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## BREEDING BEHAVIOUR AND STATUS OF COTTON PYGMY-GOOSE *NETTAPUS COROMANDELIANUS* IN SOUTH-EAST QUEENSLAND

GORDON BERULDSEN

### ABSTRACT

Cotton Pygmy-Geese were observed breeding at a lagoon near Colleges Crossing on the Brisbane River from 2001 to 2006. Their behaviour was closely monitored and described, providing the first descriptions of breeding behaviour in Australia to be published for the species.

The breeding behaviours were observed from October to early January and include courtship displays, copulations, nesting and the rearing of young. Nesting occurred only in the hollow trunks of tall trees near water. Eggs were incubated by the female and hatched in December. Six to eleven goslings were reared principally by the female. Pairs stayed together during winter, sometimes in flocks. No territorial displays between pairs were observed.

Breeding has also been reported at five of the 35 other localities in south-east Queensland where Cotton Pygmy-Geese have been sighted since 1974 but has occurred regularly only at Colleges Crossing during the last decade. Since 1974 the species is widespread and more frequently seen in south-east Queensland than previously recorded for many years. The absence of sightings over the past century and the regular presence of pairs since 1996 are discussed in terms of the availability of places for them to breed and rear young successfully.

### INTRODUCTION

Current literature (Marchant and Higgins 1990) reveals that little has been recorded on the breeding and social behaviour of Cotton Pygmy-Goose, *Nettapus coromandelianus*, in Australia. The Nest Record Scheme contains no records of this species (Marchant and Higgins 1990) and the

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nesting details of only one pair are recorded in the literature (Beruldsen 1977).

The Cotton Pygmy-Goose and the related Green Pygmy-Goose, *Nettapus pulchellus*, are highly aquatic and previously reported to occur exclusively on deep lagoons associated with coastal rivers (Lavery 1966, Frith 1967). Analysis of stomach contents has indicated that both species eat aquatic plants, almost exclusively. Green Pygmy-Geese prefer water lilies (*Potamogeton*) (uncommon in south-east Queensland) but Cotton Pygmy-Geese eat a wider range of plants which is readily available in south-east Queensland, including aquatic weeds (Lavery 1966, Frith 1967).

The distribution of Cotton Pygmy-Goose extends from India to Australia. The species Australian range is principally in Queensland centred on Townsville at permanent coastal wetlands. Historically, smaller numbers were recorded on occasions further south, in south-east Queensland and northern New South Wales, and beyond, rarely as vagrants. In the late 1800's and at least up until 1900 (Beruldsen 1977), and to a lesser extent to 1940 (Frith 1968), there were records from New South Wales, where the species no longer occurs. Campbell (1900) records James C. Wilcox comments on the species nesting in his garden at South Grafton (no year recorded) as "*one of the birds had a nest in a spout of a gum-tree about seventy feet (21m) from the ground. I know of other nests in trees about our swamps*". The Australian Museum has an unregistered clutch of 12 eggs (Beruldsen 1977) with a note saying "*taken... near Workon, Condamine River, Queensland, on October 21<sup>st</sup> 1901. The nest was within a hollow of a dead tree in a lagoon 40 miles from Youlba Railway Station. The sitting bird was flushed from the nest,...a hollow tree leaning over the lagoon ... I saw five pairs on the lagoon. I found the nest while driving some horses across the lagoon, and the splashing flushed the bird, as I did not see her come out of the hole, I rode away and waited under a tree, presently she flew up and went down the hollow, which was only about a foot deep. I climbed the tree the next day, when there were only two eggs, I kept my eye on the place and got the full clutch. About Christmas time I saw three clutches of young birds with their mothers.*" Thereafter records are few and far between with none from New South Wales since 1940.

There is little published information about the presence or movements of this species in south-east Queensland (Marchant and Higgins 1990). No significant changes in the distribution of its population have been reported for many years, including since national bird Atlases began (Barrett *et. al.* 2003). Until recently the status of Cotton Pygmy-Goose in south-east Queensland was considered as occasional in coastal wetlands and

unknown more than 250 km inland (Lavery 1966). This paper reports detailed breeding behaviour observed by the author at Colleges Crossing between 2001 and 2006 and reviews the species occurrence in south-east Queensland since 1974 from incidental records.

## METHODS

The majority of my observations, in particular of breeding behaviour, were made at a lagoon in the Brisbane River at Colleges Crossing, (152°48'E, 27°33'S). The lagoon is a flooded quarry, now a haven for waterbirds and a popular recreation park and swimming hole, 500m upstream from Colleges Crossing. It is at the upper limit of tidal influence of the river and usually contains freshwater approximately 1m to 2.5 m deep (depending on tides) with some deeper holes. The lagoon was a sand and gravel quarry originally created by building a bund upstream of the site to temporarily divert the river water into a by-pass channel around its northern margin. Flooding the quarry in 1987 created the lagoon which is still separated from the bypass channel by a peninsula.

The southern bank of the lagoon at Colleges Crossing is extensively landscaped, grassed and provided with barbecues, shelters and change facilities at its eastern end. There is a permanent bird observation hide built on land overlooking the lagoon halfway along the southern side. The northern bank of the river retains its original stands of old growth tall eucalyptus trees some of which possess dead limbs and trunks. Mown grass along the northern and western margins provides walking and dog exercising areas. Most of the waters' edge is concealed by reeds, tall grasses, dense shrubs and trees, except at the eastern end of the lagoon. The majority of the area of lagoon supports a prolific growth of submerged plants, the tops of which form large areas of mat at the surface of the water, within which the Pygmy-Geese feed.

In order to review the current status of the species in south-east Queensland, Table 2 combines my own observations made whilst observing the behaviour of the species at Colleges Crossing with those of other observers who have reported sightings from elsewhere. The area of particular interest for this paper is bounded by the New South Wales border north to approximately Bundaberg and west to approximately the towns of Theodore and St George.

Much additional information in Table 2 about the distribution of the species was obtained from newsletters published by birding clubs. Members sightings recorded in the newsletters of Birds Queensland

(BQN), Birds Australia Southern Queensland (BASQ) and Brisbane and the Gold Coast Branch of the Bird Observers Club of Australia (The Pelican) were used. These records are valuable because the species is distinctive, readily identified and males and females can be easily distinguished. Most records in Table 2 were obtained from BQN and are shown only as volume, part, and page numbers (e.g. 37(8)15). The names of contributors are also listed as sources only where sightings were obtained directly by personal communications or reported on the Birds Queensland website. Unsourced entries in Table 2 are my own observations.

In Table 2 the 36 localities where Cotton Pygmy-Geese were reported are listed in order of increasing latitude, from north to south. They include towns, rivers, lakes, farm dams and impoundments that differ in the length of time that they have been available as potential habitat for Pygmy-Geese. The dates when impoundments were constructed, or altered, and became potentially suitable or unsuitable habitat for the species are also shown in Table 2. For example Dyers Lagoon constructed for irrigation was suitable breeding habitat until the dam wall was altered in 1976.

Table 1 re-interprets the data in Table 2 to record the annual minimum numbers of adults and goslings reported in the region. It indicates only when birds were seen opportunistically and should not be used as an estimate of population size, because unlike census data the absence of the species is not reported by the observers and their searching effort cannot be estimated.

## RESULTS

### Courtship

On a number of occasions I observed courtship behaviour at Colleges Crossing. The male would follow the female around closely with much head bobbing and bowing, always on the water and usually amongst the mat of surface vegetation. Pairs involved in these displays were quite passive and no aggression was shown by either male or female. On occasions the female would take to the air followed immediately by the male, the two birds flying circuits around the lagoon calling continuously. On returning to the water the male would resume his head-bobbing and bowing.

On two occasions copulation took place after a courtship display, on 15 October 2001 and 12 November 2005. The male mounted the female pushing her body under the water. If her head was also submerged I could

not tell because of the distance but certainly her whole body was beneath the water.

### **Nesting**

On 27 December 1997 (Table 2) I saw a single male Cotton Pygmy-Goose on the lagoon at Colleges Crossing. There was no sign of a female. Early next morning there was a pair on the water with eight tiny goslings, almost certainly less than a day old. I concluded that the goslings hatched and were brought down to the water overnight. I decided then to spend more time observing pairs at Colleges Crossing during the following breeding season to see if I could find where they nested. Despite spending many hours watching the birds, on occasions from dawn until it was too dark to see the birds, I was unable to discover their nest. I failed to get any indication whatsoever as to where the nest might be, despite seeing Pygmy-Geese there on every visit.

On 13 December 1998, I saw two male Cotton Pygmy-Geese at Colleges Crossing but no females. Early next morning there was a pair on the water with six goslings. I could not find the other male anywhere. Again, the goslings had appeared overnight.

On 12 November 2005, I eventually found a nest by watching the birds, then two days later a second nest, both in tree hollows well back from the waters' edge (approx. 100m and 200m, respectively). They were about 400m apart in the hollow trunks of tall trees. The females entered them through knot-holes approximately 20m and 25m above the ground. I did not inspect the nests but each hole was barely large enough to admit the female. A third nest was in another tree with multiple hollows, but my view was blocked by foliage and I did not see which hole she entered.

On 12 November 2005, I arrived at Colleges Crossing with a friend about 9:30 am. While he went looking for other birds I sat on the grass and watched the Cotton Pygmy-Geese quietly feeding. At about 10:15 am I noticed that one female was becoming agitated. She stopped feeding and began swimming rapidly around followed closely by the male. She then took to the air, closely followed by the male. The pair flew three circuits of the lagoon then on the fourth circuit flew out of the mouth of the lagoon at the eastern end and made a sharp left turn and flew upstream along the channel of the Brisbane River. They both then returned over the bund at the western end and landed on the water. The pair repeated this pattern twice shortly thereafter but on the third occasion the female rose high above the water and made a direct approach to a tall tree with likely

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hollows. As the female approached that tree she "balked" in flight then dropped back towards the river, came back over the bund and onto the water. This pattern was also repeated.

It wasn't long before she took flight, again followed closely by the male, and repeated the same pattern but this time instead of "balking" as she approached the tree, she flew straight at the tree and tumbled into a knot hole. Upon the female entering the hole the male immediately dropped down towards the river, came in over the bund and settled on the water. This time he resumed feeding.

Two days later another pair followed a similar pattern, the female eventually entering a hollow with the male returning to the lagoon to resume feeding. The third pair also followed a similar pattern.

At Colleges Crossing nesting appears to be from November to early December. Breeding has been reported from a number of other sites including Atkinson's Dam (1974 and 1976), Dyer's Lagoon (1975), Tamborine Village (1999) Lake Clarendon (2001) and Gordonbrook Dam (2004). Based on casual observation, records of Cotton Pygmy-Goose breeding in south-east Queensland cover the past thirty two years (Table 1) and are available for seven years out of the past decade.

### **Clutch size**

From the little published data, my present observations and the museum collections I have examined it would appear that in Australia the usual clutch is eight or nine eggs, sometimes as few as six, or as many as 12 (Beruldsen 1977). A clutch size of 16 (Frith 1967) seems unlikely, but clutch sizes of 8 to 15 are reported in India. There is one uncertain record of a clutch of 16 eggs in North (1913-1914) discussed in Beruldsen (1977). That may well have been a case of 'dump nesting' which has also been reported from outside Australia.

Because Cotton Pygmy-Goose nests up to 25 m high in hollow trees it is difficult to inspect many clutches. However their composition might be inferred from the number of surviving goslings at hatching time. I have recorded three broods with six goslings two with eight goslings (including Beruldsen (1977)) and one with 11. Others have recorded broods containing five, six and ten goslings (Table 2). The three records of females with single or twin goslings are likely to be survivors of larger broods or clutches containing some infertile eggs.

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### Incubation Period

From observations on several pairs in November and December at Colleges Crossing (Table 2), pairs keeping close company, the female disappearing, then the appearance of day old goslings, the incubation period appears to be approximately 28 days.

In 1998 a female disappeared (presumably to the nest) on approximately 9 November. She was back on the lagoon with six day-old goslings on 14 December. Nesting failed in 1999 because flooding of the Brisbane River earlier in the year submerged and removed the emergent vegetation from the lagoon.

On 22 November and again on 27 November 2000 there was one pair on the water at Colleges Crossing. On 3 December, 5 December, and 13 December there was only a single male to be found. On 15 January a pair had six goslings probably seven to ten days old. As the female disappeared between 27 November and 3 December the goslings probably hatched out between 3 and 5 January.

### Gosling Survival

Australian Wood Duck, *Chenonetta jubata*, Pacific Black Duck, *Anas superciliosa*, and Dusky Moorhen, *Gallinula tenebrosa*, all nest around the lagoon at Colleges Crossing and all have a high mortality rate amongst their young, sometimes raising only a few to independence. In 2005 one pair of Black Duck lost all their young except one over a period from early November to late December. Whether those missing young were taken by the White-bellied Sea Eagle, *Haliaeetus leucogaster*, that nests nearby and visits the lagoon frequently, or by cormorants, *Phalacrocorax spp.*, or by eels, or fish in the lagoon, I was not able to discern. However, they may have been taken by foxes, as they have a habit of spending the night on dry land (close to the water) whereas Pygmy-Geese remain on the water all night.

The Cotton Pygmy-Geese I observed at Colleges Crossing appeared to avoid all these dangers for they mostly raised their full brood to independence. For instance, on 4 December 1998 six day-old goslings were present on the water with a pair of adults. By 21 December the six had grown noticeably in size. There were still six goslings on the lagoon on 18 January and by 22 January those goslings were about 80 percent the size of the female (the male appeared to have deserted the family group sometime between 21 December and 18 January).

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Female Cotton Pygmy-Geese rear their goslings and remain with them until they are approximately six months old. Males appear to stay with the female and her brood for less than a fortnight after they hatch, initially leaving by feeding separately and then finally departing.

All the young that hatched out in 1997 and 2000 at Colleges Crossing were still on the water a month or more after first appearing. It may be that they found safety amongst the vegetation on the surface of the shallower water for it became obvious to me that the female almost always kept her brood amongst the waterweed and over shallow water.

### **Breeding Failure**

In the 2001 breeding season at Colleges Crossing a female "went missing" in early November. I had expected her to reappear with a brood of goslings in early December but that did not happen.

In late November and early December my attention was drawn to a male each time I visited the lagoon. He appeared to be agitated, the agitation becoming more and more obvious as the days passed. He was often seen to be swimming back and forth close to the northern side of the lagoon beneath a large tree with many hollows.

There were times when he took to the air and flew round and round the lagoon calling the whole time. On one occasion I found him actually in the channel of the Brisbane River and he appeared to be staring up at this large tree. Eventually he left the area after the female failed to appear with any goslings.

Later I found that a large hollow limb had fallen from the tree in which I had suspected the female may have had her nest. The open end of the limb had buried itself deeply in the ground upon impact. As the area is a popular picnic, walking and dog exercising area, and a reserve, it was not appropriate for me to take a chain saw and cut open the log or chop it with an axe in order to check to see if there was a nest therein with a female caught and unable to escape when the limb fell. The only certainty is that she "went missing" at the right time and never reappeared and the male became increasingly agitated as the days passed when the female should have brought the goslings to the water.

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In November 2005 I found two nests by watching females enter hollows high in large trees well back from the water in the river on the side of a steep bank and a third pair nesting in another hollow tree, but which hollow I could not ascertain. The females “went missing” between the 16 and 23 November 2005. I expected to see at least two broods of goslings on the water by late December and did (Table 2).

