MORE ON MYCOPHAGOUS BIRDS

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Abstract

The literature on mycophagy by birds is reviewed. Eopsaltria australis, the Eastern Yellow Robin, is reported to be mycophagous. Reports that species of Micropsitta are specialist fungus and lichen feeders need to be confirmed.

Introduction

Recently Simpson (1998) reviewed the Australian information on mycophagy by birds. That article resulted in helpful comments by various ornithologists and other biologists. The result is this article in which additional published information on mycophagous birds in Australia and overseas are reported plus further personal observations.

The first record of mycophagy by birds is possibly that by Bailey (1904) in North America. Bailey reported birds, including Canada jays, Perisoreus canadensis, feeding on ‘toadstools’. Andreev (1978) reported the stomachs of Siberian jays, Perisoreus infaustus, collected in early winter in the U.S.S.R. contained mostly fungi. It is thought the fungi were taken from caches collected by squirrels. Trappe (Alsheikh & Trappe 1983) observed Oregon jays, Perisoreus obscurus, feeding on basidiomata of Pleurocybella porrigens (Pers.: Fr.) Singer and Rhizopogon spp. Canada jays have also been observed feeding on large yellow plasmodia of an unidentified Myxomycete (Sutherland & Crawford 1979). No species of jay is indigenous to Australia although other members of the Corvidae are widespread. Given the omnivorous eating habits of ravens, crows and currawongs in Australia it is surprising they have not been found to eat fungi.

The sequestrate ascomycete Phaeangium lefebvrei Pat., known from north Africa and the Middle East, is actively searched for and eaten by migrating birds in winter and early spring (Alsheikh & Trappe 1983, Dickson 1955). The birds identified as scratching out this fungus for food were mostly larks (Alaemon alaudipes, Ammomanes cincturus, A. deserti, Cursorius cursor, Eremophila alpestris, E. bilopha, Galerida cristata, and G. thecklae) but also the black-throated accentor, Prunella atrogularis, and the hoopoe, Upupa epops. Alsheikh & Trappe (1983) reported that Bedouin hunters use freshly harvested ascocarps of P. lefebvrei as bait in traps for live birds. Bird mycophagy would seem to be a highly effective means of dispersal to suitable hosts for this presumably ectomycorrhizal fungus.

California quail, Lophortyx californica, peck holes in the pilei of Suillus spp. (Alsheikh & Trappe 1983) but it is not known if they are feeding on the fungus or on insects.

Simpson (1998) reported the Australian brush turkey, Alectura lathami, as eating small agarics. In November 1998 I observed brush turkeys in rainforest near Beerburrum, in southern Queensland, to eat apparently insect free Lentinula lateritia (Berk.) Pegler. A further confirmed mycophagous species in Australia is the malleefowl, Leipoa ocellata. Malleefowl were observed in remnant mallee and broombush communities near Nhill, Victoria, on numerous occasions in 1995 and 1996, feeding on basidiomata of an undescribed species of Paxillus (Reichelt & May 1997). The fungus was identified by comparison of basidiospores from fresh samples of droppings with those from freshly collected basidiomata. It is interesting that only one species of agaricoid fungus was being eaten. The limited information presently available suggests that opportunistic mycophagy may be general in the Megapodiidae.

New Zealand, Norfolk Island and Lord Howe Island have a number of endemic species of secotioid fungi including species of Gigasperma E. Horak, Nivatogastrium (Harka.) Singer & A.H. Sm., Notholepiota E. Horak, Thaxterogaster Singer, Tympanella E. Horak and Weraroa Singer. Terrestrial marsupials and mammals were absent from these islands before colonisation by humans within the past 1000 years (Diamond 1997). Beever (1993) has suggested these species of secotioid fungi, with their purple, red, orange or white coloration, fragrant odours, epigeous sequestrate habit, and ease of detachment may have evolved to be dispersed by lizards or birds, particularly the now extinct moas. Simpson (1998) reported that both cassowaries and emus, relatives
of moas, are mycophagous. At present there is only one Australian record of a lizard being mycophagous (Webb & Simpson 1985).

Simpson (1998) suggested the superb lyrebird *Menura superba* might be mycophagous. Microscopic examination of lyrebird droppings has not resulted in finding of spores of any fungi (J.M. Trappe, pers. comm.). However, Jim Trappe has identified another species of mycophagous Australian bird. In about 1993, while collecting hypogeous fungi near Lake Eildon, Victoria, he found an abundant fruiting of a species of *Gymnomyces* Massee & Rodway. ‘I noticed an Eastern Yellow Robin, *Eopsaltria australis*, standing on a picnic table and watching. I flipped a small *Gymnomyces* sporocarp at it. The sporocarp hit the table and bounced to the ground. The robin immediately flew to the sporocarp and ate it. As I raked for truffles over the next half hour or so, the robin followed me and continued eating the specimens I occasionally flipped at it’ (J.M. Trappe, pers. comm.).

A surprise has been numerous records of parrots being mycophagous (Forshaw 1989). Best (1984) and Forshaw (1989) reported that in New Zealand kakapos, *Strigops habroptilus*, are versatile feeders including diverse fruits, shoots, leaves, mosses and fungi in the diet. The kea, *Nestor notabilis*, spends much of the time foraging and fossicking on the ground in moist mountain forests and may also be mycophagous. The smallest of all parrots, the Micropsittini or pygmy parrots, live in the forests of New Guinea and the Solomon Islands. The single genus in the tribe, *Micropsitta*, includes six species that are reported to be specialist fungus feeders (Forshaw 1989). All have been reported to feed on small fruits, seeds, insect larvae, lichens and fungus gathered from tree trunks or attached branches (Forshaw 1989, Greensmith 1975, Rand 1942, Schodde 1977, Sibley 1951). However, of the studies involving detailed examination of the crop contents, only Rand (1942) has confirmed the presence of a fungus: in this instance a jelly-like fungus forming layers on decayed wood. In the few other studies of the crop contents of pygmy parrots they have been described as indeterminate white paste (Gilliard & LeCroy 1967, Mayr & Rand 1937, Ripley 1964), crushed seeds (Rothschild *et al.* 1932) or vegetable matter (Diamond & LeCroy 1979) which may have been lichen (Cain & Galbraith 1956). It would be very useful to have crop contents of species of *Micropsitta* examined by a mycologist to determine if fungi are being eaten.

The nutritional benefits of mycophagy have been comprehensively reviewed (Cork & Kenagy 1989, Fogel & Trappe 1978, Gronwall & Pehrson 1984, Martin 1979). The moisture content, and digestability of many fungi is comparable to that of many wild fruits. Apart from fleshy macrofungi, other fungi would seem to be of a size and colour that might attract birds e.g. ascoma of some Nectriaceae are similar in size to that of many insects. Given the wide seasonal availability of fungi on diverse substrata, it is surprising this resource is not utilised by more birds.

It is also worth pointing out that the presence of fungi can deter feeding by at least one species of insectivorous bird. The Regent honeyeater, *Xanthomyza phygia*, does not, it seems, feed on lerps or other sap-sucking insects overgrown by sooty moulds (Oliver 1998).

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References


