

	No. of specimens	Wing		No. of specimens	Wing
Madagascar	19	290-325 (305.2)	Kenya, Uganda,		
Comoros	9	290-310 (302.4)	Tanganyika	21	280-305 (290.0)
Union of South Africa			Sudan, Abyssinia,		
South-West Africa,			Somaliland	23	271-305 (282.0)
Bechuanaland	38	281-307 (292.6)	West Africa (Gaboon		
Angola, Rhodesia and			and Cameroons to		
Nyasaland, Portu- guese East Africa	17	279-302 (291.4)	the Gambia)	20	272-301 (286.3)

Besides our specimens, we have two sight-records from Anjouan, and three from Mayotte. All our records are from evergreen forest or well-wooded country, with the following exceptions. The three Moheli specimens were obtained near Fomboni, 13 September, on open ground (also inhabited by *Coturnix coturnix*) before sunset, one as much as an hour and a half beforehand. Two of them had stomachs empty, but the third contained the remains of a lizard. One of the Mayotte specimens was from the aerodrome on Pamanzi, 6 November. It was collected at mid-day, yet there was a small mouse, still whole, in the stomach. Two days later in this locality, at least two birds were hunting over grassland bordering the aerodrome an hour before sunset, and one was seen on the ground devouring some prey. In Northern Rhodesia and Nyasaland, in my experience there is never any activity except between half-an-hour after sunset and half-an-hour before sunrise. However, in England diurnal activity is not uncommon, (see Witherby *et al.* 2, 1941 : 343). Of our other specimens, the stomachs of two contained mice, the rest were empty.

No breeding data were obtained. Rand (1936 : 393) records breeding in Madagascar in April and May. In Rhodesia and Nyasaland, it takes place throughout the dry season. Exactly the same hissing screech as in Africa (Chapin, 'Bds. Belg. Congo' 2, 1939 : 404) was heard on Grand Comoro and Mayotte, and Griveaud states that the call in Madagascar is also identical.

STRIGIDAE

OTUS RUTILUS subsp. Madagascar Scops Owl.

♂, Grand Comoro; 4 ♂, 4 ♀, Mayotte.

The Mayotte specimens are easily distinguishable from specimens of *O. r. rutilus* (Pucheran), of Madagascar, in having the black streaking on the underside rather less bold, the white markings on the abdomen not so strongly developed, and in being more markedly white on the chin and lores. Also, the narrow, pale buffy collar on the nape is rather better developed (in some specimens of *O. r. rutilus* it is completely lacking). Further, the Mayotte birds are larger than *O. r. rutilus* (see measurements below). For differences from *O. r. capnodes* (Gurney), of Anjouan, see also below. I name the Mayotte birds:—

Otus rutilus mayottensis, new subspecies.

Type: ♂, collected by the B. O. U. Centenary Comoro Expedition, at La Convalescence, Mayotte, 400 metres, 2 November 1958. In the British Museum, registered number 1959. 5. 5. Collector's number C 840.

In *O. r. capnodes*, there is no sign of any collar on the nape, nor of any white spots on the scapulars, as in *O. r. rutilus* and *O. r. mayottensis*. Although in wing-length it is not much smaller than *O. r. mayottensis*, the bill is little larger than that of *O. r. rutilus*, see measurements below. Specimens of *O. r. capnodes* fall generally into two distinct colour-phases. Phase A, of which 19 specimens have been available, is similar to *O. r. mayottensis*, but the white markings on the abdomen are still further reduced, and there is more markedly buff spotting on the mantle. As in *O. r. mayottensis*, white

on the chin and lores is well developed. Phase B, of which seven specimens have been available, is generally chocolate in colour, and stands out from all other specimens of the three forms. It is also characterised by a lack of white on the chin and lores, by a virtual absence of black streaking on the underside, and of white markings on the abdomen. The general appearance is of a relatively plain coloured bird, on the upper-side as well as the underside. Three other specimens of *O. r. capnodes*, all in the National Museum, Paris, not conforming with either of these two phases, remain for mention. One, registered number C.G. 1886/1326, is like phase B, though not very strongly chocolate, and is well marked on the upperside. Another, C.G. 1886/1328, is as phase B, but fairly well marked on the upperside, and is well streaked with black on the underside, with white markings on the abdomen. The third, C.G. 1886/1321, is a partial albino. The upperside is a very pale brown, with the markings barely perceptible. The underside is darker, though not nearly so dark as in normal specimens, but the markings are quite clear.

