

and so the effects of hybridization between *splendens* and *callainus* are evident over a long distance (at least 430 km), which suggests conspecificity.

Callainus may also secondarily hybridize with the Black-backed Wren *M. s. melanotus*. Schodde (1965) drew attention to the occurrence of *melanotus* on the eastern side of the Flinders Range in South Australia and hence the possibility of its contact with *callainus*, which occurs on the western side of the Flinders Range. The disposition of blue and black in *callainus* and *melanotus* is similar but their hues of blue are different, especially on the throat where *melanotus* is blue and *callainus* purple-blue.

Ford (1974) has discussed subspeciation in *Malurus splendens*: the ancestral form was split into *melanotus*, *callainus* and *splendens* by two barriers, the Eyrean Barrier and a barrier consisting of the Nullarbor Plain, Great Victoria Desert and Gibson

Desert. Hybridization between *callainus* and *splendens* shows that the latter barrier is no longer operative.

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THE NEST OF COLLOCALIA V. VANIKORENSIS, AND TAXONOMIC IMPLICATIONS

The type of nest built and the ability or inability to echo-locate have proved critical characters in the taxonomy of the swiftlets (Sims 1961, *Ibis* 103a: 205-209; Medway 1966, *Proc. Linn. Soc. Lond.* 177: 151-172). Although descriptions exist of the nests of some other taxa that, on morphological grounds, have been recognized as subspecies of *Collocalia vanikorensis*, the one built by typical *C. v. vanikorensis* has not been adequately described. During the Royal Society and Percy Sladen Expedition to the New Hebrides in 1971, nests of this subspecies (verified by capture of the sitting birds, cf. Mayr 1937, *Am. Mus. Novit.* (915): 1-19) were found on 28 August in Lemthen Thac cave, near Hog Harbour, Espiritu Santo (167°08'E, 15°08'S).

All nests seen were on small ledges or irregularities in the cave wall and were built of vegetable material. Three were collected. Two of these, empty but each with a sitting adult, had circular rims, overall external diameter 70 mm; egg-cavity also circular, internal diameter 40 mm, 13 and 14 mm deep respectively. One nest was 20 mm tall on the side adhering to the cave wall, 40 mm on its outer side; the other was more wedge-shaped in profile, deepening from 8 to 40 mm. A third nest, containing two half-grown nestlings, measured 60 mm in external diameter, 35 mm tall on the outer side; the egg-cavity had a complete rim, 50 mm internal diameter perpendicular to the cave wall, 40 mm parallel to it, 13 mm deep. All were constructed mainly of green moss, to some pieces of which were attached flakes of bark (suggest-

ing that the moss had been collected off the trunks or limbs of trees); a few fronds of filmy fern were also included in one nest. This material was compacted and bound together by a sparing amount of a soft moist transparent nest-cement, which was copious only at the margin of the nest where it adhered to the cave wall. The nests were in the darkness of the true cave and birds in flight were clearly heard to utter the rattle-like echo-locating call familiar to me from other investigations (Medway 1959, *Nature*, *Lond.* 184: 1352-1353).

Griffin and Suthers (1970, *Biol. Bull.* 139: 495-501) have shown that *C. v. granti* utters this rattle-like call and by its use can orient and avoid obstacles in darkness. Information on the type of nest built confirms that *granti* (see Medway 1966: 159) and also *tagulae* (see Hartert 1899, *Novit. zool.* 6: 206-217) are conspecific with *vanikorensis*. A vegetable nest of similar structure, held together by a similar soft and permanently moist nest-cement, is also built by Sundaic swiftlets currently placed in the species *C. salangana* (Medway 1970, *J. Orn.*, *Lpz.*, 111: 196-205). Among the taxa grouped under *salangana*, the concealed barbs at the bases of the feathers of the back are entirely dark brown or black, whereas in all subspecies of *vanikorensis* listed by Mayr (1937, modified by Medway 1966) at least some of these barbs are white. Apart from this character, which is variable within the *vanikorensis* group, no consistent difference separates them. Both are middle-sized members of the 'grey' echo-locating group of swift-

lets. In both assemblages, length of wing, length of tail relative to length of wing and furcation of the tail vary geographically. As at present constituted, they have contiguous allopatric ranges, meeting at the Macassar Straits.

