

30 years of its introduction to New Zealand the Starling had started to colonise New Zealand's offshore islands (Williams 1953) and after 60 years it had reached Norfolk Island (700 km), the Kermadecs (1100 km), and probably on to Vatoa (1200 km).

Whatever are the constraints on the spread of the Starling in Fiji and the tropics in general, and feeding ecology is obviously likely, they certainly merit a detailed study.

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LITERATURE CITED

- BOYER, G. F. 1957. Atlantic crossing by Starling. *Brit. Birds* 50: 209-210.
 CAIN, A. J.; GALBRAITH, I. C. J. 1957. *Birds of the Solomon Islands*. Ibis 99: 128.
 CARLSON, E. 1974. Avifauna of Tonga. Unpubl. MS.
 CARRICK, R.; WALKER, C. 1958. Report on the European Starling *Sturnus vulgaris* at Ono-i-lau. *Trans. Proc. Fiji Soc. (1951-54)* 5: 51-58.
 CORREIA, J. 1924-25. *Journal*. A translation of the Portuguese original is deposited at the American Museum of Natural History.
 DHONDT, A. 1976. Bird notes from the Kingdom of Tonga. *Notornis* 23: 4-7.
 DIAMOND, J.; MARSHALL, A. G. 1976. Origin of the New Hebridean avifauna. *Emu* 76: 187-200.
 ELLIOT, B. G. 1980. First observation of the European Starling in Hawaii. *Elepaio* 40 (7): 100-101.
 EPPLER, A.; ORIANI, G. H.; FARNER, D. S.; LEWIS, R. A. 1972. The photoperiodic testicular response of a tropical finch *Zonotrichia capensis costaricensis*. *Condor* 74: 1-4.
 GABITES, J. F. 1978. Tropical cyclones affecting Fiji, 1840-1923. *Fiji Met. Serv. Inf. Sheet* 27.
 GWINNER, E. 1973. Circannual rhythms in birds: their interaction with circadian rhythms and environmental photoperiod. *J. Reprod. Fert. Suppl.* 19: 51-66.
 GWINNER, E. 1977. Photoperiodic synchronisation of circannual rhythms in the European Starling *Sturnus vulgaris*. *Naturwissenschaften* 64: 44.
 HILL, W. R. 1952. The European Starling in Fiji. *Emu* 52: 218.
 IREDALE, T. 1910. Birdlife on the Kermadec Islands. *Emu* 10: 2-16.
 JOHNSON, S. R.; COWAN, I. M. 1975. The energy cycle and thermal tolerance of the starlings (Aves: Sturnidae) in North America. *Can. J. Zool.* 53: 55-68.
 LONG, J. L. 1981. Introduced birds of the world. London: David & Charles.
 MANSON-BAHR, P. E. C. 1953. The European Starling in Fiji. *Ibis* 95: 699-700.
 MAYR, E. 1945. *Birds of the Southwest Pacific*. Macmillan, New York.
 MEDWAY, LORD; MARSHALL, A. G. 1975. Terrestrial vertebrates of the New Hebrides: origin and distribution. *Phil. Trans. R. Soc. Lond. B* 272: 423-465.
 MURTON, R. K.; WESTWOOD, N. J. 1977. *Avian breeding cycles*. Oxford Univ. Press.
 PARHAM, B. E. 1955. Birds as pests in Fiji. *Agric. J. Fiji* 25: 9-14.
 PIZZEY, G. 1980. *A field guide to the birds of Australia*. Sydney: Collins.
 WATLING, D. 1982. *Birds of Fiji, Tonga and Samoa*. Wellington: Millward Press.
 WESTWOOD, N. J.; DOBSON, S. 1981. Environmental variables and onset of breeding in the starling. *Annu. Rep. Inst. Terr. Ecol.* (1980): 15-17.
 WILLIAMS, G. R. 1953. The dispersal from New Zealand and Australia of some introduced European passerines. *Ibis* 95: 676-692.

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NOTES ON SOME WADERS AT VATUWAQA, SUVA, FIJI

Between December 1979 and November 1981 I visited Vatuwaqa beach near Suva at least twice in each month except March 1980 to note the species of wader present, their plumage state, to count their numbers at or close to low tide and, where possible, to obtain information on their attachment to a particular area. The length of beach watched was about 2 km and included both banks of the Vatuwaqa River mouth,

which has deposited a silt which carries a large population of invertebrates attractive to wading birds.

Study on feeding flats at low tide does not yield the high counts which may be obtained when concentrations of resting birds are observed at high tide (Smart 1971, *Notes on the occurrence of waders in Fiji*, Notornis 18: 267-279), but does, even without banding, allow repeat observations on individual birds with clearly recognisable characteristics.

LEAST GOLDEN PLOVER (*Pluvialis fulva*)

Present throughout the year and only on 26 June 1980 was none seen. Otherwise the numbers were 1-6 from late April to early August and 3-18 during the rest of the year. In 1981 prenuptial moult was first seen on 7 March. (In March 1980, I saw Golden Plover in prenuptial moult on Rarotonga from 17 to 20 March and on Niue on 20 and 21 March.) During late March and early April most birds were in prenuptial moult. However, all but one of the birds which overwintered in Fiji remained in non-breeding plumage. The exception was in full breeding plumage between late June and early August 1981 and then in post-nuptial moult on 22 August.

BANDED DOTTEREL (*Charadrius bicinctus*)

One in June 1980, the only sighting in 51 visits.

MONGOLIAN DOTTEREL (*Charadrius mongolus*)

Single birds 14 June 1980 and 15 August 1981. Smart (1971) saw small dotterels, probably of this species, in all months on the Rewa sandbank a few miles away.

