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

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

Status and conservation of the Little Curlew *Numenius minutus* on its over-wintering grounds in Australia

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ABSTRACT

The Little Curlew *Numenius minutus*, the smallest member of the genus *Numenius,* is strongly migratory with a restricted breeding range in eastern Siberia and wintering grounds in Australia and elsewhere in the South Pacific region (Marchant & Higgins 1996, van Gils & Wiersma 1996). Since Gould's discovery of the Little Curlew in Australia in 1840 and the collection of the first specimens from their breeding area in northern Siberia, further studies, both on their breeding and wintering grounds, have added to our knowledge of this bird (Labutin *et al*. 1982, Marchant & Higgins 1996, Watkins 1993, van Gils & Wiersma 1996).

Nevertheless, the species has received little attention in terms of detailed studies of its distribution and biology and it is probably one of the least known waders that migrate from Siberia to Australia.

This paper reviews the literature on this species, in particular that available on its wintering-grounds in Australia, and highlights further research which could assist the species' conservation.

WINTERING DISTRIBUTION IN AUSTRALIA

Movements of Little Curlew *Numenius minutus* in Australia are poorly understood and information is highly biased toward months when wetlands are most accessible. Little Curlews are nomadic and very mobile across Australia and while their occurrence can be predictable at certain sites, at other locations their distribution is highly unpredictable and variable between years. Some sites are used only for short periods, or not at all in some years. The triggers that drive movements are likely to be a combination of availability and accessibility to suitable roosting and feeding habitat (Collins & Jessop 2001). No quantitative studies have been attempted to investigate the cause/effect of these movements. Each year individuals stage in large numbers across the Top End of Northern Australia, including Darwin, from their arrival from their breeding grounds till the onset of the wet season (Crawford 1972, 1978; Garnett & Minton 1985; Mc Kean *et al*. 1986, Lane 1987, Bamford 1988, 1990, Jaensch 1994, Collins & Jessop 2001, Barter 2002, Bellio 2004). By the end of February, they disappear from the sub-coastal floodplains of northern Australia and disperse inland. The role of ephemeral wetlands, such as the systems of intermittent lakes (e.g. Lake Woods, Sylvester, Corella) of inland Australia need to be investigated in more detail, and the patterns of northward migration are still subject to debate.

Northern Australia wetlands, such as those of the Alligator Rivers Region, seem unsuitable during northward migration periods, with large areas still inundated. Nevertheless, there are occasional records (usually in small numbers) of Little Curlews in April for Darwin and the Alligator Rivers Region (Morton *et al*. 1991, Niven McCrie & David Donato pers comm.). These observations coincide with El Niño years or with exceptional cyclone events in the Gulf of Carpentaria in Queensland. In the context of climate change scenarios, climatic events at a local (rainfall patterns) and large scale (cyclones, El Niño/La Niña events) need to be investigated. Investigating movements with radio-telemetry and using remote sensing techniques to map habitat availability at varying scales could be used to relate movements to habitats and climatic conditions.

DIET AND HABITAT USAGE

In Australia, Little Curlews are closely associated with grasslands, including dry floodplains such as those of Kakadu National Park (Northern Territory) and the black-soil plains of the northern interior (Bamford 1988, 1990). They are one of the few migratory birds to utilise urban grassed areas, such as lawns, ovals and airstrips (Collins & Jessop 2001). Little Curlews are omnivorous, feeding on a wide range of plant and animal material, and seem to respond opportunistically to peaks of one type or other food resource. During a pilot study at Darwin airport, between October 2003 and January 2004, the stomach contents of six Little Curlews were analysed. Termites (*alatae*) represented 90% of stomach items, the remaining 10% comprised stones and plant parts (of genera *Scleria* and *Eleocharis*). The stomach content of one individual collected in Kakadu National Park comprised entirely seeds of wild rice (*Oryza* sp.) (Bellio 2004).

Few quantitative studies have been carried out on diet, foraging behaviour, and on physical structure of habitats (vegetation and water depth) and how this influences suitability. The ecological conditions posed by the highly variable environment of Australia and the relative suite of behavioural and physiological adaptations of the species remain largely unknown. Some of the questions that remain to be answered include:

- how they harvest their food resources?
- their foraging niche in relation to other species?
- conspecific relationships with respect to habitat, time of the year and kind of resources available?

Understanding mechanisms of habitat selection is central to addressing how vulnerable this long-distance migrant may be to rapidly changing conditions.

POPULATION ESTIMATES AND BANDING STUDIES

The minimum population estimate for Little Curlew in the East-Asian-Australasian Flyway is 200 000 individuals (Barter 2002).

