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LAND BIRD MOVEMENTS ACROSS NORTH-EAST BASS STRAIT, AUTUMN 1988

S. T. GARNETT¹, P. SUTTON², K. LOWE³ and S. GRAY⁴

¹Garden of St Erth, Blackwood, Victoria 3458

²Wilson's Promontory Lightstation, P.O. Box 74, Foster, Victoria 3960

³Australian Bird and Bat Banding Scheme, P.O. Box 8, Canberra City, ACT 2601

⁴Deal Island Lightstation, P.O. Box 75, Foster, Victoria 3960

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Observations and banding of land birds were undertaken at Deal Island and Wilson's Promontory lightstations in north-east Bass Strait between February and May 1988. Data on the timing and route of migration of several species are presented, as well as evidence for pre-migratory fattening in Flame Robins and Grey Fantails. The movement of several species not previously thought to cross Bass Strait is also documented.

INTRODUCTION

While it is recognized that at least 25 land bird species migrate annually across Bass Strait and many others apparently do so in the course of irregular climate-induced dispersal, the route, timing and extent of movements are poorly documented, most accounts being anecdotal. For only six species, Brown Goshawk *Accipiter fasciatus*, Marsh Harrier *Circus aeruginosus*, Brown Falcon *Falco berigora*, Nankeen Kestrel *F. cenchroides*, Grey Fantail *Rhipidura fuliginosa* and Silvereye *Zosterops lateralis*, have banded birds been recovered after crossing Bass Strait (Australian Bird and Bat Banding Scheme; ABBBS). Given the difficulties of the terrain and the low recovery rate of banded birds, it seems that only by expanding the range and number of observations, particularly at periods of peak migration, will a better understanding of the movement pattern be obtained. To this end, banding

and observations were carried out at Wilson's Promontory and Deal Island in north-east Bass Strait from February to May 1988. Both sites were also assessed for future studies of bird migration.

METHODS

Banding and observations were carried out in the vicinity of Wilson's Promontory Lightstation from 16 February onwards and are continuing. At Deal Island intensive work was carried out 15-25 March, with less systematic observations at other times. Weight and standard measurements — total head length, flattened wing chord, tail length and tarsus — were taken on almost all birds captured; moult was recorded for some. Weather was also recorded for all banding sessions. Observations were not carried out systematically as they had to fit in with the lightstation work schedule.

The area under study is shown in Figure 1. The Wilson's Promontory Lightstation is situated on South-east Cape, a rocky headland covered, apart from a mown area near the Lightstation itself, in woodland dominated by Drooping She-oak *Allocasuarina verticillata* with some Tasmanian Blue Gum *Eucalyptus globulus*. It is isolated from the mainland by a narrow neck clothed in low heathland. A small wooded island lies 1 km offshore to the south and Deal Island is just visible 72 km away to the south-east. Deal Island, 1 500 ha, is the main island of the Kent Group. About half is covered in eucalypt and casuarina woodland, the remainder is tussock grassland. The grassier Erith Island, immediately to the north of Deal (Island), was also visited for three hours on 19 March.

The observations are presented for those landbird species that could conceivably have moved across at least part of Bass Strait, omitting those that may have moved among the Kent Group or from Wilson's Promontory to Rodondo Island.

RESULTS AND DISCUSSION

Species caught or observed

Brown Goshawk *Accipiter fasciatus*. One female was seen at Deal on 23 March, that would probably have been seen earlier if it had been there. Movement across Bass Strait in March would correspond to the absence of some Goshawks from their Tasmanian territories in winter and their presence at some coastal sites in Victoria from only March to August (Blakers *et al.* 1984), and there has been one bird banded in Tasmania and recovered in Victoria (ABBBS).

Australian Hobby *Falco longipennis*. One foraged on insects above Deal Lightstation compound on 21 March and was seen daily for the next three days. The timing of this sighting suggests that the vagrants that supplement the Tasmanian population in summer (Blakers *et al.* 1984) may, in fact, be regular migrants.

