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REVIEWS

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Coulson, J. & Crockford N.J. (eds) 1995. Bird conservation: the science and the action. *Ibis* 137 Supplement 1. (ISSN 0963-0856)

This *Ibis* supplement is the proceedings of the 1994 Annual Conference of the British Ornithologists' Union, attended by 220 ornithologists and conservationists from 23 countries and six continents. The volume comprises over 30 contributions relating to bird conservation and the authors include a number of leading names in both ornithology and conservation. Topics range from the reactive measures involved in endangered species recovery, through diagnosis of negative demographic trends, to the proactive measures associated with population monitoring, landscape ecology and the identification of regional and global conservation priorities. While the contributions vary in their general applicability to different species and/ or regions, and none deals directly with problems of wader conservation *per se*, several papers will be of interest to wader biologists.

After Max Nicholson & Humphrey Crick's interesting account of the history of British ornithology, several papers bear testimony to the impressive extent to which British birds have been monitored. Two of these concentrate on analytical and

modelling approaches which can reliably detect real population decreases and can develop optimal or effective management strategies, and another reviews ways of diagnosing the causes of monitored population decreases, drawing attention to some potential pitfalls.

Threats to bird populations imposed by habitat loss, disturbance and disease or parasites, and the way in which these give rise to population decreases, are addressed through review, observational or monitoring studies and modelling exercises. Robert May draws our attention to the role of disease in regulating bird populations and its particular threats in a conservation context, including its danger in captive programmes, and the potential, when assisted by alternative hosts, of disease to extinguish even rare populations. He also mentions the potential for human-induced "stress", e.g. from disturbance or pollution, to lower birds' immunity to disease. Andrew Dobson and Peter Hudson's study of grouse demonstrates how parasites can lead to reduced fecundity and increased vulnerability to predators. The subject of habitat alteration and loss is particularly close to the hearts of wader biologists: their breeding and feeding habitats have often been treated as wastelands in the past.

Paul Dolman & William Sutherland model the effects of habitat loss on migratory populations, demonstrating that regulation may commonly occur simultaneously on both the breeding and nonbreeding areas: for a wide range of conditions, habitat loss in either area can lead to a reduction in population size. The subject is investigated further by John Goss-Custard and colleagues in a following paper, which is the only one in the

volume concentrating on waders (Eurasian Oystercatchers *Haematopus ostralegus*). Their model, which is based on long-term, detailed studies of a relatively simple ecological system (one species - one prey, and one hemisphere!), uses existing knowledge of individual behaviour in predicting carrying capacity and the consequent mortality that will occur as a result of habitat loss or change. It would be challenging to adapt this potentially useful model to other more complex wader systems. In a further development of the changed habitat theme, Jesper Madsen highlights the magnitude of positive effects of protection of waterfowl habitats from hunting disturbance: not only did waterfowl numbers increase dramatically in experimental reserves over the five year period following their establishment, but their study of Pinkfooted Geese *Anser brachyrhynchus* showed that birds wintering in undisturbed areas fattened more rapidly and subsequently reproduced better than those that wintered in disturbed areas. The results of this study certainly have important implications for the conservation of migratory waders in areas where disturbance pressure is high.

The effect of habitat loss on bird populations is further explored within the framework of landscape ecology, which addresses the effects of large-scale processes such as fragmentation and global warming. Although fragmentation and landscape ecology, partially because of its traditionally terrestrial emphasis, has received little attention from wader biologists in the past, the advances made in this field are certainly applicable to the conservation of both breeding and nonbreeding wader populations. In

the first of these six fairly theoretical papers, John Wiens emphasizes the importance of managing fragments as an integral part of the landscape rather than solely as island reserves. Ronald Pulliam uses a model to determine how large a landscape fragment must be before the dynamics of the population within it are independent of outside factors, and Daniel Simberloff identifies processes by which populations can become extinct through fragmentation. We also learn from Dutch conservationists and planners that bird populations in larger fragments recover much better after catastrophe than birds in small ones, whose populations may continue to decrease. On a different note, however, Brian Huntley warns that the magnitude of vegetation changes that are likely as a result of global climate change necessitates a global rather than parochial approach to conservation if there is to be long term success; this may inspire wader biologists to consider the possible effects of global warming on the availability and importance of intertidal and other wetland habitats.

