rogersi and *olivacea* is suggested by a specimen (AMNH) from the Leichhardt River (presumably the lower reaches). As assessed by the amount of white on the tail, it is intermediate, having only tiny patches of white on the outer vanes of the outermost two rectrices. Accordingly, the distributions of the two Australian subspecies are as follows:

1. *olivacea* (synonym *flavigasta*). Eastern Australia, Cape York Peninsula, and the area round the Gulf of Carpentaria, west to the lower Leichhardt River, where it hybridizes with the next form.
2. *rogersi*. Northern Australia, including northwestern Queensland, east to about the Leichhardt River and south to Lawn Hill and presumably the upper Cloncurry River (Sedan) (cf. Storr 1973).

Presumably subspeciation in *G. olivacea* was caused by previously unfavourable conditions in the region of the Gulf of Carpentaria. The barrier was caused by either unsuitable habitat when New Guinea and Australia were joined during the last glaciation or a very arid climate on the southern side of the Gulf. Other examples of subspeciation and speciation caused by this barrier (the Carpentarian Barrier) are discussed by Keast (1961) and Macdonald (1969). As evidenced by the occurrence of *olivacea* at Wernadinga and the hybrid specimen (*olivacea* x *rogersi*) from the Leichhardt River, *olivacea* has crossed the savanna grasslands between the Flinders and Leichhardt Rivers (see 1976 ed. Atlas Australian Resources: Natural Vegetation). Further investigations are now needed to determine the width of the hybrid zone.

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SOCIAL FEEDING OF FRUIT-PIGEONS IN NEW GUINEA

Many bird populations on islands occupy broader ecological niches than mainland conspecifics, often associated with a lower number of congeneric species (e.g. Diamond 1970, Proc. natn. Acad. Sci. USA 67: 529-536). This note describes the ecological relations of two fruit-pigeons, *Ptilinopus coronulatus* and *P. iozonus*, on an island and at a nearby mainland site in Papua New Guinea. Conditions on the island allow an apparently adaptive interspecific interaction not possible on the mainland.

During July–September 1973, I observed birds near Anguganak, West Sepik District (03°36′ S, 142°15′ E) and on Kairiru Island, East Sepik District, Papua New Guinea. In lowland forest at Anguganak there were seven species of *Ptilinopus* (*nanus, magnificus, perlatus, coronulatus, iozonus, superbus, ornatus*). *P. corunulatus* was confined to the forest understorey usually singly or in small conspecific groups, although occasionally feeding in company with *P. superbus* and *P. perlatus* in fruiting palms. They were never seen with *P. iozonus*, which habitually remained in the high branches of tall trees, in groups of three or four birds. A group of three *P. iozonus* descended nearly to ground-level on the edge of a village clearing to feed in a fruiting tree, which was visited at other times by *P. perlatus* and once by *P. coronulatus*. The segregation of *P. iozonus* and *P. coronulatus* by position in the vegetational profile has been recorded elsewhere on the New Guinea mainland by Goodwin (1970, Pigeons and Doves of the World, 2nd ed., British Museum (Nat. Hist.)) and Diamond (1972, Avifauna of the Eastern Highlands of New Guinea, Publ. Nuttall orn. Club 12).

On Kairiru, the two species were common throughout forest up to about 900 metres, *P. iozonus*

also occurring in mangroves, *P. coronulatus* was encountered singly or in small flocks but *P. iozonus* was always in groups of three to ten. The two species frequently fed together in tall fruiting trees in several parts of the island and a mixed roost of over forty birds was discovered. The only congeners on the island, *P. superbus* and *P. magnificus*, were rare and were never seen in association with *P. coronulatus* or *P. iozonus*.

Social feeding of the two species on Kairiru resulted from the expansion of the niche of *P. coronulatus* into the canopy layers. Mixed roosts and feeding groups may be of advantage as an aid to finding dispersed sources of food (see Ward and Zahavi 1973, Ibis 115: 517-534), because birds of both species could follow one another to fruiting trees, thus reducing the effort of searching. Their similarity in plumage patterns (see Goodwin 1970) might encourage birds to follow members of the other species as well as conspecifics. Competition between the species may have been avoided, because *P. coronulatus* is sufficiently smaller than *P. iozonus* (75 g and 110 g; weights from Diamond 1972) for segregation according to the hypothesis that only small species can feed on fruit borne on very thin twigs (see Diamond 1975, *in* Ecology and Evolution of Communities, M. L. Cody and J. M. Diamond (Eds), Harvard). However, my observations, and those of Crome (1975, Aust. Wildl. Res. 2: 155-185) provided no evidence of separation within trees.

These observations were made during a few weeks at one time of year and the ecological relations of the two species may change seasonally with the fruiting of different species of trees. More detailed studies on the feeding ecology of *Ptilinopus* fruit-pigeons (Crome 1975; Frith, Crome and Wolfe 1976, Emu 76: 49-58) have shown considerable overlap in diet, although segregation is largely through differences in diet. It might be valuable to search for further examples of interspecific interactions that promote feeding on a common resource.

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OBSERVATIONS OF THE EASTERN GRASS OWL NEAR DARWIN, NT

There are only two recent published records of the Eastern Grass Owl *Tyto longimembris* for the Northern Territory (Crawford 1972, Emu 72: 142; Brooker 1976, Emu 1976: 154); both are of single sightings. Our sightings were of several birds for a number of hours flying in the early morning and evening, over approximately two square kilometres of black-soil plain at Holmes Jungle about twelve kilometres from Darwin; here the flood-plain was covered mainly with dry grasses and fine sedges, less than one metre in height.

On 5 August 1977 at 09:00 a single bird flew overhead and, on searching the plain with binoculars, we located another five flying. They were dispersed widely and flew constantly over the plain, hunting from a height of about four metres. The flight was lazy and flapping with occasional glides for short distances. The head was constantly moved from side to side, seeking prey. When prey was seen the bird twisted quickly, plummetting headfirst into the dense grass, with wings held back, stretched towards the tail.

Hunting birds patrolled the whole area plummetting sporadically into the grass, to remain there for a minute or so and then fly off again. Although it was difficult to count them, there were usually about five birds in the air at any one time and once at least eleven. They showed little fear of us, at times often flying almost over our heads. In flight, the long legs were held rigid at a downward angle well clear of the tail and protruded about six centimetres beyond the tail, with talons closed.

We visited the area again that evening. At 18:25 the birds began to fly and were still flying when we left at 19:15 (sunset). Next morning we arrived at the area before sunrise (07:00) to see the birds hunting. At 09:00 they began to settle singly in the grass and by 09:15 none was flying.

On inspecting many of the dense taller patches of grass we found much evidence that the birds were resting within. Pathways, droppings and down were found. Pellets were numerous and were collected for analysis. Occasionally birds were flushed from some of the clumps. Three birds, which had recently died, were found out in the open and collected. They were partially eaten. The colour of the birds varied considerably, most appearing darker than the literature usually suggests. The barring of the tail