) or on adjacent grasslands. Numbers increased rapidly to a peak; but as the season progressed, water and vegetation disappeared, the swamp floor became parched and hard, dead brolgas were not uncommon, and small flocks moved to the slightly deeper depressions such as the Belgian Gardens Town Common. As these wetlands dried out brolgas became more common at Mt. St. John, although the deeper water there supported little vegetation: the birds, however, during this, the driest part of the year, moved widely over the adjacent grasslands to feed on grass seeds and probably insects. With the first rains they quickly left this type of habitat.

Concurrent with these studies in the Bohle River basin, observations were made in the Ayr-Brandon district (see Figure 2), where broлга populations were of a similar order and seasonal dispersal followed the same pattern. In this district, and in some other northern areas, attacks on crops, mostly sorghum (*Sorghum*

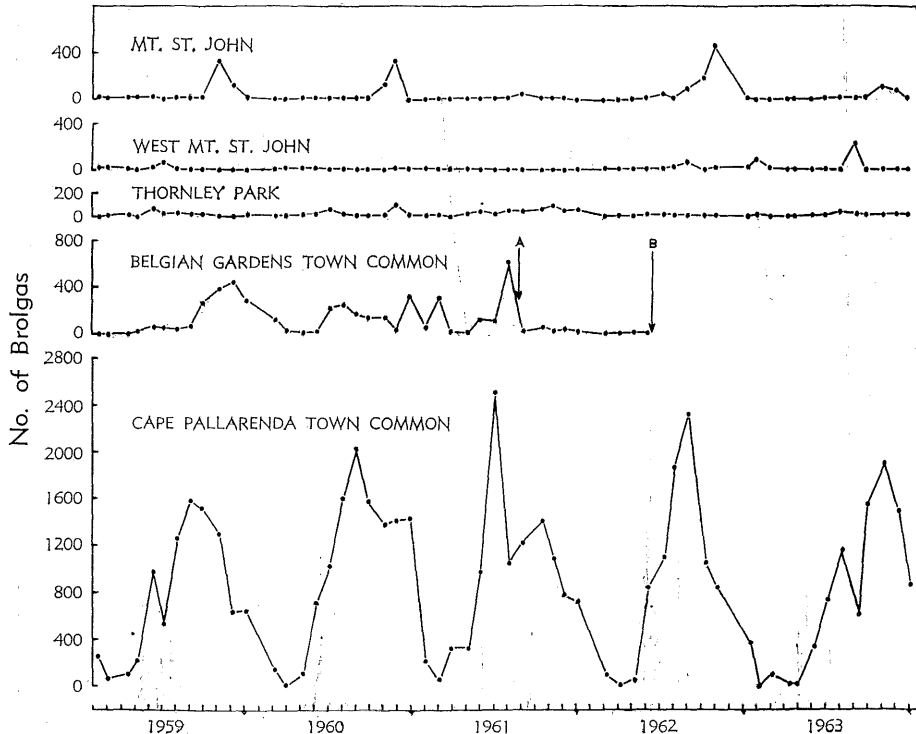


Fig. 4.—Numbers of brolgas present on each of the five areas studied each month, January 1959 to December 1963, Bohle River basin, North Queensland. A, drainage works commenced; B, drainage works completed.

*vulgare* Pers.) and maize (*Zea mays* L.), have been recorded on lands adjacent to extensive bulkuru sedge swamps: these were usually in October and November during 1960 and 1961, but some occurred as early as June in the latter year.

Breeding has been observed in both coastal and inland locations, e.g. Cromarty and Mingela, which may be considered as being closely associated with the Bohle River and Ayr-Brandon study areas. Although food studies (Lavery, unpublished) indicate bulkuru sedge tubers as an important item of diet, little is known of the many other factors concerned with breeding and related population movements.

The recording of brolgas as a pest of crops, even if at this juncture only of minor status or of nuisance value, presents a problem to both conservationists and farmers. A quantitative survey of crop damage, further work on brogla populations in coastal districts and elsewhere, and biological studies are required: at present, the first of these projects is being given priority.

#### REFERENCE

LAVERY, H. J., and HOPKINS, NANCY (1963).—Birds of the Townsville district of North Queensland. *Emu* 63:242-52.

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