

on a global geographic scale, although regions of overlap are extensive. Geographic structuring is also found by microsatellites, analysing Dunlin from 23 populations, including six subspecies (Paper II). The microsatellites show a lot of variation on a global scale and also indicate genetic differences between populations locally.

Genetic markers are applied in three ecological studies of the Dunlin, relating mainly to its migration strategies. In the first study (Paper V), the occurrence of the mitochondrial DNA haplotypes in migrating and wintering Dunlin is investigated at 22 localities in Europe, Africa and Asia. The results show a continuous change in haplotype frequencies from west to east, reflecting the geographic pattern on the breeding grounds and suggesting a parallel migration system in the Palearctic. In the other two studies (Papers VI and VII), both population markers and genetic sexing are used. They investigate the variation between populations, sex and age groups in the timing of breeding, migration and primary moult in Dunlin.

In the Curlew Sandpiper, on the other hand, there is almost no geographic structuring. There seems to be extremely little genetic differentiation even between the two most geographically separated flyways, to West Africa and Australia respec-

tively (Paper III). Both genetic data and ringing recoveries indicate that birds from widely separated winter populations may mix on the breeding grounds. This is surprising as the Curlew Sandpiper is a long-distance migrant and mixing between populations may be expected to induce problems for migration. The results of the genetic analysis also indicate that the species has gone through a recent population expansion.

The White-rumped Sandpiper was studied in populations throughout the Canadian Arctic, as a part of the Swedish expedition "Tundra North-West 1999". The genetic analyses show low levels of genetic variation and high similarity between distant breeding populations (Paper IV). The low levels of genetic variation and the limited population structuring in high arctic waders may be related to the influence of the glacial cycles on the breeding habitat, as well as to their migratory behaviour.

Analyses of stable isotopes in feathers were applied to White-rumped Sandpipers (Paper IV). The carbon ratios in primary feathers of juvenile birds were shown to differ between sites in the Arctic. Thus, this method makes it possible to distinguish birds from certain breeding populations on migration. Analyses of other populations and other Arctic waders are needed to show if these patterns are general.

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## Book review

**Thompson, D. & Byrkjedal, I.** 2001. *Shorebirds*. Colin Baxter Photography, Worldlife Library Series, Grantown-on-Spey, Scotland. 72 pp. 225 × 250 mm. ISBN 1-84107-075-0.

**Available from** Colin Baxter Photography Ltd, Freepost, PO Box 1, Nethy Bridge, Inverness-shire PH25 3BR, Scotland. See also the leaflet sent out with Vol. 96 of the Bulletin for a special offer to IWSG members: £7 (instead of £9) (UK incl. postage), £8 (Europe), £9 (rest of the world). [www.worldlifelibrary.co.uk](http://www.worldlifelibrary.co.uk)

Wader enthusiasts of the world: you may need this popular book on shorebirds of the world by Des Thompson and Ingvor Byrkjedal. If you are frequently away on fieldwork counting waders on icy shores or hot beaches, trapping shorebirds during dark nights, taking feeding protocols while up to your neck in the mud, or studying highly elusive breeding birds in the tundra, during vacations, weekends or any other type of free time, you may need this book. If your family is close to being neglected, if you need to explain to them what you are doing during the time you are away, you may need this book. If you want to lure others into your favourite pastime, you may need this book too.

In just 72 pages, they succeed in summarizing most of the attractive aspects of shorebirds, lavishly illustrated with 40 excellent colour photographs of which many are full-page size. The book is aimed at a wide audience. It takes the reader on a quick journey through shorebird taxonomy, appearance, migration and movements, mating and social behaviour, food and feeding and conservation. In the final pages a full list is given of all extant shorebirds species with breeding region and mating system, complemented with a list of extinct and threatened species.

The diversity of shorebirds is first outlined in a systematic overview following the new classification of Sibley & Monroe. This shows that waders or shorebirds are not

easily grouped together in the Charadrii (which also includes gulls, auks, skuas and sheathbills, and debatable shorebirds like the coursers, pratincoles and crab plover). Most aspects of the complex wader life cycle are touched upon: their diversity in size and shape adaptations, their iterant migrations along flyways connecting both hemispheres, their variable mating systems, opportunistic feeding on the breeding grounds and specialist feeding techniques during the rest of the year. In the final chapter some examples are given of threats, such as habitat loss and hunting that may have led to extinction in three species and near-extinction in several others. This chapter ends on a positive note, explaining the international co-operation in flyway conservation and global networks of protected sites.

Des Thompson and Ingvor Byrkjedal are (in their own words) "utterly convinced that shorebirds are among the most interesting, puzzling and challenging of all life forms. They offer a delightful spectacle – agile, exciting, unpredictable, beautiful and tantalising." They have succeeded in condensing their enthusiasm and wader knowledge into this small and attractive book. An ideal present for people new to waderology. And I am sure, if your family and friends have read this book, they will understand.

Tom van der Have

