

TORRESIAN IMPERIAL-PIGEON *DUCULA SPILORRHOA* ON GREEN ISLAND, NORTH-EASTERN QUEENSLAND

Torresian Imperial-Pigeons are seasonal migrants to Australia arriving in August to September for the breeding season and departing for New Guinea during February to April. On the east coast of Australia most nest on offshore islands, and feed on the fruits of mainland rainforests by day, returning to roost on the islands at night. Although nesting pigeons have been recorded on Green Island (Gill 1970; Anon 1980) no recent estimate of numbers was known to have been made until a count of 2412 birds returning in the evening to the island from the mainland was made on 9 December 1981 (M. Hockings pers. comm.).

Green Island is a small forested coral cay (12 ha) on the Great Barrier Reef 27 km east-north-east of Cairns. National park occupies the eastern end of the island (7.04 ha), whilst commercial facilities and residential development are confined to the western end. The latter area contains numerous structures and pathways, resulting in a largely cleared understorey, however the canopy is basically intact.

An estimated 130,000 people visit per annum, mostly day visitors, with less than 5% staying over for an average of three nights (Anon 1980). The authors visited Green Island from 4 to 8 January 1982, and made further observations of the Pigeons.

The vegetation consists largely of a closed vine forest with an estimated canopy height of 25 metres towards the centre of the island. White sandy coral beaches fringe the island and no mangroves are present.

This has not always been the case as during the 1880s 'due no doubt to the continual occupation for many years by beche-de-mer-fishers, their squandering of the trees to feed their smoke houses, and even to J.S. Mein's garden clearing, Green Island was an ugly tangle of shoulder high burrs, so that it was possible in the eighties and later to overlook the whole island' (Jones 1976; page 288-289). Therefore today's vegetation has grown from this devastation in approximately 100 years.

A CSIRO (Division of Forest Research) survey of Green Island during July 1978 and February 1979, identified 83 species of plants, consisting of trees, palms, shrubs, scramblers, vines, herbaceous creepers, grasses and herbs (Anon 1980).

Many plant species now present on the island may have been brought across by the Torresian Imperial-

Pigeon (G. Stocker pers. com.). In support of this theory plants now present on Green Island (Anon 1980), which were also recorded as pigeon feeding records at Low Isles via excreted seeds (Crome 1975) are as follows: * *Podocarpus neriifolius* (Podocarpaceae); * *Archontophoenix alexandare*, + *Calamus* sp (Arecaceae); + *Ficus* sp (Moraceae); + *Myristica* sp (Myristicaceae); *Cryptocarya hypospodia* (Lauraceae); ° *Canarium* sp (Burseraceae); * *Dysoxylum* sp (Meliaceae); *Gromphandra australianum* (Icacinaceae); *Ganophyllum falcatum* (Sapindaceae); ° *Terminalia* sp (Combretaceae); *Planchonella obovata* (Sapotaceae); *Chionanthus ramiiflora* (Oleaceae). (* Recorded on island in immature form only, ° Common to level of genus only, species varied, + Identified to genus only.)

Pigeons returning to the island from the mainland were counted from a beach vantage point on the southern side of the island by the authors, one counting birds as they arrived, and one recording. The time was noted every quarter hour. All birds returned from a west-south-west to south-south-westerly direction (Fig 1).

Two counts between 15.15-19.15 on 4 and 5 January 1982 yielded 2,273 and 2,277 birds returning (Fig 2). Each day, one member of a pair flies to the mainland to feed (Crome 1975). If all birds were paired and breeding the maximum population would be about 4,500. However, it is possible that many non-breeders are present and the populations could be significantly lower.

Traverses were made across the island on a 50 m grid system. For each grid square a subjective assessment of pigeon activity was made, by two observers, on a 0 to 5 scale, relative to the number of birds heard and seen, numbers of nests recorded, and the presence of egg shells, feathers and excreta on the ground. On the scale, 0 is indicative of no pigeon activity, and 5 of high activity (Fig 1).

The pattern of distribution in relation to activity of the pigeons is shown on Figure 1. There is a concentration of activity running north-east to south-west across the island east of its centre. Following ground checks and examination of an aerial photograph, this pattern was found to coincide loosely with the presence of the tallest forest in the national park section of the island (Fig 1).