### **Aggression**

The Cotton Pygmy-Geese at Colleges Crossing seemed to be very passive. I have never seen aggression between two Pygmy-Geese or by Pygmy-Geese against any other species, even when species such as Dusky Moorhen approached close to a family of goslings. There was some chasing (pursuing) during courtship but nothing that could be regarded as aggressive. This stands in contrast to the aggressive behaviour of Green Pygmy Goose reported by Lavery (1966).

The most interesting observation occurred on 24 November 2005. By then three of the four females that had been paired with males had disappeared, leaving one pair and four males on the water. For weeks before there had been four pairs plus a single unattached male there. It was clear that the remaining female was paired with a male and the second unattached male was trying to “muscle in”. Every now and again that male tried to get between the female and her mate only to be defeated by the female swimming rapidly back to the side of her mate. The most interesting aspect here was the male, the mate of the female, completely ignored what was going on. At no time did he make any effort whatsoever to drive off the unattached male and the unattached male stopped his pursuing of the female as soon as she fled back to the side of her mate.

### **Movements**

Cotton Pygmy-Geese occur regularly in all months of the year in South-east Queensland (Table 2) and are observed within wetland habitat year round. On Brigalow Research Station near Theodore the birds appeared to be sedentary during 1998 but elsewhere, between the sites in Table 2, their numbers fluctuated with the seasons. Significant numbers of birds may move according to the local food supply.

Pairs have been seen further inland than previously recorded (e.g. Carnarvon Gorge) and are capable of dispersal over some distance. I saw a flock at Lake Kajarabie (148° 38' E, 27° 50' S) near St George, some 470 km inland, and Bob Forsyth reported a pair on occasions over several years since 2001 at Lake Moondara (139° 32', 20° 36'), near Mt Isa, some

500km west of the species usual range.

Cotton Pygmy-Geese are presently found year round at sites in the Brisbane River and the Lockyer Valley (e.g. Gatton, Coominya). At some sites flocks may form as the number of birds present during winter increases in some years. Maximum winter counts recorded were of 20 birds at Boondooma Dam (in June), 19 and 18 birds, respectively, at Colleges Crossing and Bundaberg (in July) and 31 birds at Apex Park, Gatton (in September). I have seen over a 100 pairs on the Burnett River at Bundaberg whilst on a tourist trip but unfortunately did not keep a record. Large same sex flocks have not been observed in winter.

Without regular census and consistent effort over a period of time it is not possible to declare that Cotton Pygmy-Goose has changed its status but based on the casual observations reported in Table 2 there is a small local increase in the population over the past decade (Table 1). The related Green Pygmy-Goose is rarely reported in the region. Just two small groups of males were seen in December in 1998 and 2004, respectively, at Poona Dam and Green Swamp Road East (Table 2).

**Table 1. Annual minimum numbers of adults and goslings from sightings in Table 2**

Year	Adult	Young	Year	Adult	Young
1974	7+	?	1991	0	
1975	2	6	1992	0	
1976	14+		1993	16	
1977	0		1994	3	
1978	0		1995	3	
1979	0		1996	10	
1980	1+		1997	36	8
1981	0		1998	73	6
1982	0		1999	26	7
1983	0		2000	11	6
1984	7+		2001	28	10
1985	0		2002	62+	
1986	5		2003	16	?
1987	1+		2004	21	
1988	0		2005	35	28
1989	0		2006	39	-
1990	1+				

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## DISCUSSION

The behaviour described here adds to the small amount of published information on this species in Australia and also provides a context to explain why, over the past decade, the species range now includes south-east Queensland.

It is now known that Cotton Pygmy-Goose can breed, and raise goslings, by, and on shallow water and their breeding is not confined to deep water, as previously thought (Lavery 1966, Beruldsen 1977). Successfully breeding pairs appear to stay together throughout the year, despite males leaving the family group to the female to rear when goslings are only a few weeks old. How goslings exit nests and reach the relative safety of water in a lagoon, having in mind how clumsy they are walking on land, is still a puzzle. I have been told that in Africa the Cotton Pygmy-Goose sometimes carries its goslings to the water and simply drops them onto the surface. That might explain how on the several occasions that I saw goslings, they had appeared on the water of the lagoon overnight. Wilcox's account of the nest in his garden in Campbell (1900) includes "*there were seven or eight young ones which she carried out in her bill after they were hatched. The spout almost overhangs a small creek. I recollect a young one falling out of the nest into the water, but it swam away unconcerned*" (Beruldsen 1977).

An interesting aspect revealed by Table 2 is the wide spread of records from the non-breeding season, which suggests active dispersal occurs after the mating season, especially by males. During the winter when not breeding pairs may form flocks in some localities. Females are usually seen with juveniles or in the company of a mate. Males are occasionally seen in small groups with other males but rarely with more than one female.

There has been a significant increase in the numbers of Cotton Pygmy-Geese observed since 1996 (Table 1). That picture can be expanded by including the consideration of records from the late 1800's to 1978, as mentioned earlier in the introduction. What the current data cannot reveal is, why this species became almost extinct in New South Wales in the late 1800's and early 1900's, why so few sightings were reported from 1901 to 1996, and finally, the cause of a sudden (and presumably continuing) increase in numbers reported from 1996 to 2006. Suggestions might include drought, changes in the numbers of observers, habitat degradation and lack of suitable breeding sites.

South-east Queensland is currently experiencing a series of drought years

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the beginning of which coincides, approximately, with the first reported increase in the number of sightings of this species in 1996. However, there have been other equally severe droughts since 1901. Similarly, a dearth of observers may have had some influence on the absence or paucity of Cotton Pygmy-Goose records in the past but it is not a bird that can be confused with any other species and generally stands out quite prominently on the water, unless it is amongst water lily leaves on a windy day. Neither of these considerations helps to answer those questions.

The decline early last century may have been a result of draining of wetlands and the choking of water surfaces by Water Hyacinth, *Eichhornia crassipes* (Marchant and Higgins 1990). Originally from Brazil, Water Hyacinth was introduced to the Brisbane metropolitan area as an ornamental pond specimen in the early 1900s (Queensland Department of Natural Resources Mines & Water, 2006). After heavy rain in February 1907 immense quantities of water hyacinth washed down to the city reaches of the Brisbane River. Four insect species for biological control of Water hyacinth have been introduced from South America and released in Queensland by CSIRO since 1975. Integrated weed control has reduced heavy infestations but it still remains a pest in a wide area of coastal Queensland and New South Wales in fresh slow flowing or still water with high organic content. This might partly help to explain the dearth of reports over the past century, but not the increase in reported sightings since 1996.

There has been an increase in the numbers of farm dams and reservoirs constructed which may have provided suitable feeding habitat for the species. Most sightings were from new water impoundments available since 1974, especially those from 1996 to 2006 (Table 2). Few of the available impoundments can provide both nesting and food requirements needed by Cotton Pygmy-Geese and the currently low water storage levels in nearly all prohibits that.

Since 1997 pairs have raised full clutches of young to flying stage at Colleges Crossing lagoon (except in flood years, e.g.1999) where all the necessary requirements for breeding have persisted. This is despite local competition with many other bird species (e.g. ducks, rosellas, kookaburras and mynas) for nesting hollows. The availability of secure breeding places seems to be a key to the change in the status of the species. The other five known breeding locations are impoundments for water storage and suitable for breeding Pygmy-Geese only when full (e.g. Atkinson's Dam, 1974-1976). The number of locally bred birds present in the region may be

increasing and in future there may be more attempts at breeding recorded if these birds nest locally at natal sites. The long term retention of standing trees with hollows in or near water impoundments containing abundant aquatic vegetation would seem able to ensure the persistence of this rare and charming species in south-east Queensland.

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### REFERENCES

- BARRETT G., SILCOCKS, A., BARRY, S., CUNNINGHAM, R., POULTER, R. 2003. *The New Atlas of Australian Birds*. Royal Australasian Ornithologists Union. pp 824.
- BERULDSEN GORDON 1977. The nest and eggs of the White Pygmy-Goose. *Sunbird* 8 (3): 65-69.
- CAMPBELL A. J. 1900. *Nest and Eggs of Australian Birds*. The author, Sydney.
- FRITH H. J. 1967. *Waterfowl in Australia*. Angus and Robertson. Sydney.
- LAVERY H. J. 1966. Pygmy-Geese in Australia, Queensland. *Queensland Agricultural Journal* 92: 294-299.
- MARCHANT S. & HIGGINS P. J. 1990. *Handbook of Australian, New Zealand and Antarctic birds*. Volume 1 Part B Australian Pelican to Ducks. pp.1234-1239.
- QUEENSLAND DEPARTMENT OF NATURAL RESOURCES MINES & WATER 2006. *Water hyacinth fact sheet (PP6)* pp. 4.



**Table 2. Pygmy-Geese records from 36 locations in South-east Queensland.**

LOCATION	OBSERVATIONS	SOURCE
<b>Brigalow Research Station</b> (149° 59' E, 24° 52' S)		
1998	Approx. 25 birds resident all year round.	29(10)15
<b>Bundaberg</b> (152° 21' E, 24° 52' S)		
21 Nov. 1993	16 birds	25(2)8
20 July 2006	18 birds on Coral Cove golf links lagoons	27(8)15
<b>Rewan Station, Carnarvon Gorge</b> (148° 24' E, 24° 59' S)		
11 Oct. 1984	Number present not recorded.	15(10)3
<b>Childers</b> (152° 45' E, 25° 14' S)		
2 Dec. 1974	2 birds.	6(6)2
<b>Tansey</b> (152° 03' E, 26° 03' S)		
26 Nov. 1999	2 birds.	6(6)2
<b>Boondooma Dam</b> (151° 26' E, 26° 08' S) constructed in 1983.		
23 June 2002	20 birds.	E. & M. Pegg
<b>Joe Sippel Weir, Murgon</b> (151° 57' E, 26° 16' S) completed in 1984.		
10 June 2005	2 pairs.	36(7)14
<b>Gordonbrook Dam, Kingaroy</b> (151° 44' E, 26° 26' S)		
5 Jan. 2005	1 pair, 1 ♀ with 5 goslings and 1 ♀ with 3 goslings.	36(2)15
<b>Poona Dam, Nambour</b> (152° 55' E, 26° 36' S)		
19 Aug. 2001	6 birds.	32(9)11
2 April 2002	5 birds.	32(4)15
1 Dec. 2004	4 ♂ Green Pygmy-Geese.	S Rooke
3 April 2005	3 birds.	36(5)14

LOCATION	OBSERVATIONS	SOURCE
<b>Grey Street, Nanango</b> (150° 00' E, 26° 40' S)		
28 Oct. 2005	1 pair feeding in a swamp.	36(11)11
<b>Chinchilla</b> (150° 38' E, 26° 44' S)		
8 April 1996	7 birds.	27(6)11
<b>Ewen Maddock Dam</b> (153° 00' E, 26° 47' S) built in 1973.		
25 Jan. 2003	1 bird on eastern side of causeway.	34(2)15
<b>Woodford (West)</b> (152° 47' E, 26° 56' S) constructed in 1983.		
28 Sept. 2002	Number present not recorded. On farm dam.	33(10)15
<b>Reedy Creek, Lake Wivenhoe</b> (152° 28' E, 27° 14' S) completed in 1984.		
3 Aug 2002	5 birds near bridge over Creek.	R. Jaensch
<b>Lake Kurwongbah, Kallangur</b> (152° 59' E, 27° 15' S) built 1956 and full by 1969.		
5 July 1998	8 birds seen near Lakeside Raceway.	29(11)18
<b>Black Duck Lagoon (Ogg Road), Murrumba Downs</b> (153° 00' E, 27° 16' S)		
9 July 2006	8 birds on farm dam..	37(7)15
23 July 2006	6 birds.	37(8)15
<b>Dowse (Sandgate) Lagoon, Sandgate</b> (153° 04' E, 27° 19' S)		
21 July 1987	Number present not recorded.	18(8)9
31 July 2004	5 birds.	36(8)15
7 Aug. 2005	6 birds.	36(8)15
8 June 2006	1 pair.	S. Ryan
<b>Atkinson Dam, Lockyer Valley</b> (152° 27' E, 27° 26' S) constructed in 1970.		
1974	Pairs breeding.	
1976	Pairs breeding.	
30 June 1984	6 birds.	15(6)6
4 Oct. 1997	3 birds.	29(1)14
4 Oct. 1998	1 pair.	29(11)18
3 April 1999	3 birds.	30(4)15

LOCATION	OBSERVATIONS	SOURCE
11 Jan. 2001	9 birds.	32(2)15
1 Jan. 2002	2 ♂ and 1 ♀.	33(1)14
13 Jan. 2002	4 birds.	T. Murphy
26 May 2002	1 pair in dam near N-entrance of Dam.	33(6)15
<b>Lockyer Waters, Lockyer Valley (152° 23' E, 27° 27' S)</b>		
28 Dec. 1998	6 birds at farm dam west of Lockyer Waters.	30(5)15
<b>Seven Mile Lagoon, Lockyer Valley (152° 26' E, 27° 27' S)</b>		
24 Feb. 1999	1 bird.	30(3)15
<b>Green Swamp Road East, Lockyer Valley (152° 23' E, 27° 29' S)</b>		
28 Dec. 1998	5 birds and 2 ♂ Green Pygmy-Geese.	
<b>Lake Manchester, Brisbane (152° 45' E, 27° 29' S) reservoir dam completed in 1916.</b>		
28 Dec. 1998	6 birds.	
<b>Minnippi Parklands, Brisbane (153° 07' E, 27° 29' S)</b>		
8 Aug. 2002	1 ♂ and 1 ♀ feeding separately on the lake.	C. Reid
9 June 2006	1 ♂ and 3 ♀, or juveniles swimming at N-end of lagoon.	37(7)15
<b>Lake Clarendon, Lockyer Valley (152° 21' E, 27° 31' S)</b>		
1990	Number and date not recorded.	Newsletter
20 March 1994	3 birds.	26(10)6
9 Oct. 1999	6 birds on nearby lagoon.	30(11)15
6 Nov. 1999	1 ♂ and 1 ♀.	31(1)15
29 Jan. 2000	1 ♀ and 1 gosling.	31(3)15
13 Jan. 2002	1 ♀ and 10 goslings (20% size of ♀).	33(4)15
<b>Jaenschs Swamp, Lockyer Valley (152° 25' E, 27° 31' S)</b>		
3 April 1999	2 birds.	30(4)15
<b>Kholo Watercourse, Brisbane River (152° 46' E, 27° 32' S)</b>		
21 April 1999	2 birds.	30(6)11

LOCATION	OBSERVATIONS	SOURCE
<b>Tingalpa Reservoir, Brisbane</b> (153° 10' E, 27° 32' S)		
2 Oct. 2002	1 ♀ at western end of reservoir.	33(11)15
14 Feb. 2003	2 pairs at western end of reservoir.	34(3)15
<b>Colleges Crossing Lagoon, Brisbane River</b> (152° 48' E, 27° 33' S) created in 1978.		
22 Oct. 1995	3 birds.	27(1)15
1 Dec. 1996	2 ♂ and 1 ♀.	28(2)13
27 Dec. 1997	1 adult.	
28 Dec. 1997	2 adults with 8 goslings (1 day old) all together.	
31 Jan. 1998	1 ♀ with 8 goslings (approx. 4/5 adult size).	
27 Sept. 1998	6 adults (3 pairs).	29(10)15
9 Nov. 1998	3 adults.	
30 Nov. 1998	5 adults.	
13 Dec. 1998	2 adults.	
14 Dec. 1998	1 ♂ and 1 ♀ with 6 goslings (1 day old) all together.	
21 Dec. 1998	1 ♂ and 1 ♀ with 6 goslings (8 days old) all together.	
28 Dec. 1998	1 ♀ with 6 goslings (15 days old) together and 1 ♂, and 4 other pairs now elsewhere on the lagoon.	
18 Jan 1999	1 ♀ with 6 goslings (36 days old), approx. 4/5 adult size) all together. 1 ♂, now other end of lagoon.	
22 Jan. 1999	1 ♀ with 6 goslings (40 days old), all together. No ♂ present.	
16 Oct. 1999	2 adults stayed only a few days. Aquatic plants (food) lost in flood earlier in 1999.	
22, 27 Nov. 2000	2 pair.	
3, 5, 13 Dec. 2000	1 ♂ (1 ♀ not seen since 27 Nov.) May be incubating.	

