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, 57**; *Auk* **114, 116**; *Australian Journal of Ecology* **23**; *Biological Conservation* **89**; *Emu* **98**; *Journal of Animal Ecology* **67**; *New Zealand Journal of Zoology* **25**.

TECHNIQUES AND ANALYSES

Skin from feet of museum specimens as a non-destructive source of DNA for avian genotyping. Mundy, N. I., Unitt, P. and Woodruff, D. S. (1997). *Auk* **114:** 126–129. (Reports on the use of small pieces of skin from the soles of the feet of museum specimens used in the context of a population genetics study of loggerhead shrike (Lanius ludovicianus). Because the sole of the foot has not been used as a taxonomic character in birds, the damage done to the specimens for future research is negligible. Because the authors successfully analysed single-locus nuclear markers (microsatellites) with these samples, few genetic questions exist that cannot be resolved with this tissue.)

Factors influencing counts in an annual survey of snail kites in Florida. Bennetts, R. E., Link, W. A., Sauer, J. R. and Sykes, P. W. (1999). *Auk* **116:** 316–323. (Snail kites Rostrhamus sociabilis in Florida were monitored between 1969 and 1994 using a quasi-systematic annual survey. We analysed data from the annual survey using a generalized linear model where counts were regarded as overdispersed Poisson random variables. This approach allowed us to investigate covariates that might have obscured temporal patterns of population change or induced spurious patterns in count data by influencing detection rates. We selected a model that distinguished effects related to these covariates from other temporal effects, allowing us to identify patterns of population change in count data. Counts were influenced by observer differences, site effects, effort, and water levels. Because there was no temporal overlap of the primary observers who collected count data, pattern of change could be estimated within time intervals covered by an observer, but not for the intervals among observers. Modified population change was quite different form the change in counts, suggesting that analyses based on unadjusted counts do not accurately model snail kite population change. Results from this analysis were consistent with previous reports of an association between water levels and counts, although further work is needed to determine whether water levels affect actual population size as well as detection rates of kites. Although the effects of variation in detection rates can sometimes be mitigated by including controls for factors related to detection rates, it is often difficult to distinguish factors wholly related to detection rates from factors related to population size For factors related to both, count survey data cannot be adequately analysed without explicit estimation of detection rates, using procedures such as capture-recapture.)

BIRDS AND LANDSCAPE ECOLOGY

Experimental evidence for edge-related predation in a fragmented agricultural landscape. Gardner, J. L. (1998) *Australian Journal of Ecology* **23:** 311-321. (This study tested the hypothesis that increased predation of experimental nests occurs close to a forest edge In a fragmented agricultural landscape. Artificial nests and eggs of willie wagtails Rhipidura leucophrys and superb fairy-wrens Malurus cyaneus were used in experiments to assess the extent and nature of predation occurring throughout the known breeding seasons of these species. Predators were identified by the imprints they left in plasticine eggs, and by remote photography. Surveys of avian predators were undertaken to investigate the relationship between predation intensity and predator distribution and abundance. Avian predators accounted for almost all predation for which a predator could be identified (96%). Five of seven predator species photographed attacking wagtail nest were corvids or artamids. Fairy-wren nests suffered relatively low rates of predation (29%) compared to wagtail nests (87%). Increased predation at the habitat edge was recorded for wagtail nests only; predation was correlated with the distribution and abundance of predatory avian species. The different extent and pattern of predation on fairy-wren nests could be explained by problems in detecting predation by mammals, and by possible failure of avian predators t o locate cryptic nests.)

SEABIRDS

Post-breeding flight to Antarctic waters by a short-tailed shearwater *Puffinus tenuirostris*. Nicholls, D. G., Stampton, P., Klomp, N. I. and Schultz, M. (1998). *Emu* **98:** 79–81. (Reports the tracking of a short-tailed shearwater during the start of post-breeding migration from French Island in Victoria to the Antarctic divergence region (63 degrees south), ranging west from 146 to 120 degrees E.)

Population size and trends within the two populations of southern Buller's albatross *Diomedea bulleri bulleri*. Sagar, P. M., Stahl, J. C., Molloy, J., Taylor, G. A. and Tennyson, A. J. D. (1999). *Biological Conservation* **89:** 11–19. (The abundance and distribution of southern Buller's albatross *Diomedea bulleri bulleri* were investigated at the Solander Islands in February 1996 and at The Snares in March 1997. The total breeding population of this endemic subspecies was estimated at 11 502 breeding pairs. At the Solander Islands, a total of 2 625 occupied nests was estimated from aerial and ground counts in the first accurate census that included all islands in the group. Comparisons with the number of chicks counted on Little Solander Island in 1985 indicated a possible decrease of 18.7% or no change in the numbers of breeding pairs during the period 1985–1996. At The Snares, a total of 8 242 occupied nests was counted and a further 635 were estimated on North East Island, Broughton Island, and associated islets and stacks. A comparison with the numbers of occupied nests counted on North East Island, The Snares, during 1969 and 1992 indicated population increases of 78% and 8% during the periods 1969–1992 and 1992–1997, respectively. Differences in the rates of change within The Snares population demonstrate the complexity of population parameters within a single seabird species, thus emphasizing the need for careful formulation of conservation measures.)

SOCIAL BEHAVIOUR

Age-related mate choice in the wandering albatross. Jouventin, P., Lequette, B. and Dobson, F. S. (1999). *Animal Behaviour* **57:** 1099–1106. (Mate choice was studied in the wandering albatross Diomedea exulans using data from 32 years of banding returns in the population of the Crozet Islands. Mating choices were studied in a single year, when the Crozet Islands population was male biased (8:5, males:females). Thus, we expected that females might show great flexibility of choice of partners. Because age and experience might influence mate choice, we tested the expectation that females would choose the oldest and most experienced males for pair bonding. Pair bonds usually last until one member of the pair dies (0.3% of the birds divorce), so mate choice should be especially important. We found that the ages of males and females in both displaying and bonded (breeding) pairs were significantly correlated. These age-associated pairings were not a passive phenomenon, but appeared to be due to an active process of selection of mates of similar age. First-time breeders sought mates of similar age, but preferred those with the most experience. Remating, experienced birds whose mates had died did not pair with individuals of significantly similar age, but predominantly paired with other widowed birds that, on average, were also relatively old. Mate fidelity in wandering albatrosses may be due to the cost of finding and bonding with a new mate. Pair bonds, and thus breeding, took an average of 3.2 and 2.3 years to establish, for male and females, respectively. Thus remating exerts a potential average reproductive cost of about 15% of lifetime reproductive success). Birds showed extreme mate fidelity: over 19 years and 772 rebreeding histories between 421 pairs, 77.6% of birds reunited for breeding with previous mates, 20.9% became widowed & subsequently paired with a new mate, and 0.3% divorced. The partners of the remaining 1.3% were absent from the colony for at least 2 years, but later returned.)