Several studies have been published on the distribution, abundance, and areas of significance on Australian wintering grounds (Garnett & Minton 1985, McKean *et al*. 1986, Lane 1987, Bamford 1988, 1990, Morton *et al*. 1991, Jaensch 1994). Banding studies have been carried out in the Northern Territory (Kakadu National Park), and Western Australia (Anna Plains) by the Australian Wader Study Group (AWSG), but only a few have been caught. Biometrics suggest the existence of possible distinct populations, but this hypothesis has not been tested (Bamford 1988, 1990, Barter 1992c). The AWSG has collected much data on Little Curlew moulting strategies, with results soon to be published. Nevertheless, more banding studies are required in order to estimate survival between years, and to provide information on population dynamics and trends. Further banding studies will also increase our knowledge on movements in Australia and elsewhere along the East-Asian-Australasian Flyway. Targeted surveys aimed at reassessing population estimates should also be planned, as the population estimates for their wintering ground are based on surveys more than 20 years old (Morton *et al*. 1991, Barter 2002).

THREATS TO HABITAT

As for many other migratory shorebirds, the Little Curlew faces threats due to habitat loss and/or habitat modification. The extent of these threats are difficult to evaluate, due to a lack of long term monitoring data, but they are likely to include the species' breeding sites, stop-over sites along flyway, and wintering grounds. As an example, the Alligator Rivers Region in Northern Australia, and Kakadu National Park in particular, have been long recognised as important for Little Curlew during southward migration (Morton *et al*. 1991, Bamford 1988,1990, Barter 2002). The wetlands of Alligator Rivers Region are considered pristine in comparison to those elsewhere in Australia.

Nevertheless, over the past two decades many pressures have been identified that are or will adversely affect the ecological condition of these wetlands (Storrs & Finlayson 1997, Finalyson *et al*. 1988), including: loss of extent and diversity of habitat due to weeds such as *Mimosa pigra* (Walden & Bayliss 2003, Walden *et al*. 2004), and introduced grasses such as Olive Hymenachne *Hymenachne amplexicaulis* and Para Grass *Brachiaria mutica* (Finlayson *et al*. 1997), consequences of rising sea levels including saltwater intrusion (Bayliss *et al*. 1997; Eliot *et al*. 1999; Waterman *et al*. 2000) and damage to micro and macro-scale habitat caused by feral animals such as pigs and buffalos (Skeat *et al*. 1996, East 1996). Without quantitative studies on species-habitat relationships, sound predictions on the consequences of these pressures on Little Curlew habitat are difficult.

CHALLENGES FOR THE FUTURE

The Little Curlew differs from its relatives within the genus *Numenius* both in terms of morphological and behavioural characters and it seems to be a close relative of the almost extinct Eskimo Curlew *Numenius borealis* (Labutin *et al*. 1982). Habitat loss and hunting have been recognised as the major factors responsible for the disappearance of the Eskimo Curlew. In order to save its Asian-Australian counterpart, the following key data and information is needed:

- ecological studies;
- quantitative studies on species-habitat relationships;
- population dynamics and trends in population established by banding studies (proportional survival of juveniles and adults);
- cause/effect mechanisms of movements in relation to climatic events at local and broad scales;
- mapping of habitat suitability at landscape-scale using GIS and remote sensing;
- patterns of movements using radiotelemetry; and
- identification of areas of importance and significance, across its breeding grounds, along the flyway and on its wintering areas.

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REFERENCES

Bamford, M.J. 1988. Kakadu National Park: a Preliminary survey of migratory waders October/November 1987. RAOU Report No. 41.

Bamford, M.J. 1990. RAOU Survey of Migratory Waders in Kakadu National Park: Phase III. Report to the Australian National Parks and Wildlife Service. RAOU Report No. 70.

Barter, M. 1992. Morphometric and moult of the Little curlew *Numenius minutus* in north western Australia. The Stilt 21: 20-21.

Barter, M. 2002. Shorebirds of the Yellow Sea. Importance, threats and conservation status. Wetland International Global Series 9: 19.

Bayliss, B.L., Brennan, K.G., Eliot, I., Finlayson, C.M., Hall, R.N., House, T., Pidgeon, R.W.J., Walden, D. & Waterman, P. 1997. Vulnerability assessment of the possible effects of predicted climate change and sea level rise in the Alligator Rivers Region, Northern Territory, Australia. Supervising Scientist Report 123, Supervising Scientist, Canberra. 134 pp.

Bellio, M.G. 2004. Results on the analysis of stomach contents of six individuals of the Little Curlew (*Numenius minutus*) at Darwin Airport, Northern Territory, Australia Unpublished Report to Parks and Wildlife Commission of the Northern Territory- July, Darwin.