LOCATION	OBSERVATIONS	SOURCE
24 Dec. 2000	1 pair feeding quietly.	
28 Dec. 2000	1 pair and 1 ♂ on water.	
15 Jan. 2001	1 ♂ and 1 ♀ with 6 goslings (7-10 days old) together.	
30 Jan. 2001	1 ♀ with 6 goslings (22-25 days old) together.	
11 Oct. 2001	2 pairs.	32(11)11
15, 25 Oct. 2001	4 adults.	
31 Oct. 2001	6 adults, including 1 courting pair.	
8, 14 Nov. 2001	1 ♂ only.	
21, 22 Nov. 2001	1 pair and a single ♂.	
26, 27 Nov. 2001	1 ♂ only.	
30 Nov., 3 Dec. 2001	1 pair and a single ♂.	
5 Dec. 2001	1 pair and two ♀.	
6 Dec. 2001	1 pair and a single agitated ♂.	
7 Dec. 2001	3 ♀ including one agitated individual.	
10, 13, 17 Dec. 2001	1 ♂ agitated, not feeding.	
20 Dec. 2001	2 ♂ feeding.	
22 Dec. 2001	1 ♂ feeding.	
23 Dec. 2001	None present.	
15 June 2002	15 birds.	33(7)15
16 July 2002	19 birds. (Some still present 4 Aug.)	S. Gillman
24 Nov. 2002	4 birds.	A. Pagano
30 Nov. 2003	4 or 5 birds present. Possibly nesting in tall Eucalypt.	35(1)14
13 Oct. 2004	1 ♂ and 3 ♀.	35(11)14
5 Dec. 2004	1 ♂ and 3 ♀ (or juveniles).	36(1)14
8 April 2005	3 birds.	T. Murphy
12 Nov. 2005	4 pairs and 1 ♂.	

LOCATION	OBSERVATIONS	SOURCE
14 Nov. 2005	3 pairs and 1 ♂.	
16 Nov. 2005	2 pairs and 1 ♂.	
23, 24, 29 Nov. 2005	1 pair and 4 ♂.	
15, 22 Dec. 2005	1 pair and 4 ♂.	
1 Jan. 2006	5 pairs and 1 ♀ with 11 goslings (7 days old) together and 1 ♀ with 8 older goslings all together.	M. Cameron
9 Jan. 2006	3 pairs and 1 ♀ with 11 goslings (15 days old) and 1 ♀ with 8 goslings (>15 days old) and 1 ♀ with 1 day old gosling. Total of 29 birds present.	
18 Jan. 2006	4 pairs and 1 ♀ with 11 goslings (24 days old) and 1 ♀ with 8 goslings (>24 days old). Youngest gosling (9 Jan.) missing. Total of 29 birds present.	
31 Jan. 2006	1 ♂, 1 ♀ with 11 goslings (37 days old) and 1 ♀ with 8 goslings (>37 days old).	
1 Feb. 2006	1 ♂, 1 ♀ and 1 ♀ with 10 (38 days old) goslings near adult ♀ size.	J. England per M. Cameron
27 Feb. 2006	2 adults.	R. Gutherie, S. Stanford & L. & T. Murphy
27 June 2006	1 pair.	37(8)15
6 Aug. 2006	4 pairs.	A. Boardman & T. Murphy
17 Sept. 2006	1 pair (1 ♂, 1 ♀) feeding together.	D. Rounsevell
7 Oct. 2006	4 pairs and 1 ♀ with 2 ♂ feeding together at lagoon.	
19 Nov. 2006	5 pairs	D. Rounsevell
<b>Haighslea</b> (152° 38' E, 27° 34' S)		
12 Oct. 1980	Number present not recorded.	11(11)13
<b>Dyers Lagoon, Laidley</b> (152° 23' E, 27° 38' S) constructed in 1987.		
6 Sept. 1974	Number present not recorded.	5(9)3
Jan. 1976	1 pair with goslings.	Beruldsen (1977)

LOCATION	OBSERVATIONS	SOURCE
13 June 1976	10 birds. Trees for breeding gone.	7(6)3
9 Oct. 1999	4 birds.	30(11)15
1 Nov. 2000	7 birds.	31(11)15
1 Nov. 2001	4 birds.	33(1)14
23 Oct. 2003	6 birds.	34(11)15
<b>Apex Lakes (Freeman Park), Gatton (152° 15' E, 27° 39' S)</b>		
12 Sept. 1997	31 birds.	28(10)10
7 Feb. 1998	Present but number unrecorded.	29(7)11
26 April 1998	13 birds.	29(5)11
4 Oct. 1998	2 pairs,	29(11)18
28 Dec. 1998	5 birds.	
19 Sept. 1999	Present (number unrecorded) at Kelly Rd Swamp.	30(10)14
8 Feb. 2004	1 bird on Freeman Lake.	35(2)15
26 May 2004	4 birds on second lake.	35(6)14
18 July 2004	7 birds.	35(8)10
25 July 2004	4 ♂ and 3 ♀ seen in Lake Freeman,	35(8)10
1 June 2005	1 bird.	36(6)10
30 June 2005	1 adult and 1 juvenile.	36(7)14
5 Nov. 2005	1 ♂ and 1 ♀ present for at least 2 days.	36(11)11
<b>Power Station Cooling Ponds, Swanbank (152° 49' E, 27° 40' S)</b>		
1 Dec. 2002	2 birds.	34(1)15
<b>Logan Reserve (153° 10' E, 27° 40' S)</b>		
15 Sept. 2001	1 ♂.	32(11)1
9 July 2002	3 birds.	33(8)15
15 Sept. 2002	1 bird.	32(11)11

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LOCATION	OBSERVATIONS	SOURCE
<b>Bethania</b> (153° 10' E, 27° 42' S)		
2004	1 bird. No date recorded.	The Pelican 18 Dec. 2005
25 Aug. 2005	2 birds.	The Pelican 18 Dec. 2005
<b>Tamborine Village, Lakes</b> (153° 11' E, 27° 56' S)		
7 Feb. 199?	3 birds.	29(3)15
21 March 1998	2 birds.	29(9)11, 30(8)15
29 Dec. 1999	3 adults and 6 goslings.	31(2)15
<b>Tamrookun</b> (152° 55' E, 28° 07' S)		
26 Oct. 1986	5 birds.	BQ bird count

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## SEABIRDS OF FRASER ISLAND 1996—2002

DAVID STEWART AND ROD HOBSON

### ABSTRACT

Sixty-eight species of seabirds from four Orders (Sphenisciformes, Procellariiformes, Pelecaniformes and Charadriiformes) are reported from Fraser Island. A checklist containing records of these species from localities on the island is presented using data from two sources; an ongoing survey of live seabirds and beach-cast carcasses conducted by regularly patrolling eastern beaches from January 1996 to December 2002 and earlier records from all other sources. During the survey seabird carcasses were collected and preserved for later identification and museum curation. In all, 3051 seabird carcasses were recorded or collected during the survey.

Most seabird species were beach-cast between July and October when cool offshore currents (the Tasman Front) brought large amounts of cuttlefish to the coast. The peak of species abundance of beach-cast seabirds correlated with the greater availability of food. Short-tailed Shearwater *Puffinus tenuirostris*, the most common passage migrant, was beach-cast most frequently in November and December 2002 when 2438 birds were found dead or dying from starvation along eastern beaches, after a long migration from the Northern hemisphere.

Ten species, Herald Petrel, *Pterodroma arminjoniana heraldica*, Mottled Petrel, *Pterodroma inexpectata*, Broad-billed Prion, *Pachyptila vittata*, Westland Petrel, *Procellaria westlandica*, Black Petrel, *Procellaria parkinsoni*, Buller's Shearwater *Puffinus bulleri*, Sooty Albatross, *Phoebetria fusca*, White-bellied Storm-Petrel, *Fregetta grallaria*, Long-tailed Jaeger, *Stercorarius longicaudus* and Pacific Gull, *Larus pacificus* are reported from the island for the first time.

### INTRODUCTION

Fraser Island is an elongate coastal island lying adjacent to South-Eastern Queensland between 152° 57' and 153° 22' longitude and 24° 42' and 25° 48' latitude approximately 470 km N of Brisbane. It is the largest sand island in the world (166, 283 ha.), 122 km long, between 5 km and 25 km wide and its highest point is 235 m above sea level (DTASET 1991). It is a World Heritage Area (Queensland Government 1994) administered by the

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Queensland Parks and Wildlife Service. The eastern coast, Eastern Beach, is a single flat sandy beach exposed to the Pacific Ocean along the length of the island, except for two large rocky headlands at Indian Head and Waddy Point and several smaller low extrusions of compressed humic 'coffee rock'. A series of small creeks and temporary soaks transect Eastern Beach.

Previously published records are from surveys covering shorter periods of time than the current survey (e.g. Barry and Vernon 1976, Sutton 1990, Vernon and Barry 1972) or groups of interesting records or specimens (e.g. Hobson and Stewart 2002, Vernon and Martin 1974). The results of the current survey are supplemented with these historical records to provide a fuller account of the seabird fauna occurring in the vicinity of Fraser Island.

## METHODS

Between January 1996 and December, 2002 Ranger staff of the Queensland Parks and Wildlife Service (QPWS) collected beach-cast birds during regular beach patrols along the majority of the Eastern Beach. Some staff also surveyed beaches while off-duty when conditions were favourable for finding beach-cast seabirds. Records of live seabirds sighted between 1996 and 2002, particularly during strong on-shore winds, also are included. Permanent island residents, Crested Tern and the increasingly common Silver Gull, are frequently killed by vehicles travelling along Eastern Beach and excluded from the beach-cast data.

The locations of the collected (mostly dead) specimens were recorded usually as a distance from a named landmark. Collected specimens were labelled, bagged and stored frozen for later identification and/or curation. Visitors to the island also collected carcasses and took them to QPWS offices on the island. Frozen specimens were processed off the island at the Moggill Office of QPWS and accessioned by the Queensland Museum (QM).

The systematic list contains records under the species names grouped together according to two time periods. The groups are headed by entries showing the numbers of records they contain. The first group contains records from the 1996 to 2002 survey period and the second group contains records prior to 1996. Both groups include published records, records of specimens accessioned by the QM, or records of birds sighted on a computer database by QPWS staff working at Fraser Island (QPWS fauna database, Wildnet). The records are presented in two time periods because

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search effort was greater and more consistent during the survey. Since 1996 searching of beaches for specimens has been systematic and the amount of effort spent collecting beach-cast specimens was also much greater than prior to 1996.

The taxonomy follows Christidis and Boles (1995), except for albatross, where Robertson and Nunn (1998) has been used. Some albatross specimens found prior to the publication of Robertson and Nunn (1998) are not allocated to the 'proposed' new species. Thus specimens belonging to the Wandering Albatross and Shy Albatross complexes from that time period may be of uncertain identity.

Records consist of elements in the following order; the condition, number and location of birds found (usually single dead specimens), the date, the Queensland Museum accession number (if any) (e.g. QMO.31191) and the initials of the person (see Appendix 2) who found the carcass or bird.

## SYSTEMATIC LIST

### Order:Sphenisciformes

#### **Little Penguin *Eudyptula minor***

##### **2 records**

Skeletal remains of one found at the mouth of Govi Creek, 18 March 1999 (RH); and one found alive at Waddy Point died shortly afterwards, 4 July 2001, specimen in the QM (IT).

##### **1 record**

One found alive at Sandy Cape lived for a several days before being euthanased (by veterinarian) as it could not be released. This specimen was photographed but not retained, July 1992 (DF).

### Order:Procellariiformes

#### **Southern Giant-Petrel *Macronectes giganteus***

##### **12 records**

One immature dead at the mouth of Eli Creek, 14 June 1996 (TG); one alive near Eurong but died shortly after, 23 June 1997 (CH); one immature dead N of Poyungan Rocks, 26 June 1997 (CH); one dead N of Eurong, 22 July 1997 (RH); one dead collected 'Fraser Island', 1 Sept. 1997, QM; one alive near Dundubara, 18 Aug. 1998 (RH); one dead at the mouth of Govi Creek, 30 June 1999 (RH); one dead at the mouth of Tooloora Creek, 7 May 2000 (RH); one immature dead along Western Beach near Platypus Bay track jump-up, 24 Aug. 2000 (AS); one dead at the mouth of Semaphore Creek, 8 Sept. 2000 (RH); one immature dead Happy Valley, 10 May 2002 (IT) and one immature dead 6 km S of Dilli Village, 21 Aug. 2002 (MB).

**4 records**

One dead 'Fraser Island', 27 Oct. 1970 (Barry and Vernon 1976); one dead 'Fraser Island', late 1979 QM; one dead 'Fraser Island', 16 June 1979 QM (Niland 1979) and one dead 'Fraser Island', 1 July 1987 (DS).

**Northern Giant-Petrel *Macronectes halli*****5 records**

One alive N of Poyungan Rocks but died shortly after, 7 July 1997 (RH); one first-year bird dead at the mouth of Tooloora Creek, 1 July 1999 QMO.31191 (DB); one first-year bird dead S of Dilli Village, 10 Aug. 1999, QMO.31547 (MBr); one immature dead N side of Poyungan Rocks, 13 June 2000 (MBr) and one immature dead 1 km S of Dilli Village, 12 June 2002 (IT).

**Southern Fulmar *Fulmarus glacialisoides*****3 records**

One dead 1.1 km S of Poyungan Rocks, 16 May 1999 QMO.31451 (CH); one dead 1.1 km S of Poyungan Rocks, 6 July 1999 QMO. 31450 (via RH) and one dead Corroboree Beach, 9 July 1999, QMO.31458 (RH and TP).

**Cape Petrel *Daption capense*****17 records**

One alive but died shortly after, near Eurong, 25 June 1999 (RH); one dead 2 km N of Eurong, 30 June 1999, QMO.31148 (RH); one dead 1.5 km S of Dilli Village, 30 June 1999, QMO.31146 (RH); one dead near Dilli Village, 5 July 1999, QMO.31150 (CH); one dead 2.3 km N of Eurong, 6 July 1999, QMO.31147 (RH); one dead at Poyungan Rocks, 6 July 1999, QMO.31149 (RH); one dead 2 km S of Poyungan Rocks, 14 July 1999, QMO.31266 (RH); one dead 'Fraser Island', 4 Aug. 1999, QMO.31342 (RJ); two dead (one collected) at Sandy Cape, 13 Aug. 1999, QMO.31281 (CH); one dead near Dundubara, 29 Nov. 1999 (RH); one dead 200 m N of Happy Valley, 14 June 2000 (LP); one dead 1 km N of Tooloora Creek, 18 June 2000 (RJ); one dead 3 km S of Indian Head, 8 Aug. 2000 (TP); one dead near Cornwell's Break, 16 Aug. 2000 (MBr); one dead 0.5 km S of Dundubara, 31 July 2002 (AS) and one dead 2 km S of Indian Head, 31 July 2002 (AS).

**1 record**

One dead *D. c. capense* 5 km N of the *Maheno* shipwreck, 8 July 1985, QMO.

