

SHORT COMMUNICATIONS

IS THE AVIFAUNA OF KANGAROO ISLAND IMPOVERISHED BECAUSE OF UNSUITABLE HABITAT?

Ford and Paton (1975) criticized my interpretation (Abbott 1974) of the depauperate avifauna of Kangaroo Island, claiming that I did not give due weight to the fact that many species are most abundant on mainland South Australia in savanna woodland and therefore would not be expected to occur on the Island, where this habitat is non-existent. I believe this view would be largely correct if bird species preferred fixed habitats. This is not so. Many overseas studies that have compared the habitats of species on islands and mainland or habitats of species on islands within archipelagos have clearly shown that species on islands often prefer new or expanded habitats (islands round Britain: Lack 1942; Canary Islands: Lack and Southern 1949; Azores: Marler and Boatman 1951; Galápagos: Lack 1945; Tres Mariás: Grant 1967; New Guinea: Rand and Gilliard 1967, Diamond 1970).

As might be expected, examples are known from Australia, particularly Tasmania and Bass Strait islands and south-western Australia (which acts like an island) and some of its offshore islands. The habitats of *Acanthiza pusilla*, *A. ewingi* and *Meliphaga leucotis* on islands in Bass Strait and Tasmania have already been discussed (Abbott 1973). *Acanthornis magnus* on King Island occurs in *Melaleuca*-swamp forest, which is an atypical habitat in Tasmania. Green (1969) also mentions other species that live in wet habitats in Tasmania but survive in dry habitats on the Bass Strait islands. *Megalurus gramineus* in Victoria is found in swampy situations but breeds on many islands in the Furneaux Group that are devoid of swamp (D. Milledge, pers. comm.). *Pachycephala olivacea* in New South Wales is found only in *Nothofagus* forest (Kikkawa 1968); in Victoria, Tasmania and some islands in Bass Strait it is found only in coastal heaths.

Falcunculus frontatus in Victoria is found in a wide variety of habitats (*Eucalyptus regnans* forest, box forest). In south-western Australia it is restricted to Salmon Gum, Wandoo and other habitats inland but has made slight penetrations along the southern coast (Serventy and Whittell 1967). *Meliphaga leucotis* occurs in virtually all types of habitats in Victoria but in south-western Australia has a distribution rather like that of *Falcunculus* (Serventy and Whittell 1967). In south-western Australia, the endemic *Eopsaltria georgiana* in the south is very common in Karri forest (a type of wet sclerophyll forest); along the western coast it is found in coastal heath (Serventy and Whittell 1967).

Petroica goodenovii is absent from the coastal plain and hills near Perth but occurs east of the Darling Scarp in jam wattle/York gum habitat. An isolated population on Rottnest Island, eighteen kilometres west of Perth, has survived in *Melaleuca lanceolata* forest (Moonah). *Rhipidura leucophrys*, a species of cleared areas and savanna woodland on the eastern part of the coastal plain near Perth, is found on Garden Island (near Perth) in dense *Melaleuca lanceolata*-*Acacia rostellifera* forest. Especially for these last two, no one would have been bold enough to suggest that the habitats on Rottnest and Garden Islands could be suitable for these species, to judge solely from their absence from, or preferred habitat on, the Swan coastal plain.

Cacatua galerita in mainland Australia is found mainly in drier habitats but is found also in rain-forest in Tasmania and New Guinea. It is also noteworthy that various small marsupial species have survived on islands off Western Australia, because in general the island habitats are very different from the preferred mainland habitat (Main 1961).

I think that these examples show that the chief habitat of a species on a mainland need not represent its preferred habitat or the only habitat in which that species can survive. Species are able to adapt in varying degrees to new conditions (see also Klopfer 1965).

In addition, it would be a remarkable coincidence for species occurring near Adelaide to be missing from Kangaroo Island because of lack of supposed suitable habitat when many of the same species are also absent from south-western Australia or Tasmania or both (Table 1). South-western Australia and Tasmania have apparently suitable habitats. This fact alone suggests a biogeographical explanation rather than an ecological one and was discussed fully (Abbott 1974: 127-129). Thus Ford and Paton's (1975) argument that many species are absent from Kangaroo Island because of the 'wrong' habitat is just not true for absences of the same species from Tasmania (relative to Victoria) and from south-western Australia (relative to south-eastern Australia).

Ford and Paton's (1975) paper is centred on the chief habitats of species listed in their Table I. In itself, the adjective 'chief' implies that those species can and do live in other habitats, which are represented on Kangaroo Island (mallee, sclerophyll forest). This should be enough to raise doubts against their argument. If the placing of species into

TABLE I

Numbers of species of landbirds absent from Kangaroo Island that are also absent from south-western Australia and Tasmania.

Category*	(i)	(ii)	(iii)	(iv)
No species absent from Kangaroo I.	16	20	20	15
No of these species absent from Tasmania	9	15	13	9
No of these species absent from SW Australia	11	6	9	3

* After Ford and Paton (1975).

(i) = vagrant or very restricted habitat; (ii) = open country or more arid lands; (iii) = savanna woodland; (iv) = sclerophyll forest.

the categories in their Table I is indeed correct, then this proves my contention because species in these categories do not have their major populations in them in Victoria, Tasmania or south-western Australia. For example, *Myzantha melanocephala*, *Cracticus torquatus* and *Dacelo novaeguinae* are species of mallee or sclerophyll forest rather than savanna woodland.

Finally, *pace* Ford and Paton (1975), I did not attribute 'the absence of some seventy-one species of bird from Kangaroo Island to a low rate of immigration from the mainland'. On page 128 I (1974) argued that twenty-five species were missing from Kangaroo Island probably as result of becoming extinct there and that their *continued* absence is probably because they seldom migrate to the island.

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PLUMAGE CHANGES AND MOULT PATTERN OF THE BROWN GOSHAWK

Between 1965 and 1968 three individuals of the Brown Goshawk *Accipiter fasciatus* (one male and two females) were closely studied in captivity at Camberwell, Melbourne. Their moulting sequences and the resulting changes in coloration of plumage were photographed and recorded. The birds were observed daily as to their plumage condition and any alteration in the feathers by fraying, moult and replacement noted. Each bird was taken from a different nest when a late fledgeling and reared to maturity in the manner of falconry. The nests were all in southern Victoria within a fifty to sixty kilometres radius of Melbourne. The records for each bird began from the completion of full growth of juvenile feathers, i.e. when forty-two to forty-five days old.

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Juvenile plumage (Plate 1a)

Generally browner than that of adults. Creamish white breast and belly streaked dark brown; thighs and under tail-coverts, ginger barred white. Juvenile impermanent colours. Bill, blackish; cere, dark greenish yellow, often marked greenish black; orbital skin, greenish yellow; iris, pale yellow; legs, dull yellow.

Moult

The juvenile plumage began to show signs of deterioration of the feathers by fraying and loss of colour at ten months. Fraying first occurs on the edges of the mantle and scapulars where the mantle overlaps the back and where the scapulars meet the upper wing-coverts. This forms a distinct 'V' pattern