

Ectoparasites were collected on 2 specimens of *N. murina* and on the specimen of *N. flavipes*, and were identified as *Craterina seguyi* (Hippoboscidae), a species already reported as a parasite of *Notiochelidon*, though its presence was known in Venezuela from only a few specimens collected from an unspecified swallow's nest in the state of Merida (R. Guerrero).

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## Notes and comments on the taxonomy of Jouanin's Petrel *Bulweria fallax* and Bulwer's Petrel *Bulweria bulwerii*

by B. Zonfrillo

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Recent speculation on the little known Jouanin's Petrel *Bulweria fallax* by Olson (1985) and Bourne (1987) has put in question the taxonomic status of this and Bulwer's Petrel *Bulweria bulwerii*, and has highlighted the dearth of detail on both species. Details of 2 specimens of *B. fallax* held in the Royal Museum of Scotland (RMS), Edinburgh, together with other published biometrics are here presented along with data on 109 *B. bulwerii* caught alive on islands of the Madeiran Archipelago, Portugal. Birds were mist-netted for ringing and comprised 86 breeding adults in

TABLE 1

Biometrics (mm) of 109 living adult *Bulweria bulwerii* from the Maderian Islands and 5 specimens of *B. fallax*

***Bulweria bulwerii* (n = 109)**

|       | Wing    | Culmen    | Tarsus    |
|-------|---------|-----------|-----------|
| Range | 183–212 | 18.5–25.5 | 24.0–32.0 |
| Mean  | 200.9   | 21.1      | 27.0      |
| S.D.  | 4.7     | 1.0       | 1.3       |

***Bulweria fallax* (n = 5)**

|        | Wing  | Culmen | Tarsus | Locality         | Reference                            |
|--------|-------|--------|--------|------------------|--------------------------------------|
| Ad ♀   | 246   | 29.0   | 33.0   | Indian Ocean     | Jouanin 1955, type                   |
| Ad     | 232   | 30.5   | 29.5   | Treviso, Italy   | Olson 1985, mount                    |
| *Juv   | 237   | 26.5   | 31.2   | Thamarit, Dhofar | RMS skin, downy                      |
| *Juv ♂ | 239   | 27.5   | 31.5   | Thamarit, Dhofar | RMS, skin                            |
| Ad ♂   | 240   | 29.0   | 32.0   | Malindi, Kenya   | Cunningham-van Someren<br>1987, skin |
| Means  | 238.8 | 28.5   | 31.4   |                  |                                      |

\*measured personally, Royal Museum of Scotland

autumn (August and September) and 23 pre-breeding adults in May. In addition 10 downy chicks were examined, about 5 of which were close to fledging.

Olson (1985) describes the bicoloured feet noticed on a 30-year-old mounted specimen of *B. fallax* from Italy, and argues that since no other case of bicoloured feet has been reported, the bird in question might represent a new race of this species. While few *B. fallax* have been described in detail, Jouanin (1955), describing the type specimen, states "*Pattes de couleur chair passant graduellement au noiratre dans les parties distales et externes*". The foot colour of *B. bulwerii* varies widely from an overall greyish flesh to an overall bright pink, most birds falling somewhere in between these extremes, with greyish flesh feet and some degree of pink between the toes. Of 23 adults examined on Deserta Grande in May, 4 had distinctly bicoloured feet. It would not be surprising if adult *B. fallax* showed a similar variation in foot colour to that of *B. bulwerii*, and such a variable feature is unimpressive as indicative of a distinct race. The feet of juvenile *B. bulwerii* are an overall grey while juvenile *B. fallax* are greyish flesh.