**Kerguelen Petrel *Lugensa brevirostris*****10 records**

One dead 3 km N of One Tree Rock, 29 July 1999, QMO.31313 (RH); one dead 2.7 km N of Dilli Village, 30 July 1999, QMO.31296 (CH); Two dead

near Dilli Village, 30 July 1999, QMO.31187 and QMO.31287 (CH); one dead at the mouth of the Eli Creek, 12 Aug. 1999, QMO.31332 (CH); four dead at Sandy Cape, 13 Aug. 1999, QMO.31317, QMO.31323, QMO.31324 and, QMO.31527 (CH) and one dead near Dundubara, 18 Aug. 1999, QMO.31330 (JF).

**2 records**

One alive but died shortly after, near Eurong, 14 Aug. 1995, QMO.31196 (RH) and one alive but died shortly after, 16.5 km N of the *Maheno* shipwreck, 16 Aug. 1995, QMO.31198 (RH).

**Tahiti Petrel *Pseudobulweria rostrata***

**2 records**

Two dead (one collected) near Eurong, 3 Feb. 2001, QMO.31467 (MW).

**1 record**

One dead 5 km S of the *Maheno* shipwreck, 1 May 1968, QMO.11165.

**Great-winged Petrel *Pterodroma macroptera***

**6 records**

One dead near The Cathedrals, 21 April 1999, QMO.31183 (RH); one dead 1.5 km N of The Cathedrals, 21 July 1999 (TP); one dead *P. m. macroptera* near Dundubara, 18 Aug. 1999 (TP); one dead near Dilli Village, 19 Aug. 1999 (RH); one dead *P. m. gouldii* at the mouth of Gerowweea Creek, 16 April 2000, QMO.31434 (CH) and one dead *P. m. macroptera* 2 km N of Eurong, 14 Feb. 2001, QMO.31611 (MBr).

**White-headed Petrel *Pterodroma lessonii***

**28 records**

One dead near Dilli Village, 3 June 1996, QMO.31217 (DH); one dead N of Eurong, 15 June 1996 (RH); one dead near Dilli Village, 23 Jan. 1996, QMO.31228 (RH); one dead 1.5 km N of Poyungan Rocks, 24 June 1997, QMO.31204 (RH); one alive (but died shortly after) 12 km N of Hook Point, 13 July 1997, QMO.31214 (CH); one dead 1 km S of Eurong, 30 July 1997, QMO.31231 (RH); one dead at the mouth Govi Creek, 14 Aug. 1997 (CH); one alive (but died shortly after) near Eurong, 21 Aug. 1997 (SO); one dead near Eurong, 16 Aug. 1998 (RH); one alive at Indian Head (but died shortly after); 29 Aug. 1998 (RH); one dead 10 km S of Dilli Village, 1 July 1999, QMO.31152 (RH); one dead 3.1 km N of the *Maheno* shipwreck, 6 July 1999, QMO.31151 (RH); one dead at the mouth of Eli Creek, 12 Aug. 1999, QMO.31328 (CH); one dead near Dundubara, 25 Aug. 1999, QMO.31295 (JF); one dead at Sandy Cape, 13 Aug. 1999 (RH); one alive on the beach at Poyungan Rocks, 4 May 2000 (rehabilitated and later released (RH)); two dead near Eurong, 4 May 2000, QMO.31364 (RH, MBr); one dead 2.5 km N of Dundubara, 18 June 2000 (IT); one dead 2 km N of

Eurong, 19 June 2000 (RJ); one dead 1.2 km S of Sandy Cape, 24 Aug. 2000 (AS); one dead 5 km S of Dundubara, 7 April 2001 (SF); one dead 5 km S of Eurong, 13 June 2001 (PH); one dead Brown's Rocks, 27 March 2002 (AS); one Browns Rock, 8.5 km S of Sandy Cape, 27 March 2002 (AS); one dead, Waddy Point, 8 June 2002 (KB); one dead 0.75 km S of Cornwell's Break Rd., 12 Aug. 2002 (MB) and one dead 4 km N of Yidney Rocks, 21 Aug. 2002 (MB).

#### **4 records**

Five dead (one collected) 5 km N of the *Maheno* shipwreck, 8 July 1985, QMO.26530 (RH); three live and two dead birds between Eurong and the *Maheno* shipwreck, 7 June 1995 (RH); one dead at the mouth of Eli Creek, 16 Aug. 1995 (RH) and one dead near the *Maheno* shipwreck, 16 Aug. 1995, MO.31236 (RH).

### **Providence Petrel *Pterodroma solandri***

#### **10 records**

Two dead near Dilli Village, 5 May 1996, QMO.31243 and QMO.31249 (RH); one dead near Chard Rock, 24 April 1997 (RH); one dead at the mouth of Govi Creek, 27 April 1997 (RH); one dead near Dundubara, 5 Aug. 1999, QMO.31638 (LP); one dead near Dilli Village, 31 Aug. 1999, QMO.31334 (CH); one alive on the beach at the mouth of Gerowweea Creek, 20 Feb. 2000 (RH); one dead 2 km S of Poyungan Rocks, 30 June 2000 (AS); one dead 1 km S of Dilli Village, 3 Aug. 2000 (CH) and two dead near Eurong, 8 Aug. 2000 (RH).

#### **2 records**

One dead 5 km S of the *Maheno* shipwreck, 8 May 1967, QMO.11004 and one dead near the *Maheno* shipwreck, 1 May 1971, QMO.11794.

### **Herald Petrel *Pterodroma arminjoniana heraldica***

#### **1 record**

One dark phase bird observed flying just behind the breakers in a mixed flock of shearwaters near the entrance to Lake Wabby, 24 April 2000 (RH).

### **Mottled Petrel *Pterodroma inexpectata***

#### **1 record**

One dead 10 km S of Sandy Cape, 23 Jan. 2002, specimen lodged in the QM (AS).

### **Black-winged Petrel *Pterodroma nigripennis***

#### **3 records**

One dead near Eurong, 12 March 1996, QMO.31260 (RH); one dead at Poyungan Rocks, 25 Feb. 2000 (RH) and one dead near Eurong, 17 April 2000, QMO.31344 (CH).

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**2 records**

One dead 2 km S of Eurong, 8 Jan. 1976, QMO.16399 (Barry and Vernon 1976); one dead 'Fraser Island', 19 Oct. 1980 (Sutton 1990).

**Gould's Petrel *Pterodroma leucoptera*****5 records**

One dead at the mouth of Govi Creek, 14 Aug. 1997, QMO.31623 (PH); one dead 3 km S of Dilli Village, 1 Feb. 1999 (RH); one dead 3 km S of Dilli Village, 3 Feb. 1999, QMO.31271 (RH); one dead at the mouth of the Govi Creek, 5 Sept. 1999 (RH) and one dead *P. l. leucoptera* 11 km S of Dilli Village, 4 Feb. 2001, QMO.31549 (IT).

**4 records**

One dead *P. l. leucoptera* 2 km S of Eurong Beach, 14 Jan. 1991, QMO.29213 (QM); one dead *P. l. leucoptera* near Dilli Village, 13 Jan. 1995, QMO.30518 (MH); one alive (but died shortly after) 2 km N of Dundubara, 15 April 1995, QMO.31245 (RH) and one dead between Dilli Village and Eurong, 10 December 1995, QMO.31272 (LR).

**Blue Petrel *Halobaena caerulea*****5 records**

One dead 'Fraser Island', 15 Aug. 1998 (Eades 1995, Anon 1995); one dead 9.1 km N of Eurong, 30 July 1999, QMO.31476 (RH); one dead near Dilli Village, 30 July 1999, QMO.31294 (RH) and two dead at Sandy Cape, 13 Aug. 1999, QMO.31318 and QMO.31528 (CH).

**1 record**

One alive (but died shortly after) at the mouth of Govi Creek, 15 Aug. 1995, QMO.31192 (RH).

**Broad-billed Prion *Pachyptila vittata*****1 record**

One dead 2 km S of Sandy Cape, 17 June 2000, QMO.31552 (AS).

**Salvin's Prion *Pachyptila salvini*****20 records**

One dead 1 km N of Eurong, 30 June 1999 (RH); one dead 1.2 km N of Poyungan Rocks, 5 July 1999, QMO.31492 (RH); one dead 4 km N of Eurong, 6 July 1999, QMO.31487 (RH); one dead 7.2 km N of Eurong, 18 June 2000 (IT); one dead 8.0 km N of the *Maheno* shipwreck, 18 June 2000, QMO.31446 (IT); one dead at the mouth of Tooloora Creek, 1 July 2000 (PH); two dead Tooloora Creek, 25 June 2002 (IT); one dead Gerowweea Creek, 25 June 2002 (IT); two dead 1.5 km and 6.8 km S of Dilli Village, 26 June 2002 (IT); one alive (but died later) 2 km S of Dilli Village, 1 July 2002 (RA); one dead Dundubara, 1 July 2002 (PL); two dead

0.5 km S of Yidney Rocks, 17 July 2002 (IT, JL); one dead 6.1 km N of Hook Point, 30 July 2002 (IT); one dead 2 km S of Dilli Village, 20 Aug. 2002 (MB); one dead 1 km S of Gerowweea, 20 Aug. 2002 (MB); one dead 2 km S of Yidney Rocks, 26 Aug. 2002 (MB) and one dead 2 km N of Eurong, 3 Oct. 2002 (IT).

### **Antarctic Prion *Pachyptila desolata***

#### **39 records**

One dead at Poyungan Rocks, 23 June 1997, QMO.31238 (RH); one dead near Eurong, 25 June 1997 (MBr); one dead Waddy Point, 27 May 1998 (RH); one dead near Eurong, 7 April 1999, QMO.31269 (RH); one dead along Corroboree Beach, 28 June 1999, QMO.13104 (JF); one dead 2.3 km S of Dilli Village, 30 June 1999, QMO.31305 (RH); two dead 2.5 km and 3 km S of Dilli Village, 30 June 1999 (RH); one dead 1 km N of Eurong, 30 June 1999, QMO.31339 (RH); one dead Eurong, 5 July 1999, QMO.31300 (RH); one dead at the mouth of Govi Creek, 7 July 1999, QMO.31286 (IT); one dead at the mouth of Taleerba Creek, 7 July 1999, QMO.31312 (IT); one dead at the mouth of Govi Creek, 9 July 1999 (TP); one dead 200 m N of the Pinnacles, 25 July 1999, QMO.31327 (JF); one dead 1.1 km S of Eurong, 27 July 1999, QMO.31310 (RH); one dead 2 km N of Eurong, 30 July 1999, QMO.31322 (RH); one dead 1 km S of Eurong, 30 July 1999, QMO.31488 (RH); one dead near One Tree Rocks, 30 July 1999 (RH); one dead at the mouth of Govi Creek, 1 Aug. 1999 (RH); one dead at Poyungan Rocks, 12 Aug. 1999, QMO.31551 (MBr); one dead at Sandy Cape, 13 Aug. 1999, QMO.31319 (CH); one dead near Cornwell's Break Rd, 16 June 2000 (RJ); one dead 1.4 km S of Red Canyon, 14 June 2000 (LP); one dead at Brown's Rocks, 17 June 2000 (AS); one dead 4.7 km N of Eurong, 18 June 2000, QMO.31447 (IT); one dead S side of Indian Head, 18 June 2000 (TP); one dead at the mouth of Govi Creek, 20 June 2000 (IT); one alive (but died shortly after) 1.2 km S of Dundubara, 27 June 2000 (TP); one dead at the mouth of Govi Creek, 29 June 2000 (CH); one dead near Dilli Village 20 June 2001 (PH); one dead at the mouth of Tooloora Creek, 25 June 2002 (IT); one dead 4.4 km S of Dilli Village, 26 June 2002 (IT); two dead 7.2 km S of Eurong, 26 June 2002 (IT); one alive (but died shortly after) 3 km S of Dilli Village, 1 July 2002 (AS); two dead 6.7 km N of Hook Point, 30 July 2002 (IT); one dead 3 km N of Dundubara; 26 Aug. 2002 (IT) and one dead 0.6 km S of Poyungan Rocks, 27 Aug. 2002, (JL).

#### **4 records**

One dead 5 km N of the *Maheno* shipwreck, 7 June 1985, QMO.26531 (QM); one dead near the entrance to Lake Wabby Track, 2 Aug. 1995 (RH); one dead near Eurong, 2 Aug. 1995, QMO.31248 (RH) and one dead near Dundubara, 14 Aug. 1995, QMO.31246 (RH).

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**Slender-billed Prion *Pachyptila belcheri*****32 records**

One dead at the mouth of Gerowweea Creek, 6 July 1997, QMO.31220 (RH); one alive 7 km N of Eurong (died shortly after); 20 July 1998 (RH); one dead near Dilli Village, 27 May 1999, QMO.31293 (RH); one dead 1.4 km S of Poyungan Rocks, 5 July 1999, QMO.31484 (RH); one dead at the mouth of Gerowweea Creek, 27 July 1999, QMO.31567 (CH and RH); one dead 2.3 km S of Eurong, 28 July 1999, QMO.31523 (RH); one dead near Eurong, 28 July 1999, QMO.31306 (RH); one dead 1.3 km N of Eurong, 29 July 1999, QMO.31308 (RH); one dead 1.4 km N of Eli Creek, 30 July 1999, QMO.31285 (RH); one dead 2 km S of Dundubara, 30 July 1999, QMO.31309 (RH); one dead at the *Maheno* shipwreck, 30 July 1999, QMO.31338 (RH); one dead at the mouth of Govi Creek, 30 July 1999, QMO.31311 (CH); one dead N of The Pinnacles, 30 July 1999, QMO.31292 (RH); one dead at Sandy Cape, 13 Aug. 1999, QMO.31321 (CH); one dead 2 km N of Cornwell's Break Road, 16 June 2000 (AS); one dead in Rainbow Gorge, 17 June 2000 (RJ); one dead 0.8 km N of Dundubara, 18 June 2000 (IT); one dead 2.2 km S of Eurong, 18 June 2000 (IT); one dead 6.8 km S of Eurong, 18 June 2000 (IT); one dead at the mouth of Govi Creek, 29 June 2000 (CH); two near Dilli Village (one was alive but died shortly after); 3 Aug. 2000 (CH); one dead 9.4 km S of Dilli Village, 26 June 2002 (IT); one alive (but died shortly after) and another dead, 16 km S of Indian Head, 1 July 2002 (IT); one dead 4.5 km S of Dundubara, 29 July 2002 (TP); one dead 1 km N of Dilli Village, 30 July 2002 (MB); one dead 1.2 km N of Hook Point, 30 July 2002 (IT); one dead 4.6 km N of Hook Point, 30 July 2002 (IT); one dead 14.2 km N of Hook Point, 30 July 2002 (IT); one dead 2 km N of Poyungan Rocks, 31 July 2002 (AS); one dead 0.5 km N of Cathedral Beach, 17 Aug. 2002 (JL); one dead 5 km N of Dundubara, 21 Aug. 2002 (MB) and one dead Yidney Rocks, 26 Aug. 2002 (IT).

**2 records**

One dead W beach of Fraser Island, 25 June 1973, QMO.15548 (QM) and another dead between Eurong Beach and Hook Point, 1 Sept. 1973 (Vernon and Martin 1974).