There is considerable variation in *O. r. rutilus*, four specimens in particular being very rufous, and one (in the British Museum, registered number 1931. 8. 18. 368) very grey. One of our series of *O. r. mayottensis*, now in the British Museum, is also rufous. The iris of all our specimens was yellow. The bill was pale greenish or pale grey, the tip being darker, more slaty. The feet were brown or pale ochraceous. In *O. r. rutilus*, the tarsus is almost completely feathered. In *O. r. capnodes*, the lower 10 mm., adjacent to the feet, is bare, while *O. r. mayottensis* is intermediate in this respect. Ours are the first specimens collected on Mayotte, except that in the register in the National Museum, Paris, there are two specimens under the name *Scops humbloti*. One of these was traced, and shows the characters of *O. r. mayottensis*. A search of the literature has failed to reveal that this name was ever published. Milne-Edwards & Oustalet (1888 : 237) mention specimens collected by Humblot on Mayotte, but place them with Anjouan birds.

Our single specimen from Grand Comoro is very distinct. It differs from *O. r. rutilus*, *O. r. mayottensis* and *O. r. capnodes* by an almost complete absence of any streaking on the underside, and by being much more markedly barred, both on the upperside and underside. Chin and lores white, barred with grey. General tone of upperside dark brown, of underside pale rufous brown. Spots on scapulars present, buffy in tone. Smaller than any other form of *O. r. rutilus*, see measurements below. The curve of the cutting edge of the upper mandible is somewhat angular, not smoothly curved as in the other three forms. Tarsus bare for the lower 10 mm. adjacent to the feet. Iris yellow; bill slate; feet dark brown.

I name this Grand Comoro specimen:—

Otus rutilus pauliani, new subspecies.

Type : ♂, collected by the B. O. U. Centenary Comoro Expedition, at La Convalescence, Grand Comoro, 1700 metres, 7 September 1958. In the British Museum, registered number 1959. 5. 6. Collector's number C 331.

I was inclined to regard this specimen as belonging to a species on its own, so distinct is it. Moreover, the call was quite different from that of Mayotte birds, see details below. However, in deference to the opinion of Professors Berlioz and Stresemann, who have both examined it, it is placed as a subspecies of *O. rutilus*.

Two other forms of *Otus* may be mentioned here. *O. pembaensis* Pakenham, of Pemba Island, is placed by Peters (4, 1940 : 95), and Mackworth-Praed & Grant (1, 1952 : 651), as a subspecies of *O. rutilus*. Both Berlioz and Stresemann agree with me that it is better regarded as a distinct species. The underside is very markedly and finely vermiculated, with practically no streaking. The upperside is very uniform, with little sign of barring or streaking. There are white spots on the scapulars. The colour is also very distinct. Two specimens in the British Museum are strongly rufous, another five a pale maroon-brown on the upperside, and an almost vinous grey, inter-mingled with

pale chestnut, below. The tarsus is wholly feathered. The cutting edge of the upper mandible is smoothly curved, as in *O. rutilus* (except for *O. r. pauliani*). *Otus insularis* (Tristram), of which there are two adult specimens from the Seychelles (one of them shown as from Mahé, collected in March 1940 by Sapsworth & Goodfellow) in the British Museum, is another distinct species. It is yellowish brown, with very conspicuous dark streaks, especially on the underside. The tarsus is almost completely unfeathered. Greenway (1958 : 348) regards it as extinct, but this may not be so. He does not take cognisance of the 1940 specimen.

Measurements (mm.) of the various forms are as follows:—

	Wing	Culmen	$\frac{100 \times \text{culmen}}{\text{wing}}$
<i>O. r. rutilus</i>			
14 ♂	145-161 (153.4)	20-22 (20.6)	} 13.4
11 ♀	149-161 (155.0)	20-21 (20.5)	
18 ○	146-166 (154.8)	19-22 (20.6)	
<i>O. r. mayottensis</i>			
4 ♂	166, 170, 171, 171	25, 25, 25, 26	} 14.6
4 ♀	171, 172, 173, 175	25, 25, 25, 26	
1 ○	172	25	
<i>O. r. capnodes</i>			
29 ○	158-173 (165.5)	21-23 (22.0)	13.3
<i>O. r. pauliani</i>			
1 ♂	141	20	14.2
<i>O. pemaensis</i>			
5 ♂	150, 151, 153, 154, 155	21, 21, 21, 21, 23	} 14.0
2 ♀	151, 151	20, 22	
<i>O. insularis</i>			
1 ♂	163	25	} 14.3
1 ○	173	23	

Around our camps at Chingoni and La Convalescence, on Mayotte, *O. rutilus* was common in the mid-stratum of evergreen forest. Thus at the latter camp, it was heard calling from twelve different points at the same time. All our specimens showed some sexual activity, though none were in actual breeding condition. A female flushed from a hole in a Sandrigo tree, in dense, tall forest, on 4 November, and collected, had a well-developed incubation-patch, and several oocytes of diameter 3 mm., showing signs of yolking. It proved impossible to reach the hole, which may well have held eggs. Two days previously, what was presumably the same bird was seen to enter the hole at 9 a.m., and at 3 p.m., when the tree was again visited, it peered out. Rand (1936 : 391) records a female of *O. r. rutilus* ready to lay, 2 November.