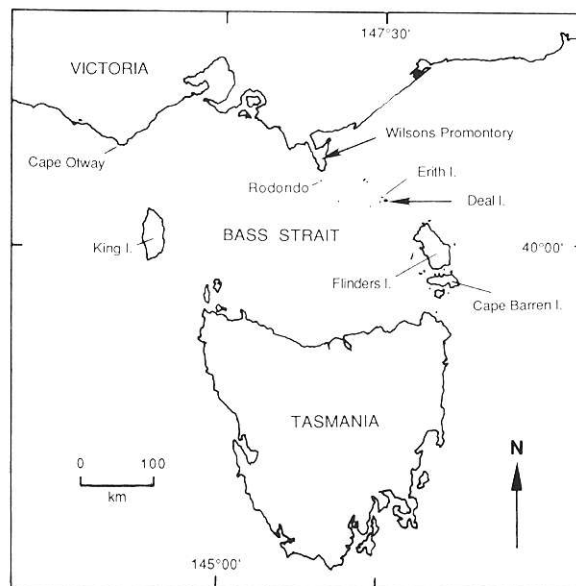


Figure 1. Bass Strait showing eastern island chain.

Brown Falcon *Falco berigora*. Appeared to be moving across Deal in small numbers: two were seen on 16 March, one on 18 March, one on 20 March, two on 23 March. On different days birds appeared to have different plumages, and those seen were slowly working their way north across the island, gliding in circles or flapping at 50–100 m altitude. The records confirm observations that part of the Tasmanian population migrates north in autumn across eastern Bass Strait (*contra* Blakers *et al.* 1984; Chatto 1987; Field 1989).

Australian Kestrel *Falco cenchroides*. First sightings for the year on Deal on 20 March were at least three on 21 March and one on 23 March. At least one bird remained on Deal throughout the winter. Individuals moved slowly north across the island, combining flapping and gliding flight with hunting and perching. The timing of the movement corresponds to evacuation of Tasmania during winter (Olsen and Olsen 1987); one banded on King Island has been recovered in Victoria (ABBBS). Deal may represent the most southerly point of winter residence.

Little Button-quail *Turnix velox*. One was flushed in tussock grassland at Deal on 23 March, possibly the first record for Tasmanian territory. The species is certainly not resident on Deal, but it can scarcely be considered a regular migrant.

Blue-winged Parrot *Neophema chrysotoma*. Has only been seen on Deal in spring (Gray *et al.* 1987). At Wilson's Promontory, the species was first caught before 0300 h on 15 March beside the Lightstation after a night of strong WSW–WNW winds. Subsequently, it was seen near the Lightstation in the early morning on 16, 17 and 31 March. Later arrivals came on nights of light winds. Two caught weighed 65 and 43 g and had the following measurements: heads 30.8, 27.7 mm; wings 111, 106 mm; tails 108, 95 mm and tarsi 16.2, 14.6 mm. Flocks observed in north-west Tasmania suggest migration across the western part of Bass Strait (Blakers *et al.* 1984). Some birds may have been blown across as far as Wilson's Promontory but spring sightings at both Wilson's Promontory and Deal suggest a portion of the population also travels across eastern Bass Strait.

Fan-tailed Cuckoo *Cuculus pyrrhophanus*. Was not seen on Deal. One was caught at Wilson's Promontory on 16 March (64 g, head 45.3 mm, wing 136 mm, tail 131 mm) and seen and heard in April, after which the species was not seen again until 10 September.

Barn Owl *Tyto alba*. One was seen on Deal on 4 May. Has been seen there previously (Gray *et al.* 1987) and could be resident, but is scarce in Tasmania.

Skylark *Alauda arvensis*. Self-introduced to Deal, where now resident. Individuals were sighted at Wilson's Promontory on 16 April and 1 May, but stayed for only a few hours on each occasion. Flocking has been noted during August in Tasmania (Fletcher 1932) and may be associated with regular movement as noted in this species' countries of origin (Cramp 1988), but its gradual increase in range (Blakers *et al.* 1984) may also account for the irregular appearance at Wilson's Promontory.

Welcome Swallow *Hirundo neoxena*. At Deal, flocks of 30+ were observed on 19 March and 80+ on 20 March. At Wilson's Promontory flocks were present during the last two weeks of April and the first week of May. Single birds were caught at Deal (13.2 g, head 27.0 mm, wing 108 mm, tail 58 mm, tarsus 16.6 mm) and Wilson's Promontory (15.0 g, wing 111 mm, tail 74 mm). They had departed from Tasmania by 20 March, 1988 (A. Fletcher, pers. comm.); they usually leave southern Tasmania late February–mid March (Park 1981). Observations at King Island

(Templeton 1976) suggest most birds move north via western Bass Strait from late February to early April, but these observations confirm that at least some move up the eastern island chain.