Both Bourne (1987) and Olson (1985) comment on the size difference between the 2 species, although neither furnish any data in support of their opposing contentions. While few specimens of *B. fallax* have been measured, comparison of 5 of them with 109 *B. bulwerii* (Table 1, Fig. 1) shows that the 2 species can be distinguished readily by wing or culmen length. (*Post mortem* shrinkage of museum specimens will, in this instance, narrow the actual means shown.) Because of the great disparity in sample sizes, standard *t* tests for the comparison of means are not appropriate,

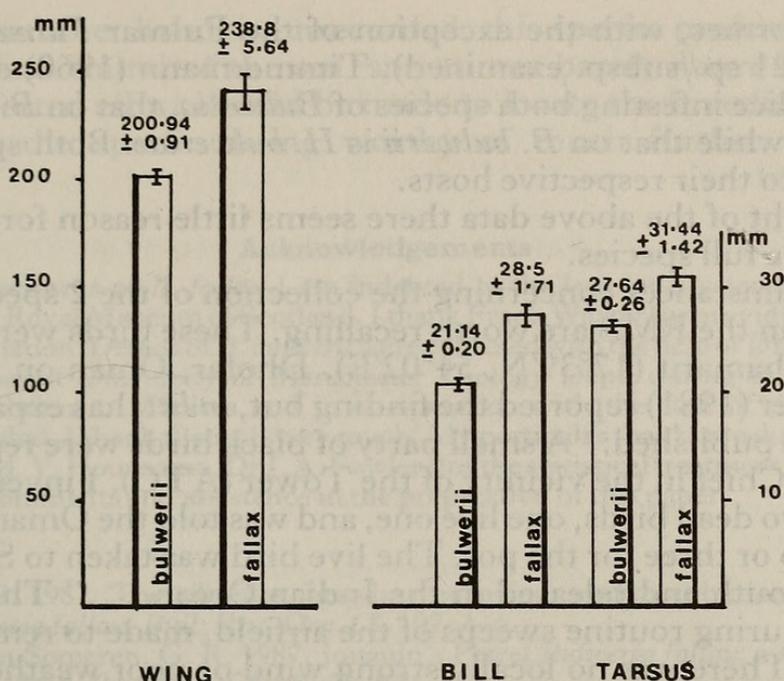


Fig. 1. Mensural comparisons between *Bulweria fallax* (n = 5) and *B. bulwerii* (n = 109).

but the data shown, in Fig. 1 as bar graphs, give the mean of each dimension with 95% Confidence Intervals. In no case is there overlap between the upper limit of one species and the lower limit of the other and a significant difference in size between the populations can therefore be accepted. For all 3 measurements, *B. fallax* is larger than *B. bulwerii*.

Apart from consistent differences in size, another distinguishing feature, which reinforces the specific status of both petrels, is found in the fledgelings. One of the 2 specimens of *B. fallax* collected by Walker (1981), is a newly fledged, still downy juvenile. This bird shows the upperwing evenly sepia in colour. Juvenile *B. bulwerii*, at the same stage of development, from the islands off Porto Santo, Madeira, showed the secondary coverts to be distinctly edged silvery grey, forming an obvious wing bar.

Breeding grounds of *B. fallax* are as yet undiscovered, but the species inhabits the sub-tropical Indian Ocean at latitudes roughly corresponding the those of *B. bulwerii* in the Atlantic Ocean, 15°N–20°N. Fledgelings of *B. fallax* picked up inland in Oman by Walker (1981) and Gallagher *et al.* (1984) show the fledging period to be in November and December. In the Madeiran islands, towards the northern part of its breeding range, *B. bulwerii* fledges from early September to late October. This apparent difference in breeding season may or may not be significant.

Feather lice (Mallophaga), frequently exhibit a high degree of host specificity, which in turn reflects the isolation and distinctness of the host. Mallophaga, being flightless, live and reproduce entirely upon the plumage of the living bird. Transfer, under natural circumstances, is only by physical contact from adult to adult and parent to offspring. The genus *Halipeurus* is found infesting virtually all species of North Atlantic

Procellariiformes, with the exception of the Fulmar *Fulmarus glacialis* (pers. obs. 21 sp./subsp. examined). Timmermann (1960) describes the *Halipeurus* lice infesting both species of *Bulweria*, that on *B. fallax* being *H. fallacis*, while that on *B. bulwerii* is *H. bulweriae*. Both species of lice are unique to their respective hosts.