Stomach-contents of our specimens of *O. r. mayottensis* were respectively as follows:—homopteran larvae; one adult cicada and two larvae, one large beetle; one adult cicada and several larvae; one mantid, several cicadas; very broken insect-remains; very broken homoptera; very broken insect-remains; cicadas, beetles. Those specimens in which the stomach-contents were very broken were collected about 3 p.m., the remainder, except for that at its nesting hole (9 a.m.), after sunset. The call is a deep and melodious, but somewhat mournful "hoo, hoo, hoo, hoo". Four, as just recorded, was the most usual number of notes heard, but sometimes there would be only three, or it would be more prolonged, once even as many as ten notes being heard. The head is slightly pushed forward as each note is uttered. This call varied appreciably in pitch. Possibly individuals with a lower pitch were males, higher females. As soon as the sun had set, at least one bird was to be heard, but it was by no means unusual to hear the call an hour before sunset, and even occasionally as much as three hours beforehand. But it was

never heard after sunrise. Near Périnet, Madagascar, 15/16 November, this call was again heard. That of *O. r. rutilus* sounded identical with that of *O. r. mayottensis*. The call of *O. pembraensis*, as given by Pakenham in his original description of that species, seems very similar.

On Grand Comoro, we had heard no night birds except *Tyto alba*, and when we got to our camp at La Convalescence we were no longer troubling to listen for them. But after we had been there two days, a nest was found of *Nectarinia humbloti*, in the lining of which was one feather obviously either of an owl or a nightjar. That evening I went out to listen, and from many points in the evergreen forest heard a deliberate "cho" ("o" as in "gone"), repeated indefinitely at the rate of about two "cho's" per second, which I attributed to a nightjar. It was quite different from the call of *O. r. mayottensis* or *O. r. rutilus*, heard later on in the expedition, described above. Eventually, we managed to get the one specimen, collected half-an-hour after sunset with the aid of a torch, calling from a perch in evergreen forest, some five metres above the ground. The testes were small. The stomach-contents were a few beetle remains. Evidently, *O. r. pauliani* is confined to the higher reaches of forest on Mt. Karthala. The local people, who know it as "nde'u", confirmed this. The day after leaving La Convalescence, we spent a night at Boboni, at 650 metres, where there is no lack of forest. I listened specially for the call, but with no result.

On Anjouan, we got no sign of the presence of *O. rutilus*, although we listened carefully. Yet there are 29 specimens in London and Paris, all apparently collected by Humblot. There is no evidence that Naidoo, in 1906-07, collected any specimens. There are four from Anjouan in the American Museum of Natural History, two of which were collected by Humblot, while the other two do not bear a collector's name. It may be extinct, though why this should be so is not clear. Degradation of the forest cannot be the explanation, because on Mayotte, where it is still evidently quite common, practically all the forest is secondary. Could it be over-collecting by Humblot? He may well have collected considerably more than 31 specimens, as his collections are said to have been freely distributed to various institutions in France, only a nucleus being retained in Paris. Nor did we find any sign of the species on Moheli, but it is unfortunate that we could not spend longer there.

APODIDAE

APUS BARBATUS MAYOTTENSIS (Nicoll). (*Micropus mayottensis*.) Comoro Black Swift.
2 ♀, Anjouan; 4 ♂, Mayotte.

I follow Lack ('Ibis' 1956 : 51) in placing Comoro, and also Madagascar birds (*A. b. balstoni* (Bartlett)), in the species *A. barbatus*. Below are my own conclusions in regard to the Comoro and Madagascar forms, based on an examination of the material in the British Museum. Our Comoro specimens are much more blackish generally than Nicoll's three original specimens, collected in 1906, and on the mantle they are almost bluish-black. No very recently collected material was available from elsewhere in the range of the species, so that our specimens can only be used for comparison on a basis of pattern and measurements.

Both *A. b. mayottensis* and *A. b. balstoni* have the white of the chin and throat much more heavily streaked than in South African and East African specimens. *A. b. balstoni* is a well-marked form, though whether *A. b. mayottensis* is distinct from it is not so certain. Seven Madagascar specimens, collected about 1930, are not so blackish as our Comoro specimens, but rather more so than Nicoll's three, with which possibly in further time they will become identical in this respect. In Nicoll's specimens, and in four of ours (the two from Anjouan, and two from Mayotte), white is practically confined to the chin, that on the throat being almost obliterated by dark cross-barring. In the Madagascar birds, and two from Mayotte, the white on the chin shows up rather