

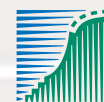
Extract only - complete publication at www.jncc.gov.uk/worldwaterbirds

Waterbirds around the world

A global overview of the conservation,
management and research of the
world's waterbird flyways

Edited by G.C. Boere, C.A. Galbraith and D.A. Stroud

*Assisted by L.K. Bridge, I. Colquhoun, D.A. Scott,
D.B.A. Thompson and L.G. Underhill*



landbouw, natuur en
voedselkwaliteit



SCOTTISH EXECUTIVE



EDINBURGH, UK: THE STATIONERY OFFICE

© Scottish Natural Heritage 2006

First published in 2006 by The Stationery Office Limited
71 Lothian Road, Edinburgh EH3 9AZ, UK.

Applications for reproduction should be made to Scottish Natural Heritage,
Great Glen House, Leachkin Road, Inverness IV3 8NW, UK.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN 0 11 497333 4

Recommended citation:

Boere, G.C., Galbraith, C.A. & Stroud, D.A. (eds). 2006.
Waterbirds around the world. The Stationery Office, Edinburgh, UK. 960 pp.

Names used for geographical entities do not imply recognition, by the organisers of the *Waterbirds around the world* conference or other supporting organisations or governments, of the political status or boundaries of any particular territory. Names of territories used (and any alternatives) are included solely to help users of this publication apply information contained within this volume for waterbird conservation purposes. The views expressed in papers included within this volume do not necessarily represent views of the editors or the organisations and governments that supported the conference and this publication.

Cover photography: Whooper Swans *Cygnus cygnus* arriving at Martin Mere, England. Photo: Paul Marshall.
(www.paulmarshallphotography.com)

Copyright of all photographs used in this publication resides with the named photographers.

The Arctic connection: monitoring coastal waders in South Africa - a case study

Doug M. Harebottle & Les G. Underhill

Avian Demography Unit, University of Cape Town, Rondebosch, 7701, South Africa. (email: doug@adu.uct.ac.za)

Harebottle, D.M. & Underhill, L.G. 2006. The Arctic connection: monitoring coastal waders in South Africa - a case study. *Waterbirds around the world*. Eds. G.C. Boere, C.A. Galbraith & D.A. Stroud. The Stationery Office, Edinburgh, UK. pp. 138-139.

This paper discusses population processes of Arctic-breeding waders in light of global climate change and the birds' occurrence and abundance at non-breeding sites at the southern limits of their migratory range. Curlew Sandpiper *Calidris ferruginea* trends from Langebaan Lagoon, South Africa were selected as a case study to demonstrate the strength of assessing change in Arctic-breeding wader populations through monitoring populations at selected non-breeding sites. Preferred and peripheral sites are described to ensure that monitoring is measurable and valuable. Recommendations are provided to guide future global migratory wader research and conservation.

Arctic-breeding waders constitute an important component of wetland communities, and the ecological impact on the health and integrity of wetland systems is unknown should they disappear (Committee for Holarctic Shorebird Monitoring 2004). There is growing international concern that many wader populations are declining (Wader Study Group 2003, Stroud *et al* 2006) and global warming is likely to impact all habitats used in the annual cycle. Breeding grounds will change due to loss of tundra habitat, while inter-tidal wetlands, both in non-breeding sites and along the migration route, will be impacted as sea-levels rise. The dependence of Arctic waders on critical staging sites will thus reflect environmental conditions across the globe.

It has been suggested that population processes of waders breeding in the Arctic tundra can be monitored at the end of the migratory range, e.g. lemming cycles in Siberia can be observed at the foot of Table Mountain (Underhill 2003). South Africa is host to birds from many of the East Atlantic and West Asia/East Africa Flyway migratory wader populations and the opportunity exists to monitor population trends and processes in these non-breeding areas. Currently, three appropriate sites in South Africa have monitoring programmes for arctic waders: (1) Langebaan Lagoon (Harebottle *et al.* 2006, Underhill 1987), (2) Robben Island (Underhill *et al.* 2001) and (3) Dyer Island (Venter *et al.* 2002). Langebaan Lagoon supports the southern-most large concentration of waders on the East Atlantic Flyway and has the longest running monitoring programme of its kind in the southern hemisphere, operating since 1975.

For our case study, we selected Curlew Sandpiper and examined count data from Langebaan Lagoon over the past 28 years. Long-term trends and breeding productivity are presented in Figs. 1 & 2. Data from mid-summer (January/February) was used to establish overall population trends, while southern winter (July/August) counts were used to measure breeding productivity, as most first-year birds do not migrate (Summers *et al.* 1995). Both numbers of birds and numbers of juveniles at the lagoon have been decreasing over the past 28 years.

The Curlew Sandpiper results from this study have demonstrated that population monitoring at non-breeding sites can be a useful measure of population processes at the breeding grounds.