Tree Martin *Cecropis nigricans*. The only two seen were at Deal with Welcome Swallows on 19 March. At Wilson's Promontory there were no sightings between 12 January and 19 October. The major route of migration is said to be up the eastern side of Bass Strait (Mollison 1960) but the birds do not necessarily follow the island chain.

Richard's Pipit *Anthus novaeseelandiae*. From 15–25 March three to eight were present on the one area of short grass on Deal, but on 17 March 40+ were seen that could not subsequently be accounted for. They were not seen on Erith Island on 19 March, so are presumed to have left the Kent Group. At Wilson's Promontory, individuals were recorded on 16 March and 2 April and caught on 14 and 18 April (29.4, 28.6 g; heads 37.0, 36.8 mm; wings 90, 89 mm; tails 70, 66 mm; tarsi 24.8, 26.2 mm). Two more were sighted on May 1. All left by midday. Passage through Deal in late March would fit the observed decline in Pipit numbers round Devonport by early April (Dove 1937), and numbers in Tasmania generally decline during winter (Blakers *et al.* 1984).

Black-faced Cuckoo-shrike *Coracina novae-hollandiae*. Only one was seen on Deal, on 16 March. Two individuals were seen flying over Wilson's Promontory, one in April, and the other in May. Partial north-south migration of this species has been well documented (Blakers *et al.* 1984). As with Black-faced Cuckoo-shrikes crossing Torres Strait to New Guinea (Draffan *et al.* 1983), most moving between Tasmania and Victoria probably fly high and make the journey without stopping.

Blackbird *Turdus merula*. Self-introduced to Deal, where it is now apparently resident, although the population may still be supplemented from the mainland. At Wilson's Promontory a flock of 12 was seen 0700–0900 h on 16 April. Neither flocking nor regular migration has been recorded in Australia but partial migration occurs in Europe with flocks arriving after nocturnal flights at about dawn (Cramp 1988) so the flock at Wilson's Promontory may have crossed Bass Strait.

Flame Robin *Petroica phoenicea*. Some banded individuals are resident on Deal throughout the year, but regular counts taken round the Lightstation compound at about 0900 h each morning (Table 1) suggest some movement during late March. The numbers in the compound, however, do not necessarily reflect the number of Flame Robins passing through the island. Although only 14 out of 66 birds were retrapped, suggesting that at least some were migratory, on some mornings when few could be seen, many were heard singing in the surrounding woodland. They were also seen, heard and captured in eucalypt woodland, and seen and heard at numerous other places. More convincing evidence for migration was the high density on the north-east corner of Erith where, at midday on 19 March, there were 40+ within half a hectare of mixed grassland and low shrubland. This would be the closest point in the Kent Group to the Australian mainland and possibly the most suitable place to observe northward movement within the group. Nevertheless here, as on Deal, birds were chasing each other in a way which would suggest residency, even temporarily, rather than transience. At Wilson's Promontory no Flame Robins were seen until 31 March, with individuals subsequently sighted on 7, 8, 14, 27 April and 1 May. One was caught on 14 April. There was no correlation with the wind direction or weather but all were present only in the morning. Birds caught at Deal weighed 13.3 ± 0.93 g (11.8–17.9, $n=80$), significantly less ($p<0.001$) than those caught the following spring at Wilson's Promontory, which were 15.1 ± 1.13 g (14.0–16.9, $n=7$). Of nine individuals recaptured at Deal, the mean variation in weight was ± 0.7 g (0.1–1.6) with one bird increasing from 14.1 to 15.6 g over five days. The Deal birds had head lengths of 30.6 ± 0.05 mm (29.8–32.0, $n=62$), wing chords 78.8 ± 2.3 mm (75–85, $n=62$), tails 55.5 ± 2.5 mm (50–63, $n=45$), and tarsi 19.3 ± 0.63 mm (17.8–20.2, $n=46$). One of seven birds examined was in wing moult. The differences in weight suggest that there may be some pre-migratory fattening, although not to the same degree as long-distance migrants in the northern hemisphere. During winter 29 birds at Mt Piper, Victoria, weighed between 11.2 and 14.6 g (Rogers *et al.* 1987). Although not possible to compare statistically, their weights were probably less than those caught at Wilson's Promontory but similar to the mixture of resident and presumably migrating robins at Deal. However, although the

TABLE 1

Counts of Flame Robins in lightstation compound, Deal Island.