Pigeons were sensitive to disturbance and were inclined to leave their nests when confronted with noises from voices and leaf litter rustling, particularly away from

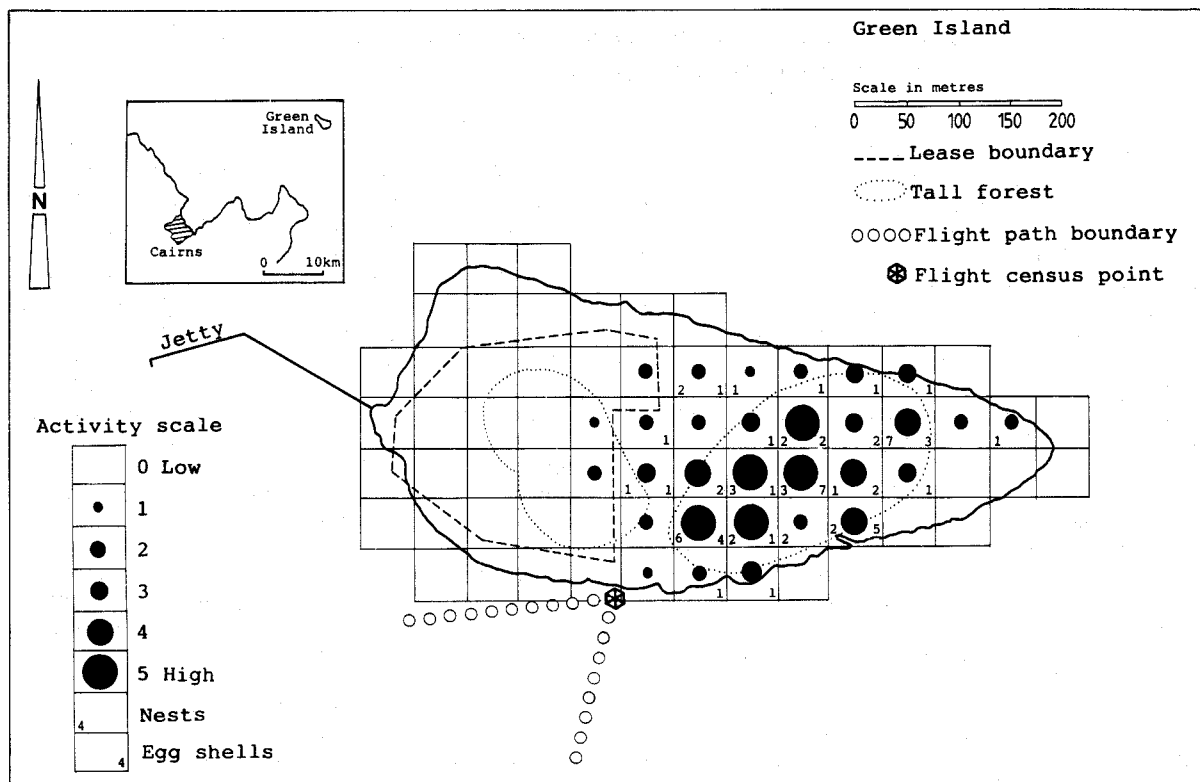
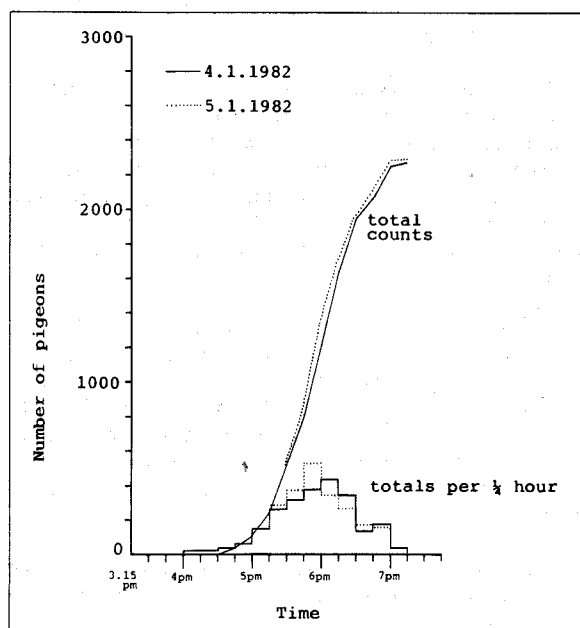