In the light of the above data there seems little reason for not treating *B. fallax* as a full species.

The circumstances concerning the collection of the 2 specimens of *B. fallax* held in the RMS are worth recalling. These birds were found well inland at Thamarit (17°39'N, 54°02'E), Dhofar, Oman on 5 December 1978. Walker (1981) reported the finding but, *in litt*, has expanded on the brief details published: "A small party of black birds were reported to me by the Fire Chief in the vicinity of the Tower (ATC). I investigated, and collected two dead birds, one live one, and was told the Omanis had taken another two or three for the pot. The live bird was taken to Salalah, sixty odd miles south and released in the Indian Ocean. . . ." The birds were picked up during routine sweeps of the airfield, made to remove hazards to aircraft. There was no locally strong wind or poor weather to explain their occurrence but Walker noted that on a calm misty moonlit night the vast airfield at Thamarit could resemble a large area of water.

While one of the 2 *B. fallax* is an obvious juvenile, having a thick mat of ventral down still adhering, the other, originally described as adult, is also juvenile, its plumage evenly coloured and unworn, with no wing bar, and the longest primary pointed, similar to that of the downy bird. X-ray of the skull gave a picture similar to that of the downy bird. Adult petrels in general usually show wear or moult of wing feathers in the later stages of breeding, and this is true of *B. bulwerii*. In addition, the bills of both the *B. fallax* specimens are somewhat waxy in texture, similar to bills of newly fledged *B. bulwerii*, recognisably different from the more polished black of adults. Gale driven Manx Shearwaters *Puffinus puffinus* showing similar areas of ventral down to that of the fledgeling *B. fallax* have been found well inland in Scotland, possibly attracted by city lights, and up to 150 km from the nearest known colony (pers. obs.). The finding of a downy, newly fledged, Procellariiform specimen inland is therefore not necessarily indicative of a local breeding colony nor is such a bird likely to have been transported and abandoned inland by local inhabitants. Perhaps significantly, when released in daylight, *B. bulwerii* shows a distinct reluctance to fly, seeking cover by shuffling along with the aid of bill and wings or merely lying motionless, head held near the ground.

The undiscovered breeding grounds of *B. fallax* may well be found on offshore islands of Oman or the Arabian Gulf. On the other hand, if the species does breed inland then the high coastal mountain tops near Mirbat (1983 m a.s.l.) and some 90 km from Thamarit, may prove suitable. Here, locally strong offshore winds during the fledging period, November and December, could carry small groups of newly fledged young, and perhaps also adults, far inland where calm conditions and bright lights, such as at the Thamarit airfield, would attract them. With gale force southeasterly tail winds, birds could even be driven further onwards towards the Mediterranean Sea. The 3 birds found at Terviso, Italy in November 1953 may have arrived under such circumstances. Inland breeding of *B.*

*bulwerii*, on the other hand, is unrecorded, this species preferring to stay within sight and sound of the sea, sometimes barely above high water mark. A concerted effort should be made to locate the breeding grounds of *B. fallax*, the species being worthy of much further study and conservation.

#### Acknowledgements

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## Notes on some birds of northeastern Brazil (3)

by Dante Martins Teixeira, Jorge B. Nacinovic &  
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In the last few years, the Ornithological Section of the Museu Nacional has made several expeditions to the residual Atlantic forests of Alagoas, Pernambuco, Paraíba, Rio Grande do Norte and Ceará, extreme north-eastern Brazil. This report follows Teixeira *et al.* (1986, 1987), and is based on the field work performed December 1986 to May 1987. Specimens in the Museu Nacional ornithological collection are referred to by the initials MN plus the respective catalogue number. English names and sequence of the species follow Meyer de Schauensee (1970).

#### MAGELLANIC PENGUIN *Spheniscus magellanicus*

According to Fernando J. M. Pinto an immature specimen was captured alive in Maceió, Alagoas (c. 9°40'S, 35°45'W), in the 1950s. This



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