Several papers address the conservation of threatened and endangered species. In addition to a couple of detailed case studies, such as that of the successful re-establishment of the Mauritius Kestrel by Carl Jones and colleagues, a review of the long term success of single-species conservation programmes started in the 1970s found that 43% of these programmes led to improved population viability. These findings demonstrated that, while direct intervention is not always successful, it has often been effective as an additional tool to traditional management practices such as legal protection and habitat preservation.

Among the contributions concerning regional bird conservation priorities, policies and modes of action, wader biologists' attentions are first likely to be caught by papers on bird conservation in Siberia and in Northeast Asia. In the former, Syroechkovski and Rogacheva suggest that waterfowl numbers are as little as a tenth of those 100 years ago, and that much of this decrease is due to effects on wintering grounds elsewhere. Again, this highlights the

need for a greater understanding of population regulation in migratory birds. Alexander Andreev identifies three areas of outstanding ornithological importance in northeast Asia, all of which are important for waders. The need for conservation of major flyway systems is reiterated in this and other papers.

Useful summaries are included of various national conservation strategies and action plans, the bodies through which these are implemented and the means by which species are evaluated (*i.e.* red data status and risk assessment). This section also includes short summaries regarding progress and prospects of the Bonn Convention, the African/Eurasian Waterbird Agreement, the North American Waterfowl Management Plan, and Wetlands for the Americas' Western Hemisphere Shorebird Reserve Network.

The conservation problems and challenges facing wader biologists are probably almost as varied as those facing ornithologists in general, although their emphasis, especially in terms of habitats and geography, may differ. Thus, although wader conservation is not addressed specifically in this volume, wader biologists can definitely benefit from much of its content.

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Schekkerman, H. & M.W.J. van Roomen (eds.). 1993. *Migration of waterbirds through wetlands in central Anatolia, spring 1988*. WIWO-report No. 32. WIWO, Zeist. 136 pp.

The report can be ordered by paying Dfl. 15,- plus Dfl. 15,- administration costs for each separate order to postal giro account 2.666.009 or to ABN bank account 57.02.16.613 of Stichting WIWO, van Stuivenbergweg 4, 6644 AB Ewijk, The Netherlands.

This report describes a further episode of the long series of wader studies organized in wetlands along

the Mediterranean Flyway by the Foundation Working Group for International Wader and Waterfowl Research (WIWO). In April and May 1988, wader catching and waterbird counts were carried out in the wetlands of central Anatolia by the WIWO in co-operation with the Turkish Society for the Protection of Wildlife (DHKD) to improve understanding of the importance of these inland habitats as migration stopover sites along the Mediterranean Flyway.

The Mediterranean Flyway has only little in common with the East Atlantic Flyway, which has been studied very intensively in the last two decades. Wetlands available to waders are mainly coastal non-tidal lagoons and inland lakes and marshes. Inland wetlands are particularly important for waders using the Mediterranean Flyway because of the scarcity of large-scale coastal areas. Therefore, birds are usually spread over vast areas. Little is known about their population sizes, migration strategies and threats to the importance of wetlands for waterbirds.

All important wetlands on the central Anatolian plateau were found to be hypersaline or brackish, due to the arid climate. The water levels depend mainly on the amount of rainfall, which is high during winter and low in fall. Hence, food availability varies both seasonally and within seasons.

Although the species composition differs, the total numbers of waders migrating through central Anatolian wetlands are of the same order of magnitude as those in similar-sized coastal wetlands in the eastern Mediterranean. Peak numbers amounted to 23 000 waders in spring 1988, the most numerous species being Ruff *Philomachus pugnax* and Little Stint *Calidris minuta*. A total of 34 different wader species were observed. The authors guesstimated a total of 50 000-150 000 waders using these wetlands in spring.

The report also refers to published data on autumn migration. These data indicate that numbers of waders are notably higher than in spring, except for Ruff. Several theories are discussed to explain this difference which has been described also for

many other coastal and inland wetlands in the Black Sea area.

Attempts were made to study the feeding ecology of migrating waders in spring. Macrozoobenthos and mesozooplankton were sampled to analyse the available food supply. The mesozooplankton (Hemiptera, Coleoptera, *Artemia salina*) was suggested to be of major importance. However, the birds were found to be quite flexible in their feeding habits, opportunistically exploiting any food sources becoming available.