**Fairy Prion *Pachyptila turtur*****34 records**

One dead at the mouth of Govi Creek, 22 June 1997, QMO.31262 (RH); one dead at Poyungan Rocks, 22 June 1997 (RH); one dead S of Eurong, 23 June 1997, QMO.31275 (RH); one dead near Eurong, 25 June 1997 (MBr); one dead 2 km N of Eurong, 26 June 1997 (RH); one dead near Eurong, 12 July 1998 (RH); one dead near Eurong, 7 April 1999 (RH); one dead 2.5 km S of Dilli Village, 30 June 1999, QMO.31341 (RH); one dead near mouth of Tooloora Creek, 6 July 1999, QMO.31456 (RH); one dead 4 km N of Eurong, 29 July 1999 (RH); one dead at Poyungan Rocks, 30 July 1999

(RH); one dead 1.2 km N of Eurong, 30 July 1999, QMO.31575 (RH); one dead 2.4 km S of Eurong, 30 July 1999, QMO.31598 (RH); one dead 4.6 km N of Eurong, 30 July 1999, QMO.31524 (RH); one dead at the mouth of Govi Creek; 1 Aug. 1999, QMO.31185 (PH); one dead at the mouth of Eli Creek, 12 Aug. 1999, QMO.31337 (CH); one dead 4 km N of Eli Creek, 14 June 2000 (CL); one dead at Indian Head, 21 June 2000 (TP); one dead 1 km S of Dundubara, 27 June 2000 (TP); one dead at the mouth of Govi Creek, 29 June 2000 (CH); one dead 0.5 km S of the *Maheno* shipwreck, 1 July 2000 (RH); two dead near Dilli Village, 3 Aug. 2000 (CH); one dead 3.7 km N of Eurong, 25 June 2001 (IT); one alive (but died shortly after); 5 km N of Hook Point, 12 July 2001 (JL and IT); one dead Govi Creek, 25 June 2002 (IT); one dead 3 km S of Dilli Village, 26 June 2002 (IT); one dead near The Oaks, 11 July 2002 (KS); one dead 2 km N of Eurong, 24 July 2002 (MB); one dead 1.5 km N of Eurong, 24 July 2002 (MB); one dead 3 km S of Dilli Village, 28 July 2002 (AS); one alive (but died shortly after); 12.9 km S of Indian Head, 30 July 2002 (GP); one dead 17.4 km N of Hook Point, 30 July 2002 (IT); one dead 2 km N of Happy Valley, 26 Aug. 2002 (IT) and one dead 6 km N of Eurong, 26 Aug. 2002 (IT).

#### **4 records**

Three dead at Indian Head, 9 June 1982, QMO.18982, QMO.18985 and QMO.22511 (QM) and one dead Yidney Rocks, 15 Aug. 1995 (RH).

### **Westland Petrel *Procellaria westlandica***

#### **2 records**

One dead 1.7 km near Poyungan Rocks, 24 June 1997 (RH) and one alive (but died shortly after); 2 km S of Dundubara, 14 Sept. 1997, QMO.31184 (PJ).

### **Black Petrel *Procellaria parkinsoni***

#### **1 record**

One bird apparently exhausted bird was observed sitting on the beach with flock of Crested Terns (*Sterna bergii*) near the mouth of Govi Creek. When approached it flew to sea, 5 June 1997 (RH).

### **Streaked Shearwater *Calonectris leucomelas***

#### **2 records**

One alive at the mouth of Govi Creek (but died shortly after); 8 March 1999, QMO.31267 (CH) and one alive (but died shortly after) and Eurong, 3 Feb. 2001, QMO.31473 (MW).

### **Buller's Shearwater *Puffinus bulleri***

#### **1 record**

One dead 2.5 km S of Dilli Village, 30 Jan. 2000 (RH).

**Wedge-tailed Shearwater *Puffinus pacificus*****58 records**

One dead at Yidney Rocks, 12 Jan. 1996 (GP); one alive (but died shortly after); Waddy Point, 4 Jan. 1997 (GP); one dead near Eurong, 7 Nov. 1997 (GP); one dead at Yidney Rocks, 10 Nov. 1997 (GP); one dead near Eurong, 10 Nov. 1997 (GP); one dead at the mouth of Govi Creek, 10 Nov. 1997 (GP); one dead near the entrance to Lake Wabby, 11 Nov. 1997 (GP); one dead near the mouth of Eli Creek, 11 Nov. 1997 (GP); one dead between Eurong and Poyungan Rock, 11 Nov. 1997 (GP); one dead 4.5 km S of Dilli Village, 23 Nov. 1997 (RH); one dead near the mouth of Govi Creek, 5 May 1999 (RH); one dead near Eurong, 27 April 2000 (RH); one dead 12 km S of Dilli Village, 3 May 2000 (RH); one dead 1 km S of Sandy Cape, 21 Sept. 2000 (GP); one dead 2.3 km N of Eurong, 23 Jan. 2001 (DS); 15 dead between Eurong and Dilli Village, 4 Feb. 2001 (IT); Seven dead between Eurong and Dilli Village, 5 Feb. 2001 (IT); 18 dead between Eurong and Dilli Village, 6 Feb. 2001 (IT); one dead at Yidney Rocks, 25 Feb. 2001 (JL); one alive (but died that night) N Brown's Rocks, 27 March 2002 (AS); one dead 3 km S of Dilli Village, 12 June 2002 (IT) and one dead 2 km S of Eurong, 17 July 2002 (GP).

**7 records**

One dead 5 km S of the *Maheno* shipwreck, 25 Oct. 1969, QMO.11795; five dead south-eastern Fraser Island, 25 Dec. 1977, QMO.17098, QMO.17099, QMO.17100, QMO.17101 and QMO.17102 (QM) and one dead 2 km S of Eli Creek, 13 May 1980, QMO.18247 (QM).

**Flesh-footed Shearwater *Puffinus carneipes*****5 records**

Over 50 live birds seen in Great Sandy Strait between River Heads and mouth of the Wanggoolbva Creek, 31 Jan. 1997 (RH). One dead at the mouth of Govi Creek, 3 May 2000 (RH); one dead near Eurong; 3 Feb. 2001, QMO.31615 (MW); one dead 1.9 km S of Dilli Village, 6 Feb. 2001, QMO.31474 (CH); one dead 13 km S of Sandy Cape (AS) and another dead Sandy Cape, 2 Dec. 2001 (AS).

**1 record**

One dead at Yidney Rocks, 9 Jan. 1995 (RH).

**Sooty Shearwater *Puffinus griseus*****3 records**

One dead near Eurong, 11 June 1996 (RH); two dead at the mouth of Govi Creek, 4 Nov. 1996 (CH) and one dead 5 km N of Eurong, 11 May 1999 (RH).

**15 records**

One dead at Indian Head, 9 June 1982, QMO.19002 (QM); five dead near Eurong, 3 Jan. 1995 (RH); seven dead Between Eurong and the *Maheno*

shipwreck, 5 Jan. 1995 (RH); one dead at Yidney Rocks, 9 Jan. 1995 (RH) and one dead near Dilli Village, 14 Jan. 1995 (RH).

### **Short-tailed Shearwater *Puffinus tenuirostris***

#### **2518 records**

Since 1996 many Short-tailed Shearwaters have been found beach-cast on the east coast of Fraser Island, particularly during November and December. Between 1996 and 2002 there were at least 2518 birds found (not all specimens were recorded during 1999) but only the total numbers of specimens recorded annually are provided. These were, in 1996 (36 + 100s); 1997 (9 + a few others); 1998 (5); 1999 (2 + 100s); 2000 (2438); 2001 (24) and in 2002 (5). No earlier records of the numbers of Short-tailed Shearwaters found beach-cast on the island were found.

### **Fluttering Shearwater *Puffinus gavia***

#### **17 records**

One dead at Yidney Rocks, 12 Jan. 1996, QMO.31252 (MHo); one alive (but died shortly after); Yidney Rocks, 12 Jan. 1996, QMO.31253 (RH); one dead near Dilli Village, 19 June 1997, QMO.31232 (RH); one dead 2 km S of Poyungan Rocks, 29 July 1997, QMO.31199 (MHe); one dead at Poyungan Rocks, 2 Aug. 1997 (MHe); one dead near Eurong, 16 Aug. 1998 (RH); one dead near Eurong, 7 March 1999 (RH); one dead 5 km N of entrance to Dilli Village, 5 July 1999, QMO.31153 (CH); one dead at the mouth of Wyuna Creek, 26 May 2000 (RH); one dead at the mouth of Govi Creek; 29 June 2000 (CH); two dead 5 km S of Poyungan Rocks, 6 Sept. 2001 (JL); one dead 12 km S of Sandy Cape, 25 Jan. 2002 (AS); one alive (but died shortly after); 12 km S of Sandy Cape, 25 Jan. 2002 (AS); one dead near Eurong, 6 Feb. 2002 (IT); one dead 11 km N of Happy Valley, 16 July 2002 (JL) and one dead 5 km S of Dilli Village, 30 July 2002 (MB).

#### **2 records**

One dead near Dundubara, 7 July 1983, QMO.21636 (QM) and one dead at the mouth of Eli Creek, 14 Aug. 1995, QMO.31242 (RH).

### **Hutton's Shearwater *Puffinus huttoni***

#### **18 records**

One dead near Dilli Village, 16 June 1997 (RH); one dead 3.4 km S of Yidney Rocks, 16 June 1998 (RH); one dead 2 km N of Eurong, 17 June 1998 (RH); four dead 2 km N of Yidney Rocks, 18 June 1998 (RH); one dead near Eurong, 18 June 1998 (RH); one dead near Eurong, 16 Aug. 1998 (RH); one dead near Eurong, 6 March 1999, QMO.31273 (RH); two dead near Eurong, 7 April 1999, QMO.31270 and QMO.31276 (RH); one dead at Yidney Rocks, 18 Aug. 1999, QMO.31326 (MBr); one dead Indian Head, 26 Aug. 2001 (MBr); one dead 6 km W of Sandy Cape Lighthouse,

NW Beach, 30 Aug. 2001 (AS); one alive 'Fraser Island', 25 March 2002 (NC) and one alive near Eurong (but subsequently died); 25 March 2002 (NC).

### **Little Shearwater *Puffinus assimilis***

#### **12 records**

One dead near Eurong, 25 June 1997, QMO.31283 (RH); one dead near Poyungan Rocks, 26 June 1997 (RH); one dead near Dilli Village, 25 June 1999 (RH); one dead *P. a. assimilis* 2 km S of Dilli Village, 30 June 1999, QMO.31320 (RH); one dead *P. a. assimilis* 5.6 km N of entrance to Dilli Village, 5 July 1999, QMO.31469 (CH); one dead 2 km S of Eurong, 27 July 1999, QMO.31597 (CH and RH); one dead *P. a. assimilis* at the mouth of Govi Creek, 30 July 1999, QMO.31302 (RH); one dead *P. a. assimilis*, at the mouth of Govi Creek, 29 June 2000 (CH); one alive *P. a. assimilis* (but died shortly after); 1 km S of Poyungan Rocks, 13 June 2000 (MBr); one dead *P. a. assimilis*, S side of Indian Head, 18 June 2000 (TP); one dead at the mouth of Tooloora Creek; 1 July 2000 (PH); one dead Eurong, 29 June 2001 (IT).

### **Antipodean Albatross *Diomedea antipodensis***

#### **1 record**

One dead 'Fraser Island', 1 Sept. 1997 (QM).

### **Gibson's Albatross *Diomedea gibsoni***

#### **2 records**

One dead 2.7 km S of Eurong, 23 June 1997 (RH) and another dead near Eurong, 6 July 1997, QMO.31659 (RH).

#### **1 record**

One specimen collected near the seamount off the coast of Fraser Island, 28 Aug. 1992, QMO.30131 (QM).

### **Wandering Albatross *Diomedea exulans* complex (*exulans*, *gibsoni* *antipodensis*)**

#### **1 record**

One dead near Dundubara (only the head and bill retained); 5 Aug. 1999 (TP).

#### **3 records**

Two dead 5 km N of the *Maheno* shipwreck, 12 Oct. 1969, QMO.11791 and QMO.11792 (QM) and one dead 'Fraser Island', 25 June 1983, QMO.23519 (QM). All three specimens have been skeletonised and cannot be re-identified specifically using the proposed taxonomy.

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**Black-browed Albatross *Thalassarche melanophris*****7 records**

One dead 2 km N of the *Maheno* shipwreck, 29 July 1997, QMO.31206 (DH); one dead The Cathedrals, 29 July 1997 (TP); one immature dead near Dundubara, 25 July 1999 (RH); one alive (but died shortly after); Hook Point, 29 June 1999 (RH); one alive (but died shortly after); Hook Point, 30 June 1999 (RH); one immature dead near Dundubara, 25 July 1999 (RH) and one immature dead near Eurong, 1 Sept. 1999, QMO.31599 (DB).

**5 records**

One dead 5 km S of Eurong, 8 May 1967, QMO.10872 (QM); one dead 'Fraser Island', 16 June 1970, QMO.11484 (QM) and one dead 'Fraser Island', 28 Aug. 1992, QMO.30132 (QM). One alive in the Great Sandy Straits, 25 June 1995 (RH) and another alive off Dilli Village, 28 June 1995 (RH).

**Shy Albatross *Thalassarche cauta*****1 record**

One dead near Sandy Cape, 13 Aug. 1999 (CH).

**2 records**

One dead S of Indian Head, 18 April 1991, QMO.31188 (MD) and one alive near Eurong (died 3 days later); 17 Oct. 1995 (PJ).

**White-capped Albatross *Thalassarche steadi*****3 records**

One dead 3 km S of Dundubara, 1 Sept. 1999 (TP); one dead 5 km S of Dilli Village, 20 Aug. 2002 (JS) and one dead 16 km S of Eurong, 27 Aug. 2002 (CE).

**2 records**

One dead 5 km N of the *Maheno* shipwreck, 9 June 1986, QMO.26855 (QM) and one dead S of Dilli Village, 17 Aug. 1995 (RH).

**Shy Albatross *Thalassarche cauta complex*****3 records**

One dead near Sandy Cape, 13 Aug. 1999 (CH); One dead 0.8 km S of Eli Creek, 25 Aug. 2001 (RJ) and one dead 14.2 km S of Dilli Village, 9 Sept. 2002 (MB).

**1 record**

One dead 5 km N of the *Maheno* shipwreck, 12 Oct. 1969, QMO.11793 (QM).

**Grey-headed Albatross *Thalassarche chrysostoma*****8 records**

One immature dead N of Dundubara, 1 Aug. 1997 (RH); one alive (but died

shortly after); Hook Point, 30 June 1999 (RH); one dead 4.4 km N of the *Maheno* shipwreck, 1 July 1999 (RH); one dead 3.1 km N of the *Maheno* shipwreck, 6 July 1999, QMO.31142 (RH); one dead Corroboree Beach, 9 July 1999 (TP); one immature dead near Dundubara, 25 July 1999, QMO.31548 (JF); one immature dead at the mouth of Govi Creek, 30 July 1999 (CH) and one immature dead 1.3 km S of Dilli Village, 8 Aug. 2000 (TP).

**1 record**

One dead at the mouth of Taleerba Creek, 17 Aug. 1995 (RH).

**Indian Yellow-nosed Albatross *Thalassarche carteri***

**3 records**

One dead 1 km S of Eurong, 27 July 1999 (CH); one dead 5 km N of Dundubara, 9 Aug. 2000 (AS) and one dead Rooney Point, 30 Aug. 2001 (AS).

**Buller's Albatross *Thalassarche bulleri***

**1 record**

One dead 1.2 km S of Sandy Cape, 1 July 2000 (AS).

**Sooty Albatross *Phoebetria fusca***

**2 records**

One observed flying offshore just behind the breakers, S of Eurong, 24 June 1997 (MM and RH). One dead near Poyungan Rocks, 10 Nov. 1997 (RH).

