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AN ASSESSMENT OF THE IMPORTANCE OF THE TONDA WETLANDS IN SOUTH WESTERN PAPUA NEW GUINEA TO SHOREBIRDS AND WATERBIRDS

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INTRODUCTION

The Tonda Wildlife Management Area (WMA) is the only Ramsar site in the south Pacific region outside Australia. It was declared a Ramsar site on 23rd March, 1993 because it is believed to support internationally significant populations of both resident and migratory shorebirds and waterbirds and is probably an important staging point for shorebirds during migration between eastern Australia and the breeding grounds in eastern Russia.

There have been no systematic surveys of the shorebirds and waterbirds in Tonda WMA apart from anecdotal notes published by amateur birdwatchers from the Papua New Guinea Bird Society. Finch (1980) counted an estimated 10,000 Little Curlew along the Bensbach River in October 1980 making the area internationally significant for this species (Watkins 1993). Other trips by the PNG Bird Society found that shorebirds and waterbirds were most abundant along the middle and lower reaches of the Bensbach River. This is the main wetland area within the Tonda WMA and holds the highest concentrations of these species. The aim of this study is to assess the importance of the wetlands along the Bensbach River in Tonda WMA for shorebirds and waterbirds by providing the first systematic counts of all species of shorebirds and waterbirds (sensu Pringle 1985; 1987) during two visits to the region in the 1995 Dry Season.

STUDY AREA

The Tonda Wildlife Management Area was gazetted in 1978 following concern among landowners the large populations of wallaby, deer and other wildlife would decline with the use of modern weapons. The area covers almost 450,000 ha and includes a range of vegetation types from coastal mangroves to dense rainforest (Fig. 1; Paijmans *et al.* 1971). However, the greatest concentration of wildlife occurs along the middle and lower reaches of the Bensbach River.

The Bensbach River rises in low hills south of the Fly River and flows southwards until it reaches the sea at the Indonesian border (Fig. 1). Up to 200 kilometres inland the relief is still less than 20 m. Inland of the coastal mangrove and littoral forest are vast low-lying grassland plains that flood during the Wet Season (December- April). These flooded areas form large, shallow swamps and waterholes narrowly connected with the main river. Further inland, the grassland gives way to *Melaleuca* forest and mixed gallery forests with many overflow lagoons and swamps in lower areas (Paijmans *et al.* 1971).

METHODS

Birds were surveyed in the Tonda WMA twice during the 1995 Dry Season: for four days between 21 and 25th August, 1995 and again for three days between 13 and 15th November, 1995. Sightings were made during all travel within the Tonda WMA but special effort was made to count all waterbirds along the Bensbach River. This data was to be used as background data for the PNG Department of Environment and Conservation when preparing their submission for the Ramsar conference in Brisbane in March, 1996. Sightings were made from a flat bottom punt with 10 x 40

Nikon binoculars during systematic surveys along the river between 0700h and 1800h each day. All birds present on the river, in adjacent vegetation and on known roosting and feeding swamps within two kilometres of the river were counted.

Sightings in the area by other birdwatchers that were published in the PNG Bird Society newsletter have also been included in the completed list of waterbirds seen in the area (Table 1). These include trips by B.W. Finch in October 1980 and December 1981, M.M. Clarke in November 1982 and S. Spanner *et al.* in October 1994.

RESULTS AND DISCUSSION

Sixty species of waterbirds have been recorded from the lower Bensbach River (Table 1). These represent almost all of the species of waterbird known to occur in the Papua New Guinea lowlands (Beehler *et al.* 1986). Most groups are well represented, especially the Areidae (12 species) and the Characharidae (18 species). Forty-five species were seen during the survey period in 1995 (Table 2). Most of the species absent during the survey were migratory shorebirds that probably occur irregularly or in low numbers.

There are some clear patterns in the habitat preference of most species and few occurred in similar numbers in the two major habitats surveyed (Table 2). Most species preferred the sections of the river surrounded by forest (30 species) although the number of birds was higher in the grassland habitat in both survey periods. Early in the Dry Season (August) there was large numbers of ducks in the waterholes off the

main river in the grassland habitat. Later, these were replaced by shorebirds as these waterholes dried and exposed large areas of shallow open mud. The ducks appeared to have moved upstream to the more permanent swamps that had become shallower and provided suitable feeding habitat.