BLACK-TAILED GODWIT (*Limosa limosa*)

Black-tailed Godwits have not previously been recorded from Fiji. I saw one first on 13 October 1980 feeding with a group of Bar-tailed Godwit. The note made on that occasion was "Does not appear speckled at rest and is rather darker than bar-tailed. White rump, black bar on tail, prominent white wing bar, rather longer legs clearly visible behind tail in flight." From that date this bird was seen on eight of nine visits up to 23 March 1981. It then disappeared, having presumably migrated north. From the prominence of the white wing bar, I consider the bird was an Asiatic Black-tailed Godwit (*L. l. melanuroides*).

On 12 September 1981 an exactly similar black-tailed godwit appeared on the same beach and was seen on five of nine visits between then and my last visit on 14 November.

The plumage of this bird was indistinguishable by field observation from that of the Auckland Island specimen in the collection of the National Museum, Wellington.

BAR-TAILED GODWIT (*Limosa lapponica*)

During the summer months these were the most numerous birds on the beach and a few remained all winter. The numbers in the summer of 1980/81 varied between 14 and 53, but in 1981 had not

exceeded 25 on any visit up to my last on 14 November. In the winter months numbers seen varied between none and five. In 1980, 25 were present on 20 July, perhaps early arrivals from the north. In 1981 no increase in numbers was detected until 15 August.

One bird with a recently broken leg was first seen on 14 June 1980. This bird, with the broken distal section slowly retracting, was seen on nearly all visits until 25 January 1981 when, coincident with a fall in the number of godwits present it disappeared.

It was notable that only a few godwits were clearly in prenuptial moult before moving north, unlike the Golden Plovers and tattlers. None of the godwits which overwintered in Fiji showed any breeding plumage.

WANDERING TATTLER (*Tringa incana*)

This species was seen on most visits at all times of year, although it was not detected on four successive visits in the winter of 1981. The numbers were never large and the highest count was seven. This species was less attracted by the muddy fan at the river mouth than others and appeared to be more evenly spread on all beaches around Suva. These low-tide counts contrast with several counts of over 200 in the Suva Point area recorded by Smart (1971).

In 1980 the earliest seen in prenuptial moult was on Nuie Island on 20 March. In 1981 individuals in prenuptial moult were detected from 7 March to 3 May. None of the overwintering birds showed breeding plumage.

SIBERIAN TATTLER (*Tringa brevipes*)

Field separation of tattler species is notoriously difficult and only on one occasion was a Siberian Tattler confidently identified. On this occasion the prominent white eyestripe was clearly different from the wanderers and the under tail-coverts were clearly whiter. This species was recorded by Smart both from the same area and from the Rewa sandbank.

TURNSTONE (*Arenaria interpres*)

Turnstones were present throughout the year with winter counts between zero and two and summer counts between one and 14.

Prenuptial moult was seen in a few birds between 22 March and 19 April. The overwintering birds were in non-breeding plumage.

RED-NECKED STINT (*Calidris ruficollis*)

This species was only once seen; a solitary bird on 19 July 1981. Single stints were recorded three times by Smart from the Rewa sandbank.

DISCUSSION

Two species recorded by Smart in small numbers at Suva Point were not seen, the Far-eastern Curlew (*Numenius madagascariensis*) and the Whimbrel (*Numenius phaeopus*).

Such evidence as could be obtained without marking the birds indicated that those birds which settled in Fiji for a substantial period

continued to feed in the same limited area for most of their stay. It is also tempting to suggest that the solitary Black-tailed Godwit which was so loyal to the Vatuwaqa beach was the same individual in both years.

A large proportion of Least Golden Plovers and tattlers was in prenuptial moult or near to full breeding plumage in the autumn in Fiji. By contrast, only a low percentage of Bar-tailed Godwits and Turnstones showed easily recognisable prenuptial moult at any time.
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SEABIRD RECORDS FROM TONGA — FURTHER NOTES FROM THE LITERATURE

Whitney South Sea Expedition

In a previous paper on Tongan seabirds (Jenkins 1980), I noted that I had not seen the journals of the Whitney South Sea Expedition. Through the good graces of Mary LeCroy, I now have photocopies of those parts of the journals that refer to Tonga. They are Rollo Beck's daily journal (Whitney vol. F: 144-170), his summary of Tongan birds (Whitney vol. F: 188-200), and Jose Correia's daily journal (Whitney vol. O: 7-18). They refer to visits to various islands, apparently all made during daytime, between 1 July and 26 August 1926.

For convenience, I have grouped records of the more frequently reported birds in Table 1. These records further emphasise the importance of 'Ata, Hunga Tonga, Hunga Ha'apai, and Fonualei as seabird breeding islands.

The journals correct some of my claims as to first records and first breeding records for Tonga, as follows.

Wandering Albatross (*Diomedea exulans*): One was seen on the evening of 13 July 1925 when the *France* was standing off 'Ata. "Its plumage was brown, with the head of a lighter colour." This is almost certainly the first record for Tonga.

Short-tailed Shearwater (*Puffinus tenuirostris*): Of his visit to Hunga Tonga Beck recorded "Shearwater burrows were everywhere in the soft ground and we sank in to our knees every few steps. One downy young dried specimen nearly ready to fly was picked up. It was probably *P. tenuirostris* as E. W. Gifford in November saw lots of that species ? fifty miles north of here in 1920." If the birds seen by Gifford were indeed *tenuirostris*, and we now know that both it and *griseus* can occur in these waters in November, it is the first record for Tonga. Beck's unoccupied burrows and dried chick corpse found on Hunga Tonga were almost certainly those of *Puffinus pacificus*.

Wedge-tailed Shearwater (*Puffinus pacificus*): Unoccupied burrows found on four islands (see Table 1) probably all belonged to