Whether all taxa currently treated as subspecies of *vanikorensis* or *salangana* are correctly allocated remains a problem for future research, in which the evidence of the nest will be important. At this stage, with knowledge of the identical type of nest, indicating genetically controlled similarities in both behaviour and the physiology of the cement-producing salivary glands, it seems unnecessary to separate *salangana* (with *natunae*) from *vanikorensis* solely on the basis of one slight character of plumage. Published descriptions show that nests of the same type are also built by populations referable to the taxa *bartschi*, *inquieta*, *ponapensis* and *rukensis*

(Stresemann 1925, Mitt. zool. Mus. Berlin 12: 179-190; Medway 1966: 160); these should also be considered conspecific (cf. Peters 1940, Check-list Birds Wld 4: 225). The prior name for the species is *C. vanikorensis* (1830). Its range extends from the Greater Sunda Islands to the Marianas, Caroline Islands and New Hebrides in the western Pacific. Although extensive, this range is paralleled by *Collocalia esculenta* and exceeded by other non-passerine landbirds in this region (e.g. *Halcyon chloris*).

Field-work in the New Hebrides was carried out jointly with Dr A. G. Marshall, who kindly collected one of the nests. We were hospitably accommodated at Hog Harbour in the school and were assisted by Messrs Fred Boe, John Joel and John Wycliffe.

All specimens have been deposited in the British Museum (Natural History).

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IMPOVERISHMENT OF THE AVIFAUNA OF KANGAROO ISLAND

Abbott (1974) documented the species of birds that occur on Kangaroo Island and the neighbouring mainland, Fleurieu, Eyre and Yorke Peninsulas. He showed that the avifauna of the Island is impoverished compared with those of the three mainland areas, even though the total area of each is comparable. The avifauna of the Island shows the greatest affinity to that of Fleurieu Peninsula, from which the Island was most recently separated, about 10,000 years ago.

Abbott attributed the absence of some seventy-one species from Kangaroo Island to a low rate of immigration from the mainland. This explanation would be particularly interesting because the distance separating Island and mainland is only fourteen kilometres. Another explanation, that on Kangaroo Island suitable habitat for the absent species is lacking, or at least limited, is dismissed largely because the chief habitat of Fleurieu Peninsula, dry sclerophyll forest (*Eucalyptus baxteri*, *E. obliqua* and *E. cosmophylla*), is well represented on the Island. He did mention that savanna woodland (*E. leucoxylon*, *E. camaldulensis* and *E. odorata*) is poorly represented on the Island, but did not appreciate the importance of this habitat on Fleurieu Peninsula. Although many lists of species have been compiled for sites on the Fleurieu Peninsula, the favoured habitats of most species of birds have not been well documented.

We believe that many species do not occur on the Island because suitable habitat is lacking, in parti-

cular open savanna woodland, and, until recently, open grassland. On Fleurieu Peninsula savanna woodland is dominated by the South Australian Blue Gum *E. leucoxylon* with the River Red Gum *E. camaldulensis* abundant along creeks. *E. odorata*, *Casuarina stricta* and *Callitris preissii* are also common in drier areas. *E. leucoxylon* and *E. camaldulensis* occur on Kangaroo Island, but the former usually in dense forest associations and the latter usually replaced along creeks by *E. cladocalyx* and *E. viminalis*. We have had considerable experience of birds occurring in different habitats in the Mt Lofty Ranges, but have also relied on Condon (1968) and the personal experience of Mrs J. B. Paton. Table I lists the species, not on Kangaroo Island, that are associated with each major habitat on Fleurieu Peninsula. Many occur in more than one habitat and they are classified here in the habitat in which they are most abundant. Category 4 includes species that occur in many habitats but are likely to be found often in dry sclerophyll forest. Species in Categories 1-3 occur only rarely in dry sclerophyll forest.

Sixteen species (Table I, 1) are rare on Fleurieu Peninsula; they either occur as vagrants from central Australia or the eastern States (some have not been recorded since 1930) or are restricted to small areas of suitable habitat. They are probably not adapted to the main habitats of the region and so probably would not be successful on Kangaroo Island, although they might occur as vagrants. Twenty species (Table I, 2) occur chiefly in open country on Fleurieu