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: *Animal Behaviour* **55**; *Emu* **98**; *Journal of Animal Ecology* **67**; *New Zealand Journal of Zoology* **25**.

SEABIRDS

Distribution and movements of Buller's albatross *(Diomedea bulleri)* in Australasian seas. Stahl, J. C., Bartle, J. A., Cheshire, N. G., Petyt, C. and Sagar, P. M. (1998). (*New Zealand Journal of Zoology* **25:** 109–137. (The distribution and movements of Buller's albatross in Australasian seas are analysed using results of shipborne surveys (13 238 10-min counts), counts from trawlers, banding data, recoveries on beaches and fishing vessels, and records from the literature. Patterns of marine distribution are documented by monthly accounts and maps. During the breeding season, highest abundances are recorded over shelves and slopes off southern New Zealand (the Snares shelf to 41–43 deg S off the South Island, *D.b.bulleri*), around the Chatham Islands and over oceanic subtropical waters east of New Zealand (probably *D.b.platei*), with marked seasonal variations observed off southern New Zealand. Both subspecies disperse mostly outside Australasian waters during the non-breeding season. Birds banded on The Snares were recovered off south-eastern NZ (Stewart Island to Cook Strait) and in the eastern tropical Pacific. Immatures accounted for only 0.25% of birds censused during the shipbourne surveys; they are recorded around the NZ mainland in August–October and February–May, off south-eastern Australia and in the Tasman Sea in November–December, February, and June–July. Around NZ, males predominate amoung birds recovered along the eastern seaboard, whereas the sex ratio in south-western waters tends to vary according to water depth and season. Distribution patterns and movements in NZ and Australian waters are discussed in relation to breeding events and breeding status.)

Diet of Westland petrels *Procellaria westlandica:* and the importance of fisheries waste during chick-rearing. Freeman, A. N. D. (1998). *Emu* **98:** 36–43. (During the period in which the Hoki fishery was operating (August to mid September), fisheries waste accounted for 80% of the fish found in samples and formed around 63% of the total diet at that time. After the Hoki season, fisheries waste accounted for only 31% of the fish found in samples (25% of diet) as birds switched to capturing more natural prey, or scavenged a wider variety of fish species, presumably from smaller inshore fishing vessels.)

The influence of environmental factors and mitigation measures on by-catch rates of seabirds by Japanese longline fishing vessels in the Australian region. Klaer, N. and Polacheck, T. (1998). *Emu* **98:** 305–316. (Most seabirds caught and killed by longline fishing are captured during line setting. Data collected by Australian observers on Japanese longline vessels from April 1992 to March 1995 were used to investigate the influence of various environmental factors and mitigation measures on seabird catch rates. Generalized linear models were used to test the significance of the effect of each factor. The environmental factor that most influenced the seabird catch rate was whether line setting was carried out at night or during the day. From the data examined, the chance of catching seabirds during day sets was five times greater than for night sets. For night sets, the chance of catching seabirds during the full half-phase of the moon was five times greater than during the new half-phase. The area and season fished were also significant, while wind, cloud and sea conditions were not. Considerable variation in the seabird by-catch rate among vessels was found. This was probably due to differences in their implementaton of mitigation measures, as well as the clumped distribution of seabirds by area and time. Although the by-catch rate was significantly different among years, the differences were small in comparison to other factors. An examination of the influence of mitigation measures for sets made during the day in summer in the Tasmanian area showed that the level of bait thawing and unidentified factors related to individual vessels were most significant in determining the seabird by-catch rate, followed by the use of a bait throwing device. For this data set the amount of cloud cover had an influence, while moon phase, sea conditions and wind strength did not. The effect of using bird scaring tori poles and lines was not examined as these were used during all sets examined in detail.)

SOCIAL BEHAVIOUR

Male parental care, differential parental investment by females and sexual selection. Moller, A. P. and Thornhill, R. (1998). *Animal. Behaviour* **55:** 1507–1515. (Males play a variable parental role in reproduction, ranging from no male parental care to extensive male care. Females may acquire either direct or indirect fitness benefits from their mate choice, and direct fitness benefits include male parental care. Theoreticians have traditionally emphasized direct fitness benefits to females in species with extensive male parental care. We review the literature and show extensive variation in the patterns of male care, related to the attractiveness of males to females. At one extreme of this continuum, females invest differentially in parental care, investing more when paired with attractive males. The costs of female parental care and other aspects of parental investment may be balanced by benefits in terms of more attractive sons and/or more viable offspring. At the other extreme, in species with extensive direct fitness benefits, males with preferred sexual phenotypes provide the largest relative share of parental care. A comparative study of birds revealed that the extent of the differential female parental investment was directly related to the frequency of extra-pair paternity. Since extra-pair paternity may arise mainly as a consequence of female choice for indirect fitness benefits, this result supports our prediction that differential parental investment is prevalent in species where females benefit indirectly from their mate choice. The consequences for sexual selection theory of these patterns of male care in relation to male attractiveness are emphasized.)

Experimental evidence for density dependence of reproduction in great tits. Both, C. (1998). *Journal of Animal Ecology* **67:** 667–674. (Presents experimental evidence that reproductive decisions in great tits *Parus major* are causally affected by breeding density. The breeding density of great tits was manipulated by providing nestboxes at different densities in an ecologically homogeneous area. Within years the densities in high and low density plots differed approximately 8-fold. During the 11 years of the experiment, clutch size, nestling mass and the proportion of birds starting a second brood were all lower in the high density plot. In 5 years with equal breeding densities in both parts, clutch size did not differ between the plots.)

The social life of the apostlebird *Struthidea cinerea*. Chapman, G. (1998). *Emu* **98:** 178–183. (A resident population of apostlebirds was studied for six years on Toganmain station near Hay. Family groups averaged nine birds. Nest building, brooding and feeding nestlings were shared between the group. While nesting, groups remained within a territory of about 25 ha; at other times they were not seen more than 1 km away from the breeding territory. Groups consisted of the breeding pair plus their progeny but breakaway groups also formed. The youngest known age breeding bird was in its third year but birds two years old were sexually active.)