Besides waders, many other endangered waterbirds were observed. For instance, a maximum of more than 300 White-headed Ducks *Oxyura leucocephala* was counted at Kulu Gölü. Descriptions of the migration phenology and information on the importance of the area during the breeding season are given for all waterbird species.

A complete list of other birds observed during the expedition makes the report an important source for faunistic data also.

Jan Kube

Neves, R. & Rufino, R. 1994. Importância ornitológica das salinas; o caso particular estuário do Sado. [*The ornithological importance of salinas; the case of the Sado estuary*]. Estudos de Biologia e Conservação da Natureza. No. 15. ICN, Lisboa. 37 pp. ISBN 9728083424. {In Portuguese}.

The report aims to provide information on the importance of salinas to waterbirds, using the Black-winged Stilt *Himantopus himantopus* as an indicator species. A brief history of the salinas and of salt production in Portugal is presented together with information on the technology of salt production. Food availability for waterbirds is also outlined.

The report presents data on the numbers, distribution and habitat use

of the Black-winged Stilt breeding population at the Sado estuary collected during 1990, 1991 and 1992.

Suggestions are made for the maintenance of this habitat, presently threatened by abandonment and transformation to fish farms. The report concludes with an inventory of the salinas of the Sado estuary, with data on the size and current use of each one.

Report summary

*Waterbirds in the Kneiss area and other wetlands, Tunisia. Eastern Mediterranean Wader Project - spring 1990. WIWO Report 38, 1993. Eds Henk W Spiekman, Guido O Keijl & Paul S Ruiters.*

Report available on payment of Dfl 25, plus Dfl 15 for each separate order of WIWO reports (full list given in back of report), to postal giro account 2.666.009 or to ABN bank account 57.02.16.613 of Stichting WIWO, van Stuijvenbergweg 4, 6644 AB Ewijk, The Netherlands.

This 1990 spring survey follows an earlier study, in winter 1984, of the Gulf of Gabes, in central-eastern Tunisia. The 1990 survey formed part of WIWO's Eastern Mediterranean Wader Project, and was carried out in co-operation with the Tunisian authorities.

The aims of the Tunisian survey were to:

- i) determine the significance of the Kneiss area of the Gulf of Gabes for waders and other waterbirds during spring migration, by a combination of counts, catches and sampling of food availability;
- ii) assess the extent of interchange between the East Atlantic and Mediterranean flyways, through colour-marking studies;
- iii) assess the importance of other wetlands by counts (including Sedjoumi, Megrine and Metbasta); and
- iv) seek evidence of breeding by Greater Flamingo *Phoenicopterus ruber*.

A total of 245 bird species were observed during the survey, of which 147 were seen in the Kneiss area. Species maxima gave a total of 298 500 waterbirds, predominantly waders, in particular Dunlin *Calidris alpina* and Redshank *Tringa totanus* which wintered at Kneiss. Of the spring passage migrants, Curlew Sandpiper *Calidris ferruginea* and Little Stint *Calidris minuta* were most numerous. As with many sites, the extent of turnover meant that more birds used these wetlands than indicated by maximum counts.

The expedition was successful in recording breeding by Greater Flamingos in 1990 - the first time since 1974 - as a result of the wet winter. Most birds migrate to the northern Mediterranean to breed.

The survey confirmed that Kneiss is at the crossroads of the East Atlantic and Mediterranean flyways and populations exceed the East Atlantic flyway 1% level for 17 species. Kneiss was established as being the most important wetland in the Mediterranean for waterbirds, as a result of its extensive intertidal areas. The report concludes with a forceful recommendation for the inclusion of the Gulf of Gabes in the Ramsar Convention List of Wetlands, which currently has only Lake Ichkeul listed for Tunisia.

The report chapters cover descriptions of the wetlands surveyed; details of the counts, results of catches and analyses of biometrics to determine sex, age and/or breeding origin for different species; short notes on migration and turnover of waders, time budgets for Little Stint and Curlew Sandpiper, macrobenthic sampling, and breeding birds, including the importance of ephemeral water, at Kneiss. An avifauna summary is included.

This report will be a particularly useful reference for anyone interested in Tunisia's wetlands, their avifauna and, especially, their rôle in the migratory flyways of waders. Additionally, the results of this survey supplement existing information on biometrics and geographical variation.

Rowena Langston