**Light-mantled Sooty Albatross *Phoebetria palpebrata***

**6 records**

One immature alive (but died 3 days later); S of Indian Head, 9 June 1997 (BK); one immature dead near the *Maheno* shipwreck, 12 Aug. 1999, QMO.31616 (CH); one immature dead 1 km N of Dundubara, 1 Sept. 1999, QMO.31612 (TP); one immature dead 1 km N of Eurong, 28 Nov. 1999 (JS); one dead 5.7 km S of Yidney Rocks, 20 Aug. 2002 (JL) and one dead 16.2 km S of Dilli Village, 30 Aug. 2002 (JS).

**2 records**

One dead near Eurong, 29 June 1993, QMO.31291 (QM) and one dead 5.5 km S of Dilli Village, 9 July 1994, QMO.30200 (QM).

**Wilson's Storm-Petrel *Oceanites oceanicus***

**1 record**

One dead 2 km S of Eurong, 16 May 2000, QMO.31666 (CH).

**White-faced Storm-Petrel *Pelagodroma marina*****6 records**

One dead at the mouth of Govi Creek, 20 April 2000, QMO.31483 (CH); one dead 1 km N of Dilli Village, 3 May 2000, QMO.31442 (RH); one dead 0.5 km S of Cathedral Beach Resort, 20 May 2000 (TP); one dead 18.8 km N of Dundubara, 18 June 2000 (IT); one dead at the mouth of Govi Creek, 29 June 2000 (CH) and one dead 1 km S of Cathedral Beach Resort, 6 April 2001 (TP).

**White-bellied Storm-Petrel *Fregetta grallaria*****1 record**

One dead 2 km S of Poyungan Rocks, 24 March 1999, QMO.31230 (RH) (Hobson and Stewart 2002).

**Order: Pelecaniformes****Red-tailed Tropicbird *Phaethon rubricauda*****5 records**

One adult dead near Eurong, 18 Jan. 1996 (banded ABBBS band number 200-08752 on the 9 Dec. 1996 at Lady Elliot Island) (DH); one alive (but died shortly after); near Dilli Village, 23 April 1996 (CH); one alive (but died shortly after); near Eurong, 1 May 1996 (RH). One observed alive at Waddy Point, 4 Jan. 1997 (MM) and one dead near Eurong, 3 Feb. 2001 (MW).

**3 records**

One immature dead N of Dundubara, 22 Nov. 1995 (RH); one immature found alive (but died shortly after) at the mouth of Govi Creek, 22 Dec. 1995 (CH) and one immature dead at the mouth of Govi Creek, 30 Dec. 1995 (LR).

**White-tailed Tropicbird *Phaethon lepturus*****11 records**

One dead 5 km N of Happy Valley, 14 Feb. 1996 (QM); one immature dead near Dilli Village, 2 May 1996, QMO.31282 (RH); one immature dead at The Pinnacles, 10 May 1996 (RH); one immature dead near Dundubara, 21 May 1996 (TP); one adult observed flying over Eurong, 25 June 1997 (MBr) and one adult observed flying over Eurong, 24 July 1997 (MM). One immature dead 1 km S of Wyuna Creek, 17 Oct. 1999, QMO.31343 (TP); one alive on beach near Dilli Village, 1 May 2000 (RH); two immatures dead 12 km S of Dilli Village, 3 May 2000, QMO.31468 (RH) and one immature dead near Eurong, 3 Feb. 2001 (MW).

**8 records**

Four juveniles observed on 14 Feb. 1995, one at Yidney Rocks, one at



Happy Valley, one at the *Maheno* shipwreck, and one Eurong (KT); one immature dead Happy Valley, 14 Feb. 1995, QMO.30315 (KT); one immature dead at Yidney Rocks, 14 Feb. 1995, QMO.30516 (KT); one immature dead 4 km N of Dundubara, 22 Nov. 1995, QMO.31264 (RH) and one immature dead Between Dilli Village and Eurong, 29 Dec. 1995, QMO.31272 (LR).

### **Australasian Gannet *Morus serrator***

#### **35 records**

One dead on S Waddy Beach, 11 July 1999 (tangled in fishing gear, QPWS database); one immature dead 100 metres S of entrance to Lake Wabby, 29 March 2000 (RH); one immature dead 2 km S of entrance to Dilli Village, 29 May 2000 (IT); one immature dead at the mouth of Tooloora Creek, 1 June 2000 (QPWS database); one dead near Eurong, 17 June 2000 (QPWS database); one dead near Dilli Village, 18 June 2000 (QPWS database); one dead 1.6 km N of Eurong, 18 June 2000 (QPWS database); one dead at mouth of Govi Creek, 20 June 2000 (QPWS database); one immature dead at Second Valley, Eurong, 24 June 2000 (JS); One immature dead 'Fraser Island', 24 June 2000 (JS); one immature dead 0.5 km S of Poyungan Rocks, 30 June 2000 (RH); one immature dead 1.2 km S of Yidney Rocks, 30 June 2000 (AS); one immature dead 6.3 km N of Dundubara, 1 July 2000 (IT); one immature dead at base of S Ngkala Rocks, 1 July 2000 (RH); one immature dead N side of Poyungan Rocks, 5 July 2000 (RH); one adult 15 km N of Dundubara, 18 Aug. 2000 (QPWS database); one adult dead 12 km N of Platypus Bay 'jump-up', 24 Aug. 2000 (New Zealand Museum band number M75464) (AS); one adult dead 8.4 km N of Waddy Point, 26 Aug. 2000 (New Zealand Museum band number M75429) (IT); one dead 15 km N of Dundubara, 18 Aug. 2000 (RJ); one dead 3 km S of Sandy Cape, 21 Sept. 2000 (AS); one dead 3 km S-W of Sandy Cape Lighthouse Gate, 21 Sept. 2000 (RJ); one dead 21.2 km S of Eurong, 23 Sept. 2000 (IT); one dead Gerowweea Creek, 4 June 2002 (IT); one dead 4 km S of Dilli Village, 4 June 2002 (IT); one dead 3 km S of Dundubara, 4 May 2002 (PL); one alive Eurong Resort, 5 June 2002 (DSh); one dead 0.8 km N Eurong Base, 8 June 2002 (DSh); one dead Coolooli Ck, 16 June 2002 (IT); one dead Dundubara Beach entrance, 30 June 2002 (PL); one dead 7.8 km N of Dundubara, 27 July 2002 (IT); one dead 3 km S of Dilli Village, 28 July 2002 (AS); one dead 3 km S of Dilli Village 28 July 2002 (AS); one dead about 5 km S of Eurong, 31 July 2002 (DSh); one dead entangled in fishing line 2.7 km S of Dilli Village, 21 Aug. 2002 (MB) and one dead 14.9 km N of '*Maheno*' shipwreck, 28 Aug. 2002 (IT).

#### **7 records**

One dead 5 km N of the *Maheno* shipwreck, 1973, QMO.15881 (QM); one dead 5 km N of the *Maheno* shipwreck, 1974, QMO.16109 (QM); four dead

south-eastern Fraser Island, 25 Dec. 1977, QMO.17109, QMO.17110, QMO.17111, and QMO.17112 (QM) and one dead at The Cathedrals, 29 April 1995, QMO.30331 (QM).

### **Masked Booby *Sula dactylatra***

#### **3 records**

One seen alive from Happy Valley, 5 May 1996 (RH). One dead Happy Valley, 5 May 1996, QMO.31362 (PH) and one dead 13.5 km N of Dundubara, 1 July 2000 (RH).

#### **1 record**

One dead Waddy Point, 17 Jan. 1985, QMO. 25786 (QM).

### **Brown Booby *Sula leucogaster***

#### **16 records**

One dead near Dundubara, 25 Nov. 1996, 24 June 1997 (RH); one dead at Yidney Rocks, 11 Nov. 1997 (RH); one dead 3.5 km E of Sandy Cape Lighthouse, 2 July 2000 (AS); one dead at Poyungan Rocks, 8 Sept. 2000 (MBr); One exhausted bird sitting on beach, 100 m S of Govi Creek (many others foraging off Eastern Beach); 9 Sept. 2000 (RH); one dead 100 m S of the mouth of Govi Creek, 9 Sept. 2000 (RH); one alive 750 m N of the mouth Tooloora Creek, 1 Oct. 2000 (MW); one alive 0.5 km N of the mouth Tooloora Creek, 1 Oct. 2000 (MW); one alive 1.2 km N of the mouth Tooloora Creek, 4 Oct. 2000 (MW); one dead 2.4 km N of Eurong, 20 Oct. 2000 (QPWS database); one dead 1.9 km S of Sandy Cape, 28 Nov. 2000 (QPWS database); one dead 5 km S of Sandy Cape, 18 Sept. 2001 (AS); one dead 2.4 km S of Brown Rocks, 25 Sept. 2001 (AS); one dead 2 km S of Sandy Cape, 4 May 2002 (SL) and one dead Indian Head, 8 June 2002 (DSh).

#### **2 records**

One dead South Ngkala Rocks, 16 Jan. 1995 (RH) and one dead South Ngkala Rocks, 12 Aug. 1995 (RH).

### **Great Frigatebird *Fregata minor***

#### **1 record**

One bird observed flying over Tooloora Creek, 6 May 1996 (RH).

#### **2 records**

Approximately 18 individuals with Lesser Frigatebird *Fregata ariel* flying over Ngkala Rocks during a period of heavy rain, rough seas and strong winds in a mixed group, 12 Feb. 1995 (RH) and approximately 40 birds flying over Champagne Pools in a mixed flock with Lesser Frigatebird, 13 Feb. 1995 (RH).

**Lesser Frigatebird *Fregata ariel*****14 records**

One observed flying over Waddy Point, 4 Jan. 1997 (MM); one dead near Waddy Point, 23 May 1997 (RH); four observed at Eurong, 28 Feb. 1998 (TP); one observed at Eurong, 28 Aug. 1998 (RH); one dead near Eurong, 1 March 1999 (RH); five observed at Waddy Point, 21 April 1999 (RH); one observed at Eurong, 30 Dec. 1999 (RH); and one dead near Eurong, 30 Dec. 1999 (RH); one observed at Eurong, 31 Dec. 1999 (RH); one observed at Dilli Village, 28 Feb. 2000 (RH); one observed at Sandy Cape, 21 April 2000 (RH); two observed at One Tree Rocks, 27 April 2000 (RH); 30+ observed between Eurong and Eli Creek, 1 May 2000 (RH) and 8 observed flying over beach 4.2 km N of Eurong, 28 Jan. 2001 (RH and DS).

**5 records**

Approximately 27 individuals in association with Greater Frigatebirds flying over Ngkala Rocks during a period of heavy rain, rough seas and strong winds, 12 Feb. 1995 (RH); one observed flying over Platypus Bay, 12 Feb. 1995 (MHO); approximately 40 flying over Champagne Pools in a mixed flock with Greater Frigatebirds, 13 Feb. 1995 (RH); one male observed flying over Govi Creek, 20 March 1995 (RH); one observed flying over Yidney Rocks, 5 Sept. 1995 (RH).

**Order:Charadriiformes****Great Skua *Catharacta skua*****8 records**

One dead near entrance Lake Wabby, 16 June 1996 (RH); one dead at Sandy Cape, 13 Aug. 1999, QMO.31325 (CH); one dead *C. s. lonnbergi* 2 km S of Dundubara, 24 May 2000 (RH); one dead *C. s. lonnbergi*, 100 m N of Rainbow Gorge, 14 June 2000, QMO.31435 (LP); one dead *C. s. lonnbergi* 11.2 km N of Dundubara, 1 July 2000 (RH) and one dead *C. s. lonnbergi* near Eurong, 1 March 2001, QMO.31530 (JS). One immature *C. s. lonnbergi* was collected from the beach 1.5 km S of Eurong on 4 June 2002, rehabilitated, and then released from the Gold Coast on 15 June 2002 (IT).

**Pomarine Jaeger *Stercorarius pomarinus*****2 records**

One in the Great Sandy Straits, 4 Nov. 1996 (RH) and one observed eating a Crested Tern *Sterna bergii*, 23 Nov. 1996 (CH).

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***1 record***

One observed flying offshore at Govi Creek, 20 March 1995 (RH);

**Long-tailed Jaeger *Stercorarius longicaudus******2 records***

One immature alive at Yidney Rocks, 10 Nov. 1997 (released several days later) (RH) and one immature dead 3.7 km S of Dundubara, 17 April 2001, QMO.31667 (SF).

**Pacific Gull *Larus pacificus******1 record***

One adult feeding with Silver Gulls, *L. novaehollandiae*, on the beach near Eurong, 28 April 1999 (RH).

**Silver Gull *Larus pacificus******1 record***

One dead 2 km S of Eurong Beach, 12 June 1962, specimen lodged in the QM registered QMO.9327 QM.

**Common Noddy *Anous stolidus******6 records***

One alive at Hook Point, 1 May 1996 (RH); two alive at Poyungan Rock, 24 April 2000 (RH); two dead 2 km S of Dilli Village, 29 April 2000 (IT) and one dead at Sandy Cape Campground, 15 July 2000 (AS).

***2 records***

One resting on beach at the *Maheno* shipwreck, 13 Feb. 1995 (RH) and over 60 birds flying over the *Maheno* shipwreck, 1 April 1995 (RH).

**Black Noddy *Anous minutus******3 records***

One alive at Hook Point, 1 May 1996 (RH); one dead 5 km E of Sandy Cape lighthouse gate, Northern Beach, 27 Dec. 2001 (AS) and one dead *Maheno* shipwreck, 31 Dec. 2001 (KBr).

***4 records***

One dead Worallie Ck, 22 Dec. 1972, QMO.13972 (QM); one dead 2 km S of Eurong Beach, 11 Jan. 1973, QMO.13973 (QM); one dead 2 km S of Eurong Beach, 11 Jan. 1973, QMO.14327 (QM) and one dead 'Fraser Island', 1975, QMO.17061 (QM).

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**Caspian Tern *Sterna caspia***

A small number of birds are present all year round.

**Gull-billed Tern *Gelochelidon nilotica***

Present year round with numbers increasing during winter.

**1 record**

One dead *G. n. macrotarsa* 2 km S of Eurong Beach, 13 June 1962, QMO.9334 (QM).

**White-winged Black Tern *Chlidonias leucopterus*****4 records**

One bird observed flying over beach at Eurong, 7 May 1996 (RH); 6 birds on the beach at the mouth of Govi Creek, 13 April 2000 (RH); four birds on the beach 17.5 km N of Hook Point, 13 April 2000 (RH) and an estimated 300 – 350 roosting on along Eastern Beach, 19 April 2000 (RH).

**Crested Tern *Thalasseus bergii*****5 records**

Two dead 'Fraser Island', 24 June 2000 (QPWS database); one dead at entrance to Waddy Lodge, 17 Aug. 2000 (GP); one dead 11 km S of Dilli Village, 5 Feb. 2001 (QPWS database) and one dead Breaksea Spit, 1 km N of Sandy Cape, 30 Aug. 2001 (AS).

**16 records**

12 dead 2 km S of Eurong Beach, 24 May 1962, QMO.9176, QMO.9177, QMO.9178, QMO.9179, QMO.9211, QMO.9212, QMO.9213, QMO.9214, QMO.9215, QMO.9216, QMO.9233 and QMO.9234 (QM); three dead 2 km S of Eurong Beach, 25 May 1962, QMO.9180, QMO.9235 and QMO.9275 (QM) and one dead 'Fraser Island', 1 July 1987 (DS).

**Roseate Tern *Sterna dougallii*****1 record**

One live adult and a juvenile resting together on the beach N of Hook Point, 15 June 1996 (RH).