Figure 1. Map of Green Island showing estimated Pigeon activity within 50 m grid squares, flight census point, flight path boundary and tall closed forest.



established tracks. One attempt at spotlighting was abandoned because the roosting birds were easily agitated by the lights and noise.

Thirty-three nests were located on the island. Most were in the tallest closed forest and the nests were 1-2 m below the canopy. Most nests were attended by adult birds. Thirty-nine recently hatched eggs were found on the ground. One squab was found in a nest on 4 January and was estimated to be 7 to 10 days old, following the criteria used by Crome (1975). No dead or abandoned young were found.

Earlier records of the Torresian Imperial-pigeons on Green Island are:

E.M. Cornwall (1903), 15 November 1902, 'Once more getting aboard, we steered from Green Island, where we camped for the night. Some few years ago this island was the breeding place for countless thousands of

Figure 2. Accumulative and quarter hourly totals of pigeons returning to Green Island from the mainland.

white Nutmeg Pigeons (*Myristicivora spilorrhoea*); but, alas, pot-hunters have proved too much for them, and during the evening we spent there, though right in the middle of the breeding season, only two pairs visited their old haunt.'

S.R. White (1946), 'When the island was visited on December 29, 1944, numerous nests were found, from at least a score of which birds were flushed. No feathered young were seen, but egg shells were picked up beneath the trees, so that it would appear that the birds were attempting to reclaim one of their old territories. It will be interesting to see whether they are able to re-establish themselves in the face of an increasing tourist traffic, although the island is now a sanctuary.'

Mrs I. McLiesh (pers. comm.), 'I first saw Torres Strait pigeons at Green Island on 25 December 1964 and the next day I counted 880 coming in from the mainland in parties of 4, 6, up to 12 before the 6.00 pm dinner bell. They possibly totalled a thousand by dark.'

V. Serventy (1965), 'Between October 4-9, 1965, I was staying on Green Island and was interested to see that the Torres Strait Pigeon - *Myristicivora spilorrhoea* - was in some strength on the island. I estimated the population to be between 500 and 1000 birds.'

M. Hockings (pers. comm.), 9 December 1981, counted 2,414 returning from the the mainland in the evening. This count was made from the same position on the island used by the authors.

		Count to 6.00 pm	Total Count
Mrs I. McLiesh	26.12.1964	880	'possibly a thousand'
M. Hockings	9.12.1981	1,014	2,412
R.G.A. & D.G.	4. 1.1982	1,185	2,273
R.G.A. & D.G.	5. 1.1982	1,381	2,272

McLiesh's estimate of a total count of 'possibly a thousand' is an underestimate in that barely half the number of pigeons in the evening flight had been counted by the same time in the 1981-82 counts. Her count of 880 by 6pm, however, indicated that the 1964 population size was similar to that in the 1981-82 season.

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E.M. Cornwall recorded only four pigeons from the 1902 breeding season, possibly due to hunting. Furthermore 'shoulder high burrs' of the 1880's (Jones 1976) are unlikely to have provided suitable nest sites. E.M. Cornwall also notes that some few years before this 'countless thousands' bred here. Pigeon numbers were therefore very low at the turn of the century, and the present colony has presumably re-established itself in the past 80 years. The recovery was underway by 1944 (White 1946), and the population had risen close to its present day level by 1964 (McLeish pers. comm.). Present day colony size indicates a substantial recovery, though not necessarily to its original size. The statement that 'Green Island remains almost devoid of pigeons (Frith 1982) is clearly erroneous.

Although apparently suitable tall forest is present in the lease area, most nesting is restricted to the national park. One reason may be that the birds seek to avoid disturbance (i.e. the activity and noises of people). This sensitivity should be considered in relation to future island development, educational and recreational activities.

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