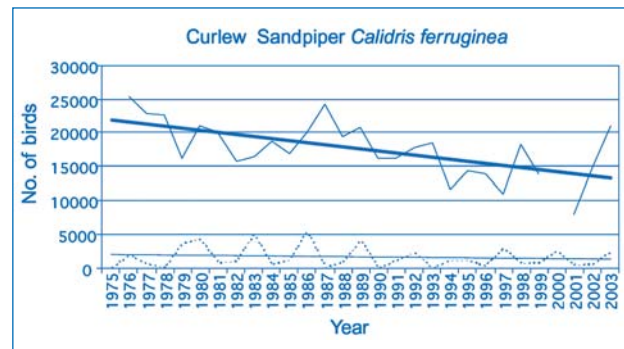


Fig. 1. Summer (solid line) and winter (broken line) counts for Curlew Sandpiper *Calidris ferruginea* at Langebaan Lagoon, South Africa from 1975-2003. Trend lines (dark blue) are shown for each count series.

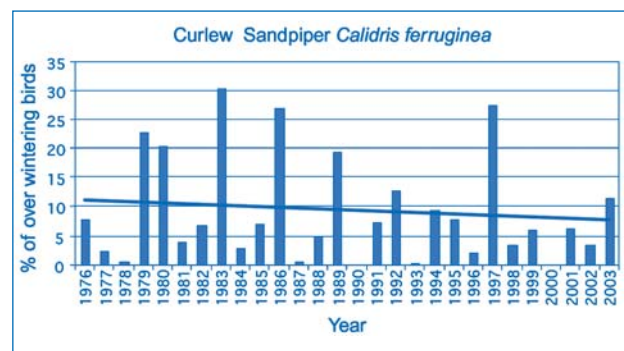


Fig. 2. Breeding productivity of Curlew Sandpiper measured at Langebaan Lagoon, 1976-2003. Figures based on the percentage of winter count of first-year birds versus the previous summer count. Trend line shown in black.

However, it is important that the correct sites are selected for monitoring to be effective. Generally, monitoring sites should be unlikely to undergo any long-term development changes. As such, there is a need to identify preferred and peripheral sites. Preferred sites are those that have roughly the same number of birds each year (e.g. Langebaan Lagoon), while peripheral sites are those that are not occupied every year, or have large annual fluctuations of birds (e.g. Robben Island and Dyer Island).

Based on this case study, the following recommendations are provided for future migratory wader research: (a) the need for improved, coordinated circumpolar monitoring of arctic wader populations to assess their status and population trends, (b) the establishment of networks of preferred and peripheral sites throughout the species' migratory range and (c) the provision of adequate funding to establish monitoring programmes at selected sites, particularly in poorer countries.

We acknowledge financial support from the National Research Foundation.

REFERENCES

- Committee for Holarctic Shorebird Monitoring** 2004. Monitoring Arctic-nesting Shorebirds: An international vision for the future. Conclusions from the Pan-Arctic Shorebird/Wader Monitoring and Research Workshop, Denmark, 3-6 December 2003. CHASM Publication No. 1
- Harebottle, D.M., Navarro, R.A., Underhill, L.G. & Waltner, M.** 2006. Trends in numbers of migrant waders (Charadrii) at Langebaan Lagoon, South Africa, 1975-2003. *Waterbirds around the world*. G.C. Boere, C.A. Galbraith & D.A. Stroud (Eds.), The Stationery Office, Edinburgh, UK. 643-648.
- Stroud, D.A., Baker, A., Blanco, D.E., Davidson, N.C., Delany, S., Ganter, B., Gill, R., González, P., Haanstra, L., Morrison, R.I.G., Piersma, T., Scott, D.A., Thorup, O., West, R., Wilson, J. & Zöckler, C.** 2006. The conservation and population status of the world's waders at the turn of the millennium. *Waterbirds around the world*. G.C. Boere, C.A. Galbraith & D.A. Stroud (Eds.), The Stationery Office, Edinburgh, UK. 643-648.
- Summers, R.W., Underhill, L.G. & Prys-Jones, R.P.** 1995. Does delayed return migration of young waders to their breeding grounds indicate the risk of migration? *Ardea* 83: 351-357
- Underhill, L.G., Whittington, P.A. & Calf, K.A.** 2001. Shoreline birds of Robben Island, Western Cape, South Africa. *Wader Study Group Bulletin* 96: 37-39.
- Underhill, L.G.** 2003. Monitoring the Arctic at the foot of Table Mountain. *Arctic Bulletin* 4/02: 15.
- Venter, A.D., Underhill, L.G., Whittington, P.A. & Dyer, B.M.** 2002. Waders (Charadrii) and other waterbirds at Dyer Island, Western Cape, South Africa. *Wader Study Group Bulletin* 98: 20-24
- Wader Study Group** 2003. Are waders world-wide in decline? Reviewing the conclusions from the 2003 International Wader Study Group Conference, Cadiz, Spain. *Wader Study Group Bulletin* 101/102: 8 - 12



Saltmarsh and the southern end of the tidal channel at Langebaan Lagoon. Photo: Doug Harebottle.