**White-fronted Tern *Sterna striata*****1 record**

Two live immature birds resting on the beach at Eurong, 18 July 1997 (RH).

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**Black-naped Tern *Sterna sumatrana******1 record***

One live adult in breeding plumage at the mouth of Govi Creek, 21 Dec. 1997 (RH and DH).

**Common Tern *Sterna hirundo***

A common migratory species that is present in summer with numbers peaking in May.

***1 record***

One dead 2 km S of Tooloora Creek, 29 Nov. 2001 (RJ).

***1 record***

One dead *S. h. longipennis* 5 km N of the *Maheno* shipwreck, 31 Dec. 1976, QMO.16596 (QM).

**Arctic Tern *Sterna paradisaea******1 record***

One live bird observed (undergoing moult into breeding plumage) at Ocean Lake, 13 May 1996 (RH and Mbo).

**Little Tern *Sterna albifrons***

The small resident population is boosted during the summer months by (it is assumed) other individuals which have migrated from the Northern hemisphere.

**Bridled Tern *Sterna anaethetus******1 record***

Two observed flying over Poyungan Rocks, 24 Jan. 1996 (RH).

***1 record***

One dead at Poyungan Rocks, 18 Dec. 1995 (DH).

**Sooty Tern *Sterna fuscata******6 records***

One dead at the mouth of Semaphore Creek, 7 May 1996 (RH); one dead at the mouth of Taleerba Creek, 26 Aug. 1998 (RH); one dead near Eurong, 3 Feb. 2001 (MW); two dead 4 km N of Eurong, 4 Feb. 2001, QMO.31546 (IT) and one dead Eli Ck, 28 Aug. 2002 (IT).

***3 records***

One juvenile resting on beach at Waddy Point, 12 Feb. 1995 (RH) and approximately 100 juveniles seen along the entire Eastern Beach, 14 Feb. 1995 and one dead at the *Maheno* shipwreck, 14 Feb. 1995, QMO.30517 (QM).

**Grey Ternlet *Procelsterna cerulea*****2 records**

One found alive (but died shortly after) N of Eurong, 15 Feb. 1999 (RH) and one flying along beach near Eurong during strong onshore winds, 3 Feb. 2001 (MW).

**White Tern *Gygis alba*****2 records**

One dead 5.4 km S of Eurong, 6 May 1996, QMO.31265 (RH) and one observed flying offshore at Eurong, 25 June 1997 (MM).

**DISCUSSION**

A total of 3051 seabirds were observed or found beach-cast on Fraser Island between January 1996 to December 2002. They were identified as belonging to 68 species from four Orders (Sphenisciformes, Procellariiformes, Pelecaniformes and Charadriiformes). The majority were Short-tailed Shearwaters (Table 1) encountered between October and December 2000 when 2438 birds were found dead or dying on Eastern Beach. The cause is thought to be starvation due to a shortage of food as the shearwaters reached Australian waters from their northern wintering grounds (Skira 2003). Other species commonly found beach-cast were Wedge-tailed Shearwater (58 birds), Antarctic Prion (39 birds), Slender-billed Prion (32 birds), Fairy Prion (34 birds) and Australasian Gannet (35 birds).

The survey recorded all but 13 of the 68 seabird species reported from South-Eastern Queensland by Comben *et al.* (2000). Seven species of Procellariiformes, mainly rare vagrants, Common Diving-Petrel *Pelecanoides urinatrix*, Soft-Plumaged Petrel *Pterodroma mollis*, White-necked Petrel *Pterodroma cervicalis*, Cook's Petrel *Pterodroma cookii*, White-chinned Petrel *Procellaria aequinoctialis*, Grey-backed Storm Petrel *Garrodia neries* and Black-bellied Storm-Petrel *Fregetta tropica* were not recorded. Apart from the White-necked Petrel and Black-bellied Storm-Petrel there are less than five known records from Queensland for each species (Comben *et al.* 2000). Six species of Charadriiformes recorded by Comben *et al.* (2000), South Polar Skua *Catharacta maccormicki*, Arctic Jaeger *Stercorarius parasiticus*, Laughing Gull *Larus atricilla*, Franklins Gull *Larus pipixcan*, Lesser Crested Tern *Sterna bengalensis* and Whiskered Tern *Chlidonias leucopterus* were not recorded here and half them are also vagrants. Further survey would undoubtedly result in some of these species being recorded on Fraser Island in the future.

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Rarely recorded species found included the White-bellied Storm-petrel

(first mainland Australian specimen), Buller's Albatross (2<sup>nd</sup> Queensland specimen record), White-capped Albatross (2<sup>nd</sup> Queensland record), Westland Black Petrel (2<sup>nd</sup> and 3<sup>rd</sup> Queensland records), Northern Giant Petrel (2<sup>nd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> Queensland records), Mottled Petrel (3<sup>rd</sup> Queensland specimen record); Broad-billed Prion (3<sup>rd</sup> Queensland record), Southern Fulmar (3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> Queensland records), Tahiti Petrel (3<sup>rd</sup> Queensland record), Blue Petrel (3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 7<sup>th</sup> Queensland records) and Sooty Albatross (4<sup>th</sup> Queensland record).

The results of this survey has increased understanding of the status and movements of some species of seabirds in South-Eastern Queensland. Comben *et. al.* (2000) reported the White-headed Petrel as a rare visitor to South-Eastern Queensland based on 15 known records for the region, but this survey reports 28 records. Comben *et. al.* (2000) also reported 60 records of Antarctic Prion and four Light-mantled Sooty Albatross records for all of South-Eastern Queensland and a further 36 and six, respectively are reported here. This suggests that Fraser Island is a good place to find beach-cast specimens of seabird species that are attracted by the productive pelagic colder water and/or the seamounts off Fraser Island.

Comben *et. al.* 2000 also recorded the Kerguelen Petrel and Blue Petrels as vagrants with less than five known specimens of each from South-Eastern Queensland. In 1999 on Fraser Island beaches, there was a small wreck of both species which coincided with larger numbers in New South Wales and Victoria (Tony Palliser pers. com.). Apart from the birds recorded on Fraser Island, there was only one Blue Petrel recorded from North Stradbroke Island and one Kerguelen Petrel recorded from the Gold Coast during 1999 (Comben *et. al.* 2000).

The number of seabirds found each year varied considerably (Table 1) and between months (Table 2); but most (apart from the Short-tailed Shearwaters) occurred between July and October. In this period a strip of cool water extends up from the Tasman Front (Ashby 1995) as the western edge of the East Coast Current moves offshore to the edge of the continental shelf. This cool water may enables the birds usually associated with cool ocean water to come to South-Eastern Queensland (Comben *et. al.* 2000). During the summer the East Coast Current moves back onto the continental shelf and becomes part of the warm core eddy system south of the Tasman Front (Ashby 1995).

The cool water (Table 3) off Fraser Island and increased diversity of seabirds washing ashore on Fraser Island during the winter months



coincided with a large amount of cuttlefish washing onto Eastern Beach. Five species of cuttlefish were identified on Fraser Island, *Sepia plangon*, *S. pipara*, *S. smithi*, *S. whitleyana* and *S. apama*. *S. whitleyana* was by far the most abundant species washed up on the Eastern Beach of Fraser Island followed by *S. plangon*, *S. pipara* and *S. smithi*. *Sepia apama* on the other hand was only very occasionally found. The cuttles of both *S. plangon* and *S. apama* appeared quite old and often damaged, whereas the majority of the cuttles of the other species appeared very fresh.

The biology of the cuttlefish is poorly known but *S. smithi* is found in shallow sandy areas and usually associated with seagrass (Norman and Reid 2000). *Sepia plangon* is also frequently encountered in seagrass beds, but unlike *Sepia smithi*, it has been collected at depths up to 80 m. The damaged cuttles found on Eastern Beach may be the consequence of the extra distance that these cuttles have had to float before being washed ashore and/or predation by various scavengers offshore. *Sepia apama* washes ashore in South-Eastern Queensland, but is not known to breed in Queensland waters (Norman and Reid 2000). The broken barnacle-encrusted cuttles of this species found on Eastern Beach suggest that they have floated considerable distances.

Apart from the cuttlefish, the few albatrosses necropsied to date, have contained from 0 to 5 squid beaks per bird. At present these squid beaks have not been specifically identified, however there is a considerable Southern Calamari Squid *Septeuthis australis* fishing industry off Fraser Island, with lights from the boats being seen on the eastern horizon on a clear night. Luminescent jig tubes are regularly washed up on Eastern Beach.

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### REFERENCES

ASHBY, T. 1995. The marine environment in the Brisbane Seabird Group area

off shore SE Queensland and NE New S Wales between latitudes 26S and 32S out to longitude 160E. *The Petrel* (Annual Field Rep. Brisbane Seabird Study Grp.) 1: 2-4.

ANON. 1995. This birding life. *Aust. Birding* Spring 1995: 1.

BARRY, D.H. & VERNON, D.P. 1976. Further notes on the birds of Fraser Island and adjacent waters. *Sunbird* 7: 107-111.

CHRISTIDIS, L. & W.E. BOLES. 1995. *Taxonomy and Species of Birds of Australia and its Territories*. Royal Australasian Ornithologists Union, Melbourne. 112 pp.

COMBEN, P., STEWART, D. & WALBRIDGE, P. 2001. Records of seabirds (Order: Procellariiformes) in South-East Queensland waters. *Sunbird* 31: 33-72.

CSIRO 2002. Remote Sensing Project: Oled SST CSIRO Marine Research.

DASET 1991. Nomination of Fraser Island and the Great Sandy Region by the Government of Australia for inclusion in the World Heritage List. Prepared by Department of the Arts, Sport, the Environment, Tourism and Territories. 70 pp.

EADES, D.W. 1995. Twitchers' Corner. *Wingspan* 5(4): 44.

HOBSON, R. & STEWART, D. 2002. A specimen record of White-bellied Storm-Petrel from Fraser Island, South East Queensland. *Mems. Qld. Mus.* 48: 123-124.

NILAND, D. 1979. Rare Bird Sightings. *QOSI Newsletter* Vol. 10 (7).

NORMAN, M. & REID, A. 2000. *A Guide to Squid, Cuttlefish and Octopus of Australasia*. CSIRO, Publishing: Victoria. pp 96.

QUEENSLAND GOVERNMENT, 1994. *Great Sandy Management Plan*. Fraser Island Implementation Unit, DEH, Brisbane.

ROBERTSON, C.J.R. & NUNN, G.B. 1998. Towards a new taxonomy for albatrosses. In: *The Albatross: Biology and Conservation*. G. Robertson and R. Gales (eds). Surrey Beatty and Sons, Chipping Norton. pp. 13-19

SKIRA, I. 2003. Large mortality of Short-tailed Shearwaters *Puffinus tenuirostris* in Australia and New Zealand in October 2000. *Corella* 27 (3): 81-84.

- SUTTON, P. 1990. The birds of Sandy Cape and other Northern parts of Fraser Island Queensland. *Sunbird* 20: 41-57.
- VERNON, D.P. & MARTIN, J.H.D. 1974. A Queensland specimen record of Thin-billed Prion. *Sunbird* 5(3): 73-74.
- VERNON, D.P. & BARRY, D.H. 1972. Birds of Fraser Island and adjacent water. *Mem. Qld. Mus.* 16: 23-232.
- DAVID STEWART, Queensland Parks and Wildlife Service, P.O. Box 64, Bellbowrie, Qld, 4070.
- ROD HOBSON, Queensland Parks and Wildlife Service, P.O. Box 731, Toowoomba, Qld, 4350.
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**Table 1. Annual frequencies of 59 species of seabirds recorded at Fraser Island.**

Species	1996	1997	1998	1999	2000	2001	2002	Total
Little Penguin				1		1		2
Southern Giant-Petrel	1	4	1	1	3		2	12
Northern Giant-Petrel		1		2	1		1	5
Southern Fulmar				3				3
Cape Petrel				11	4		2	17
Kerguelen Petrel				10				10
Tahiti Petrel						2		2
Great-winged Petrel				4	1	1		6
White-headed Petrel	3	5	2	5	6	2	5	28
Providence Petrel	2	2		2	4			10
Herald Petrel					1			1
Mottled Petrel							1	1
Black-winged Petrel	1				2			3
Gould's Petrel		1		3		1		5
Blue Petrel			1	4				5
Broad-billed Prion					1			1
Salvin's Prion				3	3		14	20
Antarctic Prion		2	1	18	8	1	9	39
Slender-billed Prion		1	1	12	7		11	32
Fairy Prion		5	1	10	6	2	10	34
Westland Black Petrel		2						2
Black Petrel		1						1
Streaked Shearwater				1		1		2
Buller's Shearwater					1			1
Wedge-tailed Shearwater	1	9		1	3	41	3	58
Flesh-footed Shearwater		1			1	3		5
Sooty Shearwater	2			1				3
Short-tailed Shearwater	36 + 100s	9 + few	5	2 100s	2438	24	5	2518
Fluttering Shearwater	2	3	1	2	2	2	5	17
Hutton's Shearwater		2	8	4		2	2	18

Species	1996	1997	1998	1999	2000	2001	2002	Total
Little Shearwater		2		5	4	1		12
Antipodean Albatross		1						1
Gibson's Albatross		2						2
Albatross ( <i>exulans</i> complex)				1				1
Black-browed Albatross		2		5				7
Shy Albatross				1				1
White-capped Albatross				1			2	3
Albatross ( <i>cauta</i> complex)				1		1	1	3
Grey-headed Albatross		1		6	1			8
Yellow-nosed Albatross				1	1	1		3
Buller's Albatross					1			1
Sooty Albatross		2						2
Light-mantled Sooty Albatross		1		3			2	6
Wilson's Storm-Petrel					1			1
White-faced Storm-Petrel					5	1		6
White-bellied Storm-petrel				1				1
Red-tailed Tropicbird	3	1				1		5
White-tailed Tropicbird	4	2		1	3	1		11
Australian Gannet				1	21		13	35
Masked Booby	2				1			3
Brown Booby	1	2			9	2	2	16
Greater Frigatebird	1							1
Lesser Frigatebird		2	2	5	4	1		14
Great Skua	1			1	3	1	2	8
Pomarine Jaeger	2							2
Long-tailed Jaeger		1				1		2
Pacific Gull				1				1
White-winged Tern	1				3			4
Crested Tern					3	2		5

Species	1996	1997	1998	1999	2000	2001	2002	Total
Roseate Tern	1							1
White-fronted Tern		1						1
Black-naped Tern		1						1
Common Tern						1		1
Arctic Tern	1							1
Bridled Tern	1							1
Sooty Tern	1		1			3	1	6
Common Noddy	1				5			6
Black Noddy	1					2		3
Grey Ternlet				1		1		2
White Tern	1	1						2
<b>Totals</b>	<b>70</b>	<b>70</b>	<b>24</b>	<b>134</b>	<b>2557</b>	<b>103</b>	<b>93</b>	<b>3051</b>
	+	+		+				+
	<b>100s</b>	<b>few</b>		<b>100s</b>				<b>100s</b>

Table 2. Monthly frequencies of beach-cast specimens.