Some species present during the second survey in November, such as Magpie Geese, Brolgas and Masked Lapwings, were absent or in low numbers during the first survey in the early Dry Season. These birds had probably migrated into the area following the drying of other swamps and waterholes in the region. Magpie Geese and Brolgas breed shortly after the Wet Season in Tonda (May - June) (Brian Bromley pers comm.) and the birds disperse after breeding, apparently returning later in the Dry Season as swamps and other wetlands dry. Banding studies in northern Australia show that movements of Magpie Geese and Brolgas are largely governed by the availability of food and water with 70% of recoveries of Magpie Geese less than 100 km from the banding place (Marchant *&* Higgins 1990). Draffan *et al.* (1983) recorded regular movement of Magpie Geese across Torres Strait indicating that these may not be only local movements.

Masked Lapwing populations outside Australia are estimated to total about 29,000 (Marchant *&* Higgins 1993) and the Papua New Guinea population is likely to be less than half this number. Unlike Magpie Geese and Brolgas, there is limited evidence of widespread movements by Masked Lapwings. The large number of birds recorded along the Bensbach River probably reflects the resident population of a larger area that has aggregated as wetlands in the region dry up. It does show that the Tonda wetlands hold nationally significant populations of this species.

Another species that moved into the area as the flooded grasslands dried was the Australian Pratincole. This species breeds in dry inland parts of south eastern Australia in summer (October - December) (Blakers *et al.* 1984) and migrate to northern Australia, Papua New Guinea and southern Indonesia in winter (Pringle 1987). Coates (1985) notes that thousands of Australian Pratincole can occur in the Tonda WMA late in the Dry Season, presumeably in preparation for migration to their breeding grounds in south eastern inland Australia. Watkins (1993) does not list Australian Pratincole as a shorebird and so the significance of the large seasonal populations in Tonda WMA are difficult to assess. However, it seems possible that most of the population that migrates to Papua New Guinea may stage in the grasslands of Trans-Fly region before they leave for Australia.

The numbers of shorebirds recorded during the two surveys were much less than expected. Up to 10,000 Little Curlew had been recorded along the lower Bensbach River in October 1980 (Finch 1980) and this area is believed to be an important stopping point during flights to their major wintering grounds in northern Australia (Higgins & Davies 1996). I recorded few Little Curlew during my survey in November. This suggests that the birds either the birds had left the area, probably for Australia, or that the count of Finch was unusually high.

Few other shorebirds were recorded in internationally significant numbers during the two surveys. Sharp-tailed Sandpipers were the most abundant species yet the counts were less than 0.5% of the estimated flyway population (Watkins 1993). A large number of species of shorebird have been recorded from the region but the

numbers of most species appear to be low. Given the available habitat (Fig. 1) this is not surprising. The region is unlikely to be able to feed large populations of intertidal-feeding shorebirds throughout the wintering period. The importance of this area to shorebirds appears to be as a staging point for birds that winter in Australia.

Despite the low counts of most species, the wetlands of the Tonda WMA hold an impressive diversity of species, similar to that recorded by Morton *et al.* (1990) in the Alligator River wetlands in Kakadu National Park. The Papua New Guinea populations of many of these species are restricted to the Trans-Fly region (Beehler *et al.* 1986) increasing the region's importance as one of the largest undisturbed wetland areas in Papua New Guinea outside the Fly River catchment.

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Table 1: List of the waterbirds seen in the Bensbach River region of Tonda WMA. Data compiled from published lists in the Papua New Guinea Bird Society newsletter and this study.

Common Name	Scientific Name
Magpie Goose	*Anseranas semipalmata*
Spotted Whistling-Duck	*Dendrocygna guttata*
Wandering Whistling-Duck	*Dendrocygna arcuata*
Radjah Shelduck	*Tadorna radjah*
Green Pygmy-goose	*Nettapus pulchellus*
Pacific Black Duck	*Anas superciliosa*
Grey Teal	*Anas gracilis*
Australasian Grebe	*Tachybaptus novaehollandiae*
Darter	*Anhinga melanogaster*
Little Pied Cormorant	*Phalacrocorax melanoleucos*
Pied Cormorant	*Phalacrocorax varius*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Great Cormorant	*Phalacrocorax carbo*
Australian Pelican	*Pelecanus conspicillatus*
White-faced Heron	*Egretta novaehollandiae*
Little Egret	*Egretta garzetta*
Great-billed Heron	*Ardea sumatrana*
Pied Heron	*Ardea picata*
Great Egret	*Ardea alba*
Intermediate Egret	*Ardea intermedia*