	Dates in March 1988										
	15	16	17	18	19	20	21	22	23	24	25
Numbers of:											
Adult males	2	5	0	2	4	0	2	4	2	3	5
Uncoloured birds	31	45	8	12	15	24	10	12	30	18	21

mean weight of birds at Deal was lower than at Wilson's Promontory, five of the 80 captured were greater than the maximum of 14.6 g recorded by Rogers *et al.* (1987). One of these was a bird that increased in weight by 10 per cent over six days.

Satin Flycatcher *Myiagra cyanoleuca*. Individuals were observed at Deal on 16, 18, 19, 22, 23 and 24 March, always alone and always silent. At Wilson's Promontory one was caught on 18 February, three on 24 February and one on 15 March, all between 1640 and 1845 h. The mean weight of five birds caught at Wilson's Promontory was 18.8 g (16.7–21.9) and the measurements of four birds were: heads 37.9 mm (37.1–39.2), wings 88.5 mm (85–91), tails 77.5 mm (75–79), and tarsi 16.3 mm (15.9–16.5). The birds seen at Wilson's Promontory in February may not have come from Tasmania but, given the distance travelled by Satin Flycatchers after breeding, it is likely that any failed breeders would depart early. The last date at Wilson's Promontory was actually earlier than the observations at Deal suggesting that most birds travel long distances with few stops.

Grey Fantail *Rhipidura fuliginosa*. At Deal they were numerous and apparently mobile. Ten were caught at the one site with no retraps. On each of the four evenings the site was used there were four to seven unbanded fantails in the vicinity. At Wilson's Promontory they were absent until 16 March with subsequent arrivals occurring spasmodically until 3 May. Captures for banding tended to be clustered; they were captured on only seven of 39 days of netting between the first and last observations of Grey Fantails, with single birds being caught on two days and groups of 2, 4, 5, 8 and 38 on the other five. Arrivals were apparently only in the morning on days of light winds of no consistent direction. They were seen flying in the light beams at 0500 h and had

usually left by noon. Birds caught at Wilson's Promontory during autumn weighed 7.9 ± 0.65 g ($6.6-9.1$, $n=55$), significantly less ($p < 0.001$) than both those caught during autumn at Deal (8.9 ± 0.47 g, $8.2-9.9$ g, $n=14$) and those caught at Wilson's Promontory the following spring (8.8 ± 0.97 g, $7.9-9.6$ g, $n=15$). The Deal birds had head lengths of 24.7 ± 0.75 mm ($23.2-26.1$, $n=13$), wings 74.7 ± 1.4 mm ($72-76$, $n=12$), tails 87.8 ± 1.9 mm ($86-90$, $n=10$) and tarsi 16.2 ± 0.77 mm ($15.4-17.8$, $n=10$). Sexes were not distinguished but five out of 14 were first-year birds. One bird was under-going wing moult. These records corroborate observations of passage movement (Brothers 1978), particularly along the eastern island chain (Ford 1981). As with Flame Robins, the weight differences between different cohorts of birds suggest some pre-migratory fattening at both Deal and Wilson's Promontory in the spring, although given the sexual dimorphism in this species (Rogers *et al.* 1987), the pooled data in this study could mask biased sex ratios.

