Megapode Mounds and Archaeology in Northern Australia

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EMU Vol. 91, 255-256, 1991. Received 16-10-1990, accepted 6-2-1991

Ornithology is beginning to play an increasing role in Australian archaeological interpretation. For instance Cane (1982) has estimated that the Australian Bustard *Eupodotis australis* has removed thousands of small stone artefacts from Aboriginal campsites in the Western Desert by swallowing them. These artefacts are redistributed as 'gastroliths', a process which skews the archaeological record. Similar distortion is caused by the Great Bowerbird *Chlamydera nuchalis* which may remove large quantities of stone artefacts of a particular size and colour, and store them in its bower (Dwyer *et al.* 1985). Recent examination of shell and earth mound data from northern Australia suggests that the Orange-footed Scrubfowl *Megapodius reinwardt* may have a far more dramatic impact on the archaeological record. Its nesting behaviour provides a simple solution to one of Australia's most puzzling archaeological problems (Stone 1989). In turn, data from archaeological efforts may offer ornithologists an insight into megapode behaviour and population histories.

The large shell and earth mounds of Cape York Peninsula and Arnhem Land have long attracted archaeologists. The presence of shellfish refuse and the occasional stone and bone artefact in these mounds convinced them that the mounds were built by Aborigines (e.g. Mulvaney 1975, p. 246; Bailey 1977). Radiocarbon dating of shell and charcoal fragments demonstrated that construction happened largely within the past 1600 years (Bailey 1977; Mulvaney 1981; Beaton 1985). The shell mounds of Weipa (12°38′S, 141°52′E) assumed particular cultural significance because of their spectacular size and abundance, and are listed on the Register of the National Estate (Flood 1990, p. 123). Exactly how Aborigines built these mounds and what function they served remained a mystery.

My analysis of shell and earth mound data collected by archaeologists concluded that, in reality, these mounds are abandoned Orange-footed Scrubfowl nests (Stone 1989). I was particularly struck by the resemblance of the shelly Scrubfowl mounds on Channel Island near Darwin to the allegedly Aboriginal shell mounds of Cape York. The variable presence of cultural material in these mounds was explained as the result of Scrubfowl raking up debris from nearby Aboriginal campsites or middens. This was evident from a site near Channel Island where I had encountered a 1.5 m high shell and earth mound which had been constructed by Scrubfowl from the edge of an extensive cockle shell midden only 30 cm deep. In this case, the birds appeared to have a preference for the shellfish refuse of Aborigines as building material.

On a broader scale, the results of archaeological studies of mound distribution may be re-used to assess the extent of Orange-footed Scrubfowl habitat reduction and population change during the late Holocene period. Mounds found abandoned in eucalypt woodland have been used previously by palaeoecologists to infer the former extent of the bird's monsoon vine forest habitat (e.g. Stocker 1971; Russell-Smith 1986). Marked reductions of this habitat have been evident, and if the results of Bailey's (1977, 1983) archaeological survey of mounds around Weipa are reconsidered in the light of Scrubfowl processes, this trend is confirmed. As Specht *et al.* (1977) have shown, there are very few remaining stands of monsoon vine forest left around Weipa, although up to 500 abandoned mounds have been recorded throughout the area, in what today are woodland or open environments. In the Aurukun region, Cribb (1986) has also recorded many inactive mounds over wide areas which now appear to support a much reduced cover of monsoon vine forest. Reinterpreted, the results of archaeological surveys suggest that the Orange-footed Scrubfowl population of western Cape York has declined significantly.

Results of radiocarbon dating show that this decline may have been preceded by a marked increase in Scrubfowl numbers some 1600 years ago, which may have been related to a change to a wetter climate. Dates for the onset of mound-building from five major mound sites across northern Australia cluster between 1100 and 1800 years BP, indicating that this was a period of increased Orange-footed Scrubfowl activity (Stone 1989). From analysis of beach ridge and mud flat sequences along the northern Australian coastline, Lees &

Clements (1987) have proposed that this period was also one of increased wet season rainfall. There appears to be a connection between these two events, suggesting that Orange-footed Scrubfowl numbers are prone to abundance under moister climatic conditions. The decline in their habitat and numbers in recent years has been attributed variously to cyclone damage, changes in fire regime, Aboriginal burning and, perhaps most significantly, the introduction of feral animals (especially buffalo) and European land-use practices (Stocker 1971; Russell-Smith 1986). Ornithologists are encouraged to make use of archaeological and palaeoecological data, and to consider cultural influences in any mounds they may examine.

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