Common Name	Scientific Name
Cattle Egret	*Ardea ibis*
Striated Heron	*Butorides striatus*
Nankeen Night Heron	*Nycticorax caledonicus*
Glossy Ibis	*Plegadis falcinellus*
Australian White Ibis	*Threskiornis molucca*
Straw-necked Ibis	*Threskiornis spinicollis*
Royal Spoonbill	*Platalea regia*
Yellow-billed Spoonbill	*Platalea flavipes*
Black-necked Stork	*Ephippiorhynchus asiaticus*
Brolga	*Grus rubicunda*
Dusky Moorhen	*Gallinula tenebrosa*
Australian Bustard	*Adeotis australis*
Swinhoe's Snipe	*Gallinago megala*
Black-tailed Godwit	*Limosa limosa*
Little Curlew	*Numenius minutus*
Marsh Sandpiper	*Tringa stagnatilis*
Common Greenshank	*Tringa nebularia*
Wood Sandpiper	*Tringa glareola*
Common Sandpiper	*Actitis hypoleucos*
Grey-tailed Tattler	*Heteroscelus brevipes*
Ruddy Turnstone	*Arenaria interpres*
Red-necked Stint	*Calidris ruficollis*
Long-toed Stint	*Calidris subminuta*

Common Name	Scientific Name
Sharp-tailed Sandpiper	*Calidris acuminata*
Curlew Sandpiper	*Calidris ferruginea*
Ruff	*Philomachus pugnax*
Cromb-crested Jacana	*Irediparra gallinacea*
Beach Stone-curlew	*Esacus neglectus*
Black-winged Stilt	*Himantopus himantopus*
Pacific Golden Plover	*Pluvialis fulva*
Lesser Sand Plover	*Charadrius mongolus*
Greater Sand Plover	*Charadrius leschenaultii*
Red-kneed Dotterel	*Erythrogonys cinctus*
Masked Lapwing	*Vanellus miles*
Oriental Pratincole	*Glareola maldivarum*
Australian Pratincole	*Stiltia isabella*
Gull-billed Tern	*Sterna nilotica*
Little Tern	*Sterna albifrons*
Whiskered Tern	*Chlidonias hybridus*
White-winged Black Tern	*Chlidonias leucopterus*

Table 2: Maximum counts of shorebirds and waterbirds seen along forested and grassland sections of the Bensbach River during surveys in August and November 1995.

Common Name	August		November	
	Forest	Grass	Forest	Grass
Magpie Goose	-	-	196	-
Wandering Whistling-Duck	34	-	8	-
Radjah Shelduck	32	267	107	-
Green Pygmy-goose	320	-	114	-
Pacific Black Duck	4	882	141	-
Grey Teal	-	4	4	-
Darter	3	-	-	-
Little Pied Cormorant	15	-	16	-
Little Black Cormorant	34	-	-	-
Great Cormorant	2	-	-	-
Australian Pelican	4	25	-	4
White-faced Heron	3	-	2	-
Little Egret	2	-	10	-
Great-billed Heron	3	-	2	-
Pied Heron	64	73	56	258
Great Egret	3	-	21	-
Intermediate Egret	6	-	106	60
Cattle Egret	-	-	-	3
Striated Heron	12	-	1	-

Common Name	August		November	
	Forest	Grass	Forest	Grass
Nankeen Night Heron	77	-	20	-
Glossy Ibis	-	130	-	3
Australian White Ibis	1	1	8	90
Straw-necked Ibis	2	10	-	-
Royal Spoonbill	1	28	-	1
Yellow-billed Spoonbill	-	4	-	-
Black-necked Stork	2	-	1	-
Brolga	-	6	-	132
Dusky Moorhen	-	-	-	1
Australian Bustard	-	-	-	1
Little Curlew	-	-	-	131
Marsh Sandpiper	-	-	-	3
Common Greenshank	-	-	-	5
Common Sandpiper	8	-	27	57
Red-necked Stint	-	-	-	12
Sharp-tailed Sandpiper	-	-	-	813
Curlew Sandpiper	-	-	-	1
Ruff	-	-	-	2
Cromb-crested Jacana	8	-	2	-
Black-winged Stilt	30	-	8	-
Greater Sand Plover	-	1	-	-
Masked Lapwing	-	19	-	152

Common Name	August		November	
	Forest	Grass	Forest	Grass
Oriental Pratincole	-	-	-	12
Australian Pratincole	-	-	-	285
Gull-billed Tern	-	-	-	4
TOTAL	650	1431	850	2029

Caption to Figure

Figure 1. Map of south western Papua New Guinea showing the Tonda wetlands on the lower Bensbach River.