Silvereye *Zosterops lateralis*. At Deal flocks of ≤ 50 birds were seen flying round the island throughout autumn but never any indisputable migration. Some inter-island movement within the Kent Group was noted, and parties were also seen feeding on fruit of *Alyxia buxifolia*. At Wilson's Promontory it was the most obviously migrating bird, with parties frequently seen flying in from across the sea from 5 March to at least mid-June, although infrequent after 26 April. On all but one occasion, flocks were seen flying in during the morning, the majority being seen 0700-0900 h and departing before noon, but there was no correlation between wind direction and arrival of Silvereyes. All cohorts of Silvereyes were statistically indistinguishable in weight: at Deal they weighed 11.4 ± 1.08 g ($8.5-14.0$, $n=58$); at Wilson's Promontory they weighed 11.1 ± 0.75 g ($9.5-14.1$, $n=67$) in autumn, 11.3 ± 0.92 g ($9.4-13.6$, $n=33$), in the following spring. The Deal birds had head lengths of 27.3 ± 0.93 mm ($26.0-29.1$, $n=30$), wings 61.8 ± 2.4 mm ($56-68$, $n=33$), tails 46.5 ± 1.8 mm ($44-50$, $n=25$) and tarsi 16.3 ± 0.68 mm ($15.2-17.6$, $n=24$); six out of 17 birds examined were in active wing moult.

Tasmanian Silvereyes are known to cross Bass Strait each autumn and spring (Blakers *et al.* 1984). Our observations corroborate those of Ashby (1928) that Silvereyes probably leave Tasmania in the evening and arrive on the mainland the following morning even though they have been seen passing north from Swan Island, off north-east Tasmania, towards Clarke Island, about 20 km to the north, at any time of the day if the weather was favourable (Field in press). The range of weights in each group suggests that some fattening occurs during migration as all three cohorts had individuals heavier than any of the 196 weighed by Rogers *et al.* (1987) on the mainland, which had a weight range of 9.2-13.4 g. Failure to distinguish between different groups on the basis of weight may be the result of mixing between local and migrant birds. Also, because the silvereyes were feeding as they travelled, each cohort may have contained pre- and post-fed individuals.

European Goldfinch *Carduelis carduelis*. A flock of about 60 birds was seen daily near the compound on Deal. Much of the tussock grassland is infested with thistles on which the goldfinches were feeding. Migration to the island may occur in winter, when numbers increase dramatically. A similar increase was also noted at Wilson's Promontory. Those caught at Deal weighed 15.9 ± 1.54 g ($13.9-19.0$, $n=8$), of which five were measured: heads 28.0 mm ($26.5-29.8$), wings 75.0 mm ($73-76$), tails 48.8 mm ($46-56$), tarsi 13.7 mm ($12.3-14.7$). Winter flocking in this species is well known but this is the first evidence that it may cross Bass Strait.

Greenfinch *Carduelis chloris*. Several individuals and small flocks were noted on Deal in March, particularly on Erith where they foraged among seaweed. Their absence, at least during summer, suggests movement across at least part of Bass Strait. Those caught weighed 25.7 ± 1.11 g ($24.3-27.0$, $n=6$) with measurements: heads 32.8 ± 0.42 mm ($32.3-33.3$, $n=6$), wings 87.0 ± 2.3 mm ($85-90$, $n=6$), tails 53.7 mm ($51-59$, $n=3$), tarsi 17.0 mm ($16.4-17.2$, $n=5$). The apparently regular seasonal occurrence on Deal is the first suggestion that this species may undertake regular movements in Australia (Blakers *et al.* 1984).

House Sparrow *Passer domesticus*. They are resident at Deal which has been repeatedly recolonized after temporary eradication. The three caught weighed 30.4 g (28.7–31.9) with measurements: heads 32.4 mm (31.9–33.1), wings 78.3 mm (76–80), tails 56.7 mm (51–61), and tarsi 18.4 mm (16.6–19.5). At Wilson's Promontory one appeared on 24 February and no more than two at a time have appeared at other times of the year. None have stayed more than two hours. Generally House Sparrows are considered to have followed human settlement, but records of breeding away from humans have been made at Goose Island on Bass Strait and numerous sites on the mainland (Hobbs 1958).

Common Starling *Sturnus vulgaris*. As with the House Sparrow, Starlings have repeatedly recolonized Deal where they are now resident. One caught weighed 79.7 g. Groups of up to five were seen sporadically at Wilson's Promontory throughout autumn but never stayed longer than three days. Blakers *et al.* (1984) suggested movement across Bass Strait but no evidence for it was provided by this study.