Collins, P. & Jessop, R. 2001. Arrival and departure dates and habitat of Little Curlew *Numenius minutus* at Broome, North-Western Australia. The Stilt 39: 10-12.

Crawford, D.N. 1972. Birds of the Darwin area. Emu 72: 131-174.

Crawford, D.N. 1978 . Notes on the Little Curlew on the sub-coastal plains, Northern Territory. Australian Bird Watcher 7: 270-272.

Eliot, I., Finlayson, C.M. & Waterman, P. 1999. Predicted climate change, sea-level rise and wetland management in the Australian wet-dry tropics. Wetlands Ecology and Management 7: 63-81.

East, T.J. 1996. Landform evolution. In: C.M. Finlayson & I. von Oertzen (eds.), Landscape and Vegetation Ecology of the Kakadu Region, Northern Australia. Kluwer Academic Publishers, The Netherlands: 37-55.

Finlayson, C.M., Bailey, B.J., Freeland, W.J. & Fleming, M. 1988. Wetlands of the Northern Territory. In: A.J. McComb & P.S. Lake (eds.) The Conservation of Australian Wetlands: 103-106. Surrey Beatty & Sons, Sydney.

Finlayson, C.M., Storrs, M.J. & Lindner, G. 1997. Degradation and rehabilitation of wetlands in the Alligator Rivers Region of northern Australia. Wetlands Ecology and Management 5: 19-36.

Garnett, S. & Minton, C. 1985. Notes on the Movements and Distribution of Little Curlew *Numenius minutus* in Northern Australia. Australian Bird Watcher 11: 69-73.

Jaensch, R. 1994. Lake Finniss: an internationally significant site for the Little Curlew. The Stilt 25: 21.

Labutin, Y.V., Leonovitch, V.V. & Verprinstev, B.N. 1982. The Little Curlew *Numenius minutus* in Siberia. Ibis 124: 302-319.

Lane, B.A. 1987. Shorebirds in Australia. Nelson, Melbourne.

McKean, J.L., Shurcliff, K.S. & Thompson, H.A.F. 1986. Notes on the status of Little Curlew *Numenius minutus* in the Darwin area, Northern Territory. Australian Bird Watcher 11 :259-260.

Marchant, S. & Higgins, P. 1996. Handbook of Australian, New Zealand & Antarctic Birds. Volume 3: Snipes to Pigeons. Oxford University Press, Melbourne Australia: 95-102.

Morton, S.R., Brennan, K.G. & Armstrong, M.D. 1991. Distribution and abundance of waterbirds in the Alligator Rivers Region, Northern Territory. Supervising Scientist for the Alligator Rivers Region, Open File Record, 86: 1-460.

Skeat, A.J., East, T.J. & Corbett, L.K. 1996. Impact of feral water buffalo. In: Landscape and Vegetation Ecology of the Kakadu Region, Northern Australia. C.M. Finlayson & I. von Oertzen (eds.). Kluwer Academic Publishers, The Netherlands: 157-179.

Storrs, M.J. & Finlayson, C.M. 1997. Overview of the conservation status of wetlands of the Northern Territory. Supervising Scientist Report 116, Supervising Scientist, Canberra.

van Gills, J. & Wiersma, P. 1996. Family Scolopacidae (Sandpipers, Snipes and Phalaropes). In: J. del Hoyo, A. Elliott & J. Sargatal (eds). Handbook of the Birds of the World. Vol. 3. Lynx Edicions, Barcelona, Spain. 502 pp.

Walden, D. & Bayliss, P. 2003. An ecological risk assessment of the major weeds on the Magela Creek floodplain, Kakadu National Park, preliminary report. Internal Report 439, Supervising Scientist, Darwin. Unpublished paper.

Walden, D., van Dam, R., Finlayson, C.M., Storrs, M., Lowry, J. & Kriticos, D. 2004. A risk assessment of the tropical wetland weed *Mimosa pigra* in northern Australia. Supervising Scientist Report 177, Supervising Scientist, Darwin NT.

Waterman, P., Finlayson, C.M. & Eliot, I. 2000. Assessment and monitoring of coastal change in the Alligator Rivers Region, northern Australia: a review of initial activities. In: I. Eliot, M. Saynor, M. Eliot & C.M. Finlayson (eds.), Assessment and monitoring of coastal change in the Alligator Rivers Region, northern Australia. Supervising Scientist Report 157, Darwin: 149-161.

Watkins, D. 1993. A national Plan for Shorebird Conservation in Australia. RAOU Report No 90.

Little Curlew *Numenius minutus*. Photo: Nick Davidson.