FOREWORD

Since the publication in 1999 of the special wader issue of *Notornis*, dedicated to two amateur wader devotees, Dick Sibson and Barrie Heather, much has been learned of the changing numbers, migration routes, and the behaviour of New Zealand waders.

The leading paper in the 1999 issue was a summary of the national wader counts that the Ornithological Society of New Zealand (OSNZ) had made from 1983–1994 (Sagar *et al*. 1999), and so it is fitting that the leading paper in this issue is an analysis of the distribution and numbers of waders observed in New Zealand from 2005–2019. These data were obtained from a continuation of the OSNZ's (Birds New Zealand's) twice-yearly counts at the most important sites nationally. This paper will be influential in conservation circles because it shows that the numbers of many species of Arctic wader visiting New Zealand have declined substantially, often by over 50%, since the earlier series of counts, and it also shows big winners and losers amongst our native species.

Although it is tempting to blame the declines of Arctic waders squarely on the massive loss of important intertidal feeding habitats at staging sites in the Yellow Sea as a result of land claim in a heavily populated and industrialised part of the globe, the situation is clearly complex and there is still much to learn. Species such as ruddy turnstone (*Arenaria interpres*) and Pacific golden plover (*Pluvialis fulva*), that do not rely heavily on the Yellow Sea as a stopover site, have declined in parallel, and similar declines of trans-equatorial migrant waders have occurred on other flyways.

When Riegen (1999) deduced the migration routes of bar-tailed godwits (*Limosa lapponica*) and red knots (*Calidris canutus*), the two most numerous Arctic waders in the New Zealand sector of the East Asian Australasian Flyway, he had to rely on band recoveries and sightings of colour-flagged birds. Nowadays, geolocators and satellite tags can more clearly reveal the migration routes that the waders use to get to and from New Zealand, the importance of particular stopover sites, the timing and speed of migration, and the location of their breeding grounds in the Arctic. This miniaturised technology has been deployed on a number of Arctic migrant wader species, but perhaps over the next few decades more attention will be paid to determining the annual movements and habitat needs of our endemic waders.

The changing numbers of our local waders have been well documented during the 36 years of winter wader counts. Northern New Zealand dotterel (*Charadrius obscurus aquilonius*) and variable oystercatcher (*Haematopus unicolor*) have been clear winners as a result of concerted efforts to protect their nesting grounds from predators and people. The annual counts of wrybills (*Anarhynchus frontalis*) are trending upwards, but big fluctuations from year to year indicate the challenges of finding and then counting the tight overwintering flocks, and not double-counting flocks moving between the big harbours around Auckland. After several decades of rapidly increasing numbers, the South Island pied oystercatcher (*Haematopus finschi*) population has tumbled, perhaps as result of loss of breeding habitat when dry sheep pasture is converted to irrigated dairy farms. Banded dotterels (*Charadrius bicinctus*) have been losers on the many South Island braided rivers lacking pest control, but they have shown an encouraging response where pest control has been done; the challenge is to maintain and increase that effort.

The estuary and riverbed habitats used by many waders will come under increasing threat from the effects of global climate change. Rising sea-levels will inevitably result in loss of feeding and roosting habitats for waders as estuaries will be confined by stopbanks to protect coastal towns and farmland rather than being allowed to move inland with the rising sea-level. Storm surges and king tides will increasingly affect waders nesting on sandspits and shellbanks. Climate change models are highly variable and highly speculative, but most predict that spring rainfall will increase in the Southern Alps catchments of the large braided rivers that are so critical as nesting sites for many of our endemic waders, and this may lead to more frequent flooding during the breeding season.

The long-term nationwide monitoring of waders done by OSNZ since 1983 has provided a firm basis for showcasing how conservation management has made a big positive difference to some of our most vulnerable species, and for setting research and management priorities for those that continue to struggle. For long-term monitoring it is generally good to maintain consistency in effort and timing, but consideration should be given to changing from the current twice-yearly counts, in November and June, to doing a single and very thorough count in February or early March, when numbers of Arctic waders are at their peak and numbers of native waders are also at their peak. Some Arctic waders are still making their way to New Zealand in November, and some native waders are back on their breeding sites by June. Whatever is decided, it is critical that we continue to learn about our waders and to document what we have learnt, as the authors of this collection of papers have so ably done, so that others can follow in our muddy footsteps.

LITERATURE CITED

Riegen, A. 1999. Movements of banded Arctic waders to and from New Zealand. *Notornis 46*: 123–142.

Sagar, P.M.; Shankar, U.; Brown, S. 1999. Distribution and numbers of waders in New Zealand, 1983-1994. *Notornis 46*: 1–43.

HUGH A. ROBERTSON
OSNZ Fellow
Wellington