Dusky Woodswallow *Artamus cyanopterus*. One flock was present at Deal during 4–6 May. This corresponds with an observation in south-eastern Tasmania of flocks migrating north in early to mid-April (Mollison 1962) or leaving Devonport as early as 31 March (Dove 1934), suggesting leisurely progress along the eastern islands.

Forest Raven *Corvus tasmanicus*. Present on Deal in autumn but flocks have been seen flying south-east across the sea towards Flinders Island and disappearing without any sign that they intended to turn back. Similarly, at Wilson's Promontory, small parties have been seen flying towards Rodondo Island but may have gone further. The mainland populations of the southern subspecies of the Forest Raven at Wilson's Promontory, the Otways and south-east South Australia are generally considered remnants from the last ice age when Tasmania was linked to the mainland. These observations suggest that the population at Wilson's Promontory, at least, may not be genetically isolated from that in Tasmania. Further south, Forest Ravens have been seen flying from Swan Island, north-east of Tasmania, to Clarke Island in the Furneaux Group (Field, in press).

Suitability of sites for study of Australo-Tasmanian migration

While Deal Island is well placed for observing migration through north-east Bass Strait, being separated from both main land masses, it suffers several disadvantages for detecting changes in numbers of passerines. Being a large wooded island any birds that stop can do so surreptitiously, and many of the resident birds are the same species as those that migrate. Although the southernmost of the islands in the Kent Group, the southern flank of the island where birds would first arrive is steep and densely wooded and has no prominent southern point towards which migratory birds would orientate. The Lightstation itself is 300 m above sea level and, unlike at Wilson's Promontory or most other lighthouses, does not appear to attract travelling birds or cause many bird fatalities. Just to the north of Deal Island is Erith Island, so even if a bird is seen leaving Deal there is no proof that it is flying beyond Erith. Nevertheless large numbers of Grey Fantails, Flame Robins and Silvereyes can be caught and some of the larger non-passerines and grassland species are easily observed. Systematic estimates of bird density could reveal much about the timing of migration.

The point on which the Lightstation at Wilson's Promontory is situated is in many ways equivalent to a small wooded island and, as such, can play the same role in the study of migration as places such as Heligoland and Fair Isle in the Palearctic or Booby Island in the Australian tropics. Situated due north of central Tasmania, it probably receives wayward migrants travelling up the island chains at both the western and eastern ends of the Strait. However, it also receives regular influxes of mainland birds involved in movements of unknown length, and species of honeyeater never recorded in Tasmania have been seen flying out to Rodondo just offshore, with which there must be some avian traffic. The continuing observations will provide more information on the timing of bird movements but only detailed morphometric analysis of captured birds or immunophoretic sampling will be able to separate birds of mainland origin from those from Tasmania.

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BOOK REVIEW

The Beginner's Guide to Australian Birds. R. Balmford, 1990. Penguin Books. 268 pp. rrp \$A12.99.

This book is the fully revised edition of Rosemary Balmford's popular 'Learning about Australia Birds' which was originally published in 1980. The objective of the book is to provide a single reference for a 'new' bird watcher to seek clear and concise information on all aspects of bird watching and to provide an insight into the more advanced areas of ornithology that his/her new found interest may lead.

The first six chapters deal with the basics of bird watching, such as where and when to look at birds, choosing binoculars and field guides, planning field outings, field identification and what to record. These are followed by explanations of the techniques used in field studies and how the reader might become involved in research such as censusing and banding, writing up the results of research and presenting talks. The last few chapters briefly discuss the classification and naming of birds, avian evolution and fossils. Appendices

list the names and addresses of relevant organizations and authorities mentioned in the text (the ABSA and *Corella* were mentioned on numerous occasions) and, finally, Rosemary has provided a comprehensive list of references for further reading. These are arranged under logical subheadings to assist the reader who wishes to further explore an area of particular interest.

I don't believe that I am a 'beginner' and had I not been asked to review this book I doubt that I would have ever picked it up in a book shop. There are probably many other amateur ornithologists and bird watchers who would also ignore the book because of what I believe is an unfortunate name — the original title may have been better. I found the book to be most interesting and informative and I'm glad that I was asked to review it. 'The Beginner's Guide to Australian Birds' most capably occupies a very special niche in the Australian ornithological literature and I commend it to everyone with an interest in birds.

J. W. Hardy,
Lisarow, NSW