Month	1996	1997	1998	1999	2000	2001	2002	Total
January	7	5			3	20	3	38
February	1		1	3	3	54	1	63
March	1			5	1	6	5	18
April	2	4		7	16	3		32
May	17+	2	6	4	16	1	8	54
	100s							
June	6	24	7	16	45	4	24	126
July		12	2	56	11	2	30	113
August		5	8	31	15	5	20	84
September		3		4	8	4	1	20
October		1		1	2410		1	2413
November	36	12		4+	29	1		82
				100s				
December		2 +		3		3		8
		few						
<b>Totals</b>	<b>70 +</b>	<b>70 +</b>	<b>24</b>	<b>134 +</b>	<b>2557</b>	<b>103</b>	<b>93</b>	<b>3051</b>
	<b>100s</b>	<b>few</b>		<b>100s</b>				

**Table 3. Mean mid-month temperatures of sea surface. (CSIRO 2002)**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
27°C	27°C	26°C	25°C	24°C	24°C	23°C	22°C	22°C	24°C	25°C	26°C

**Appendix 1. Geographic locations.**

Location	Lat. (S)	Long. (E)	Location	Lat. (S)	Long. (E)
Breaksea Spit	24° 41' 00"	153° 16' 00"	Taleerba Ck.	25° 37' 37"	153° 05' 06"
Brown's Rocks	24° 46' 37"	153° 16' 38"	Toooloora Ck.	25° 42' 49"	153° 04' 38"
Champagne Pools	24° 59' 11"	153° 20' 59"	Ocean Lake	24° 55' 24"	153° 16' 35"
Chard Rock	25° 21' 12"	153° 12' 46"	One Trec Rocks	25° 29' 02"	153° 08' 20"
Cornwell's Break	25° 27' 34"	153° 08' 55"	Platypus Bay	24° 56' 16"	153° 13' 59"
Corroboree Bch.	25° 06' 10"	153° 18' 49"	Poyungan Rocks	25° 25' 05"	153° 10' 04"
Dilli Village	25° 36' 03"	153° 05' 26"	Rainbow Gorge	25° 22' 44"	153° 11' 04"
Dundubara	25° 10' 41"	153° 16' 47"	Red Canyon	25° 08' 42"	153° 17' 45"
Lake Wabby	25° 28' 22"	153° 08' 33"	Rooney Point	24° 49' 02"	153° 07' 05"
Waddy Lodge	24° 57' 41"	153° 19' 03"	Sandy Cape	24° 41' 56"	153° 15' 53"
Eurong	25° 30' 48"	153° 07' 31"	Ngkala Rocks	24° 53' 49"	153° 16' 14"
Happy Valley	25° 20' 25"	153° 12' 08"	S Waddy	24° 58' 50"	153° 20' 51"
Hook Point	25° 47' 34"	153° 04' 36"	The Cathedrals	25° 13' 13"	153° 15' 32"
Indian Head	25° 00' 43"	153° 21' 23"	The Oaks	25° 20' 55"	153° 11' 57"
Maheno	25° 16' 04"	153° 14' 12"	The Pinnacles	25° 14' 29"	153° 15' 04"
Eli Ck.	25° 17' 10"	153° 13' 38"	Waddy Point	24° 58' 11"	153° 21' 33"
Gerowweea Ck.	25° 33' 16"	153° 06' 31"	Yidney Rocks	25° 20' 58"	153° 11' 55"
Govi Ck.	25° 35' 01"	153° 05' 55"	Wyuna Ck.	25° 08' 00"	153° 17' 59"
Semaphore Ck.	25° 47' 49"	153° 04' 22"			

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**Appendix 2. Contributors who collected or reported beach-cast specimens.**

AS	Aubrey Strydom	Mbo	Mark Botha
BK	Bart Klekar	MBr	Mark Breidfuss
CE	Clint Ervin	MD	M. Dargusch
CH	Cemone Hedges	MHe	Maureen Hedges
CL	Clive Lavender	MHo	Mark Hockings
DB	Doug Bain	MM	Michael Mathieson
DF	Dudley Fulton	MW	Mike W
DH	Damien Head	NC	Neil Cambourn
DS	David Stewart	PH	Pat Hedges
DSh	D. Shevill	PJ	Peter Johnson
GP	Anonymous	PL	Peter Lask
IT	Ivan Thrash	QM	Queensland Museum
JF	John Ford	RA	R. Albress
JL	John Lindberg	RH	Rod Hobson
JS	John Schwarzrock	RJ	Robert Janssen
KB	Kelly Biles	SF	Sonya Fardell
KBr	Kelly Briese	SL	S. Lavender
KT	Keith Twyford	SO	Simon Oster
LP	Louise Pradella	TG	Trevor Gallahawk
LR	Leo Ryan	TP	Tanya Parker
MB	Merv Brewster	TP	Tim Pulsford

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## TOOTH-BILLED BOWERBIRDS ESTABLISH A LEK IN ACACIA REGROWTH FOREST

MAGDALENA F. VINSON AND  
AMANDA N.D. FREEMAN

### ABSTRACT

Tooth-billed Bowerbirds, *Scenopoeetes dentirostris*, are endemic to the wet tropics of north Queensland. Previous literature has classified these birds as rainforest specialists. A study conducted on the Atherton Tableland showed that Tooth-bills will construct courts and form functional leks in areas of *Acacia* regrowth adjacent to mature rainforest.

### INTRODUCTION

The Tooth-billed Bowerbird, *Scenopoeetes dentirostris*, is endemic to the upland wet tropical rainforests of far northeastern Queensland. Male Tooth-billed Bowerbirds (hereafter called Tooth-bills) clear an area of the forest floor that is roughly oval in shape, on which they place large, fresh leaves face down. During the breeding season, calling, mimicking and displaying are conducted from perches above and adjacent to this court. Previous research has shown that the Tooth-bills build their courts in mature rainforest (Frith & Frith 1994) and they are classified as rainforest specialists (Crome et. al. 1994). The three most common areas for Tooth-bill males to construct their courts are along ridgelines, gentle hill slopes and around the tops of hills (Frith & Frith 1994).

During the 1989 breeding season, no courts were located in *Acacia* regrowth forest on and adjacent to the School for Field Studies' Centre for Rainforest Studies (CRS) property on the Atherton Tableland (Grant & Laurance 1991) although Tooth-bills were observed more frequently in this forest type than in mature rainforest (Laurance et. al. 1996). Research undertaken in 2004 and 2005 at CRS has shown that Tooth-bills are now utilising areas of *Acacia* regrowth forest adjacent to mature rainforest for their courts. This article's objective is to document the establishment of a functional Tooth-billed Bowerbird lek in Type 12a (Tracey 1982) *Acacia* forest on the CRS property and to compare the current court/lek distributions with the court/lek distribution documented and mapped in 1989 (Grant & Laurance 1991, CRS unpublished data).

### METHODS

The locations of Tooth-bill courts on and around the CRS property were recorded in 1989 (Grant & Laurance 1991, CRS unpublished data). An

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unpublished map showing recognisable landmarks, in conjunction with correspondence from the conductors of that study, were used to determine the approximate positions of the courts at that time. In September 2004 and 2005, searches for Tooth-bill courts were conducted on and around the CRS property. The location of these courts was determined using a hand-held GPS unit and the courts were mapped in ArcGIS. The vegetation type and age in which Tooth-bill courts were located was determined by reference to historical aerial photography and assessment in the field.

## RESULTS

In 1989, 18 Tooth-bill courts were located on and adjacent to the CRS property. All of these courts were located in mature Type 8 (Tracey 1982) rainforest on granitic soils. In 2004/2005, 31 courts were recorded, distributed in four "exploded leks" along ridgelines (Figures 1a-1d). Nine courts were in areas of *Acacia* regrowth along the northwest boundary of the study area (Table 1). The other 22 courts were in mature rainforest in the same general areas as those recorded in 1989.

**Table 1. Characteristics of Tooth-bill court sites on and adjacent to the CRS property in September 2004/2005.**

Vegetation type and age range	Number of courts
<i>Acacia</i> regrowth less than 20yrs old	1
<i>Acacia</i> regrowth 20-45yrs old	2
<i>Acacia</i> regrowth 45+ yrs old	6
Selectively logged mature rainforest	22

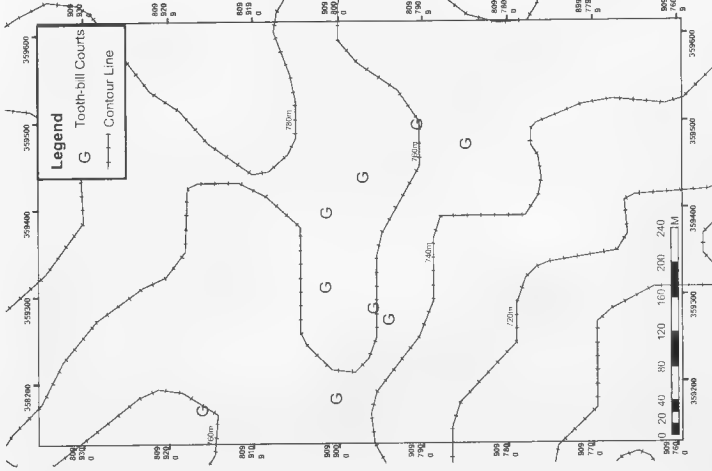


Figure 1a. *Acacia* regrowth Tooth-bill lek

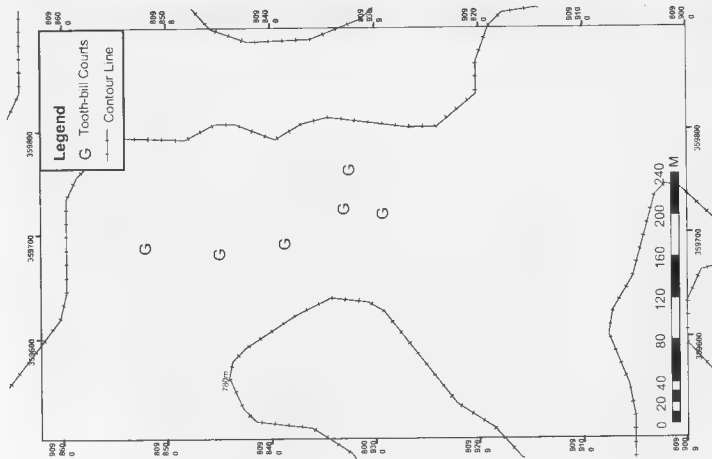


Figure 1b. Mature Rainforest Tooth-bill lek

Fig. 1a-b. Bowerbird courting sites in leks on and near CRS property 2004/2005.

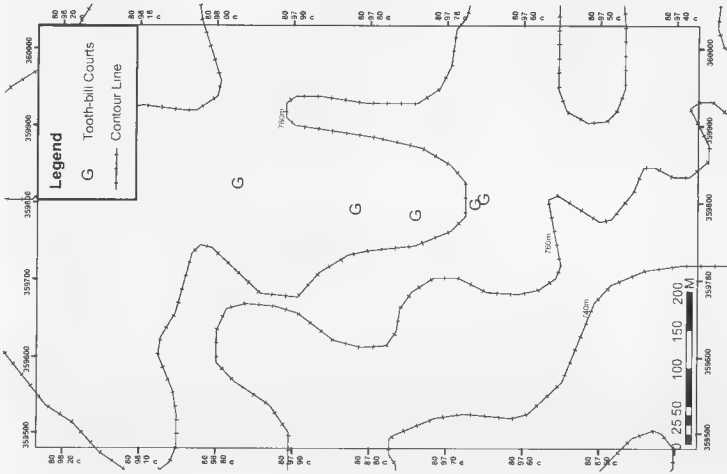


Figure 1c. Mature Rainforest Tooth-bill lek

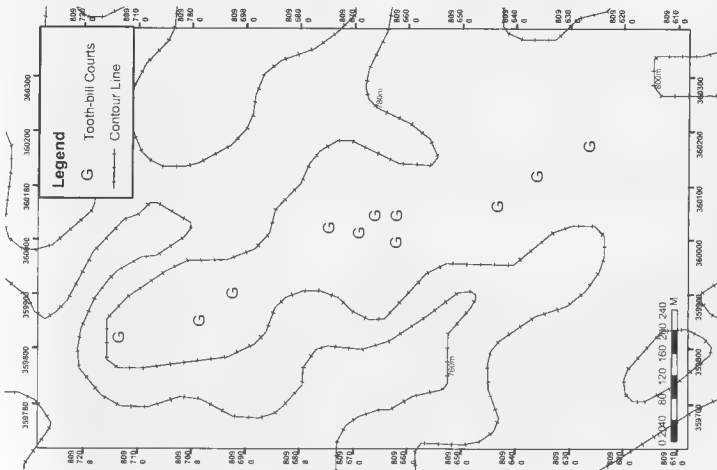


Figure 1d. Mature Rainforest Tooth-bill lek

Fig. 1c-d. Bowerbird courting sites in leks on and near CRS property 2004/2005.

## DISCUSSION

The distributions of courts formed by Tooth-bills comply with Bradbury's (1981) definition of a lek which includes clumped distribution of males, free female choice of mate and no resources of any value available to the female at the court/copulation site, except for the males' sperm. On this basis, the four groups of Tooth-bill courts identified in this study, where there are separate and distinct groups of males along different ridge lines, can be classified as leks. Within these groups there are dominant males identified by the higher number of leaves on their courts, longer court maintenance seasons, and more leaves stolen from other males in their group (CRS unpublished data).

In bird species in which the males form leks during the breeding season, dominant males tend to hold the higher ground or the inner ground of the lek area (Fiske *et. al.* 1998). In all of the leks in this study, the dominant male was one with a court at either the highest, or second highest elevation relative to other courts in the same lek (CRS unpublished data).

There were no overall differences in the lekking behaviour of Tooth-bill males in the *Acacia* regrowth and in the three areas of mature rainforest. In the *Acacia* regrowth, males established a dominance hierarchy during the 2004 and 2005 breeding seasons and copulations were observed there. Although the majority of the *Acacia* regrowth courts were located in areas of older regrowth, the second highest ranked male established his court in an area of regrowth less than twenty years old, the youngest regrowth observed being used in this study. While the undergrowth is less developed around this court than around many of the others, it is situated at a higher elevation than the other courts in the lek (CRS unpublished data), which may provide this bird with an advantage in attracting females to his court.

While male Tooth-bills may need access to mature rainforest for foraging, they are not dependent on it for their leks. This study demonstrates that male Tooth-bills will utilise areas of *Acacia* regrowth for courts, and that these courts can form functional leks complete with a social hierarchy that helps to facilitate the attraction of females. However, in this study, older areas of regrowth were preferred for court establishment as most of the *Acacia* regrowth courts were located in areas of regrowth over 45 years of age.

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## REFERENCES

- BRADBURY, J.W. 1981 The evolution of leks. In *Natural Selection and Social Behavior: Research and New Theory*, pp. 138-169. Eds. Alexander, R.D. and Tinkle, D.W. New York: Chiron Press.
- CROME, F., ISAACS, J. & MOORE L. 1994. The utility to birds and mammals of remnant riparian vegetation and associated windbreaks in the tropical Queensland uplands. *Pacific Conservation Biology* 1: 328-343.
- FISKE, P., RINTAMAKI, P.T., & KARYONEN, E. 1998. Mating success in lekking males: A meta-analysis. *Behavioral Ecology* 9: 328-338.
- FRITH, C.B. & FRITH, D.W. 1994. Courts and seasonal activities at them by male Tooth-billed Bowerbirds, *Scenopoeetes dentirostris* (Ptilonorhynchidae). *Memoirs of the Queensland Museum* 37: 121-145.
- GRANT, J.D. & LAURANCE, W.F. 1991 Court size and maintenance in the Tooth-billed Catbird. *Sunbird* 21: 90-92.
- LAURANCE, W.F., GORDON, C.E. & PERRY, E. 1996. Structure of breeding bird communities in rainforest and regrowth forest in tropical Queensland. *Sunbird* 26: 1-15.
- TRACEY, G.J. 1982. *The Vegetation of the Humid Tropical Region of North Queensland*. C.S.I.R.O., Australia.
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## NOTES