LITERATURE REVIEW

Compiled by B. Baker

This section is compiled from journals which are often not available to non-professional ornithologists in Australia. The following criteria are used to select papers for review:

- They relate to species which occur in Australia and its Territories;
- They provide details of techniques and equipment that may be of use in Australia;
- They provide details of studies that may be of general interest to Australian ornithologists.

Journals perused: *Emu* **97**; *Bird Conservation International* **7**; *Ibis* **138**; *ANZCCART, Gerfaut/Giervalk* **84**; *Auk* **113**; *Pacific Conservation Biology* **3**; *Wildlife Research* **24, 25**; *Australian Journal of Ecology* **20**; *Journal of Wildlife Management* **60**; *Marine Ecology Progress Series* **127**; *Behavioural Ecology and Sociobiology* **37, 40**; *Behavioural Ecology* **7.**

GENERAL INTEREST

A review of studies of the breeding biology of Australian birds from 1986–95: biases and consequences. Clarke, M. F. (1997) *Emu* **97:** 283–289. (Papers published in Corella and Emu from 1986 to 1995 that provide information on the breeding biology of birds in Australia are reviewed. Intensive studies were primarily carried out by professional rather than amateur ornithologists working at sites predominantly located in the coastal areas of the temperate regions of Australia. Species chosen for study were biased towards those that bred colonially or co-operatively, and that were sedentary, rather than migratory or nomadic. It is postulated that this bias reflects the comparative ease with which large, publishable data sets can be accumulated when studying sedentary and colonial species, and is in part due to the link between a researcher's professional advancement and their ability to publish papers in refereed scientific journals. Such biases are likely to severely limit our ability to responsibly manage and conserve highly mobile and non-colonial species, despite many of them being recognized as vulnerable. Such biases will also continue to inhibit the development of a comprehensive understanding of the life history attributes of Australian birds.)

Simplified polymerase chain reaction (PCR)-based sexing assists conservation of an endangered owl, the Norfolk Island Boobook *Ninox novaeseelandiae undulata*. Double, M. and Olsen, P. (1997) *Bird Conservation International* **7:** 283–286. (In 1986 a single Norfolk Island owl remained. As part of a re-establishment programme, 2 male New Zealand Moreporks *N.n.novaeseelandiae* were introduced, one of which survived to pair with the female in the wild and breed successfully. By 1995 the population numbered 12–13 individuals of which seven were second generation (F2). However, there were only two breeding pairs. as the 11 hybrids could not be sexed using morphometrics we developed a molecular method based on a recently described avian polymerase chain reaction (PCR)-based sexing technique. The population was found to contain six females and five males. A scarcity of mature males was established as the main factor slowing the recovery effort.)

AUSTRALIAN SPECIES

Breeding biology of Australian owlet-nightjars *Aegotheles cristatus* in eucalypt woodland. Brigham, R. M. and Geiser, F. (1997) *Emu* **97:** 316–321. (Based on 6 observed nesting attempts, data is reported on breeding season, clutch size, incubation and brooding behaviour, nestling grouth rates, fledging success, fledgling behaviour and roost site use for a population breeding near Armidale, NSW.)

TECHNIQUES AND ANALYSES

The contribution of artificial nest experiments to understanding avian reproductive success: a review of methods and conclusions. Major, R. E. and Kendal, C. E. (1996) *Ibis* **138:** 298–307. (Artificial nest experiments have been used in 80 recent studies to identify a wide range of factors influencing reproductive success of birds. Despite the same factors being examined in different studies, few consistent patterns have emerged. Reproductive success measured with use of artificial nests is frequently underestimated. Several studies suggest that different species of predators may be differentially attracted to the two types of nest. In general there is poor correspondence between the appearance of experimental setups and the natural systems they attempt to model. If future experiments with artificial nests are to contribute to theory, the quality of experiments must improve and the assumptions underlying the artificial approach must be tested.)

Animal experimentation: a student guide to balancing the issues. Monamy, V. (1996) ANZCCART: Glen Osmond, South Australia.

Mist-netting as a census method for determining species richness and abundances in an Andean cloud forest bird community. Poulsen, B. O. (1994) *Gerfaut/Giervalk.* **84:** 39–49. (The efficiency and deficiences of mist-netting were investigated in an Ecuadorean high altitude (2 675–2 825 m) cloud forest bird community. A species-encounter function showed that the majority of species captured in this study could have been obtained with considerably less effort than was invested. However, even extensive mist-netting captured less than half (45%) of the species that may potentially fly into nests and only 37% of the total number of species recorded in the netting zone. In conclusion, mist-netting in tall statured, tropical forests is useful for recording locally rare and crepuscular understory species, but less useful for determining abundances. Ideally, various census methods should be used to record all species present.)

BIRDS AND LANDSCAPE ECOLOGY

Dispersal of the Blue-breasted Fairy-wren in fragmented habitat in the wheatbelt of Western Australia. Brooker, M. and Brooker, L. (1997) *Pacific Conservation Biology* **3:** 295–300. (Dispersal of the Blue-breasted Fairy-wren *Malurus pulcherrimus* was studied in an agricultural landscape in which 93% of their preferred habitat has been cleared for farming and the remaining 7% is highly fragmented. In these conditions, the wrens were still capable of dispersing through non-breeding habitat for distances in excess of 10 km. Most long dispersals were by juvenile females moving between habitat patches, although shorter movements were made within habitat patches by breeding females and juvenile males. While it would seem that the population in this area is not entirely limited by the ability to disperse at the present time, persistence may depend more on the rigorous maintenance of existing habitat and inter-connecting corridors than on the revegetation of farmed land.)

Initial changes in the avian communities of remnant eucalypt woodlands following a reduction in the abundance of noisy miners, *Manorina melanocephala*. Grey, M. J., Clarke, M. F. and Loyn, R. H. (1997) *Wildlife Research* **24:** 631–648. (It has been postulated that aggressive honeyeaters like the noisy miner may contribute to rural tree decline by excluding small insectivorous birds from remnant patches of woodland, thereby reducing the level of predation upon defoliating insects. Previous studies provide correlational evidence that avian diversity and abundance is lower in remnant patches of woodland occupied by noisy miners than in those without miners. Noisy miners were removed from three small remnant patches of woodland in NE Victoria. The removal of the majority of noisy miners from a site, or even the removal of only part of a noisy miner colony from a site, resulted in a major influx of honeyeaters and other insectivorous birds to these sites in the following three months. Such major invasions were not observed on matching control sites. At two of the three removal sites, this led to an increase in both the abundance and diversity of birds on the site. At the third site, there was an increase in the diversity, but not the abundance of birds. These experiments are the first to demonstrate that noisy miners affect avian diversity and abundance by aggressive exclusion of small birds. They also showed that if domination by noisy miners is reduced, small, degraded woodland remnants can support significant populatons of some small insectivorous birds and honeyeaters. Noisy miners did not reinvade the experimental sites during the following 16 months and avian diversity and abundance remained higher at the experimental sites than at the paired control sites. Long-term monitoring is needed to determine whether the small invading bird species have a lasting effect upon insect populations and tree health.)