



## Asian Wetland Bureau activities: Waterbird hunting on the Red River Delta, Northern Vietnam

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The Asian Wetland Bureau, with the support of the Australian International Development Assistance Bureau (AIDAB) is undertaking work to identify the level of waterbird hunting on the Red River Delta in northern Vietnam. Dr Le Dien Duc and Mr Hoang Van Thang from the University of Hanoi's Wetland and Waterbird Working Group have been undertaking field work at three coastal sites on the delta: Cua Van Uc in the northern delta, Xuan Thuy Reserve in the central delta and Cua Day in the southern delta.

Work documenting the level of bird hunting began in September 1992 and will continue until May 1993. This will be followed by an economic assessment of the value of natural resources in the area as a basis for developing alternative livelihood projects for local people currently engaged in hunting. It is hoped that this will reduce the hunting pressure on waterbirds.

Counts at the three sites have found up to 3,600 at Cua Van Uc, 8,000 at Xuan Thuy and 2,900 at Cua Day. The Red River Estuary is clearly one of the important sites for migratory shorebirds in South-east Asia.

Figures for hunting to date show that at the three sites, a total of 9,342 waterbirds (including 7,835 waders) were caught/trapped by local hunters from September to

December. By weight this represented over 2,300 kilograms! Hunting levels are similar to those in the Shanghai area, China and in central Java, Indonesia where AWB has also supported investigations with help from AIDAB.

Among the hunted birds, a number of banding recoveries have been made, including a Large Sandplover *Charadrius leschaultii* from Broome in Western Australia, a Common Redshank *Tringa totanus* from Hong Kong and a Kentish Plover *Charadrius alexandrinus* banded in Malaysia. This brings to seven the total number of international recoveries of migratory waterbirds on the Red River Delta.

Counts as part of the investigations have revealed that the total number of birds harvested may represent between 10% and 15% of the total numbers of birds in the three study sites. Uncertainty is attached to this estimate because of the likely turnover of birds in the area during migration.

AWB will continue to support the work of the Wetland and Waterbird Study Group in Vietnam and it is hoped that AWSG and others will follow up their earlier work there which was so important in initiating detailed studies.

## Asian Wetland Bureau activities: Bird migration studies in South Asia

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The Bombay Natural History Society (BNHS) has carried out sporadic bird banding activities in the Indian sub-region for over 30 years. However, in 1980 substantial funds were made available to the BNHS by a grant from the US Fish & Wildlife Service under the PL-480 programme. This enabled the BNHS to organise comprehensive and systematic field programmes for bird banding in the country through a network of banding stations.

During the 10-year tenure of the project, a total of about 183,230 birds involving 545 species were banded at 35 stations and sites in the country. Of these species, 140 (25.7%) consisted of waterbirds (including waders). The habitats covered included alpine Himalayas, broadleaved foothills, flood plains, desert grasslands, coastal mudflats and estuaries, and tropical dry-evergreen, moist deciduous and wet-evergreen forests.



This paper briefly summarizes part of the results of the study. A detailed report of the study is under preparation. In the interim, some of the results have been presented at various conferences and meetings, most recently at the 1992 wader conference.

## BANDING AND RECOVERIES

Out of a total of 135,440 migrants banded only about 1,092 were recovered (about 0.8% recovery rate), mainly of waterbirds originating from Russia (formerly USSR). Most recoveries come from hunted birds and the recovery pattern also indicates that the data available was from only those areas where hunting was carried out. Vast areas in Tibet and parts of China are poorly covered, though the birds may have used these areas during passage.

Most of the reports of waders were from the banding schemes in Russia with a few from China. Table 1 summarizes the species of waders banded and recovered abroad. The recovery/banding ratio is rather low. Fortunately, the low recovery rate has been partially balanced by the large number of retraps (controls) obtained within the country that have served to identify some of the routes used. The bulk of the recoveries of waders, was restricted to Ruff *Philomachus pugnax* (60 recoveries/10,328 banded; 0.58%), Curlew Sandpiper *Calidris ferruginea* (34/16,887; 0.20%) and Little Stint *C. minuta* (29/42,810; 0.06%).

The sampling profile appears to be inadequate to get a true picture of the migration pattern. Sampling areas were limited to a few sites and trapping could not be effected on a large scale. To overcome this problem it is necessary to have a network of bird banding stations scattered over the subcontinent to monitor a wide population spectrum and also to monitor the movements within the non-breeding sites.

## BIOMETRICS AND MOULT

When handling birds, various standard morphometric parameters were examined. In addition, age, sex, breeding conditions, moult and plumage conditions were recorded. Particular attention was paid to record the factors most relevant to migration, such as weight and moulting strategy. Table 2 summarizes the information obtained regarding the primary moult of waders.

## LONGEVITY

Besides data on recoveries of banded birds (Table 1), over 5,500 records of recapture data covering both migrant and resident species have also been obtained. Table 3 summarizes the findings on the longevity of waders. Of particular interest is the record of a Lesser Sandplover. This data will be used to determine (a) site fidelity in migrants, (b) longevity in migrants and residents, and (c)

Table 1. Total number of waders banded and recovered (1980-1992).

English name	Latin name	Number banded	Number recovered
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	259	
Bronze-winged Jacana	<i>Metopidius indicus</i>	50	
Painted Snipe	<i>Rostratula benghalensis</i>	471	1
Crab Plover	<i>Dromas ardeola</i>	103	1
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	7	
Ibisbill	<i>Ibidorhyncha struthersii</i>	11	
Black-winged Stilt	<i>Himantopus himantopus</i>	393	2
Avocet	<i>Recurvirostra avosetta</i>	123	
Stone Curlew	<i>Burhinus oedicephalus</i>	4	
Great Thick-knee	<i>Esacus recurvirostris</i>	18	
Northern Lapwing	<i>Vanellus vanellus</i>	10	
River Lapwing	<i>V. duvaucelli</i>	12	
Yellow-wattled Lapwing	<i>V. malabaricus</i>	6	
White-tailed Lapwing	<i>V. leucurus</i>	130	
Red-wattled Lapwing	<i>V. indicus</i>	534	
Eurasian Golden Plover	<i>Pluvialis apricaria</i>	1	
Grey Plover	<i>P. squatarola</i>	671	1
Pacific Golden Plover	<i>P. fulva (dominica)</i>	245	1
Ringed Plover	<i>Charadrius hiaticula</i>	5	
Long-billed Plover	<i>C. placidus</i>	1	
Little Ringed Plover	<i>C. dubius</i>	321	
Kentish Plover	<i>C. alexandrinus</i>	1,817	1
Lesser Sandplover	<i>C. mongolus</i>	6,909	2
Large Sandplover	<i>C. leschaultii</i>	186	
Black-tailed Godwit	<i>Limosa limosa</i>	419	1
Bar-tailed Godwit	<i>L. lapponica</i>	81	
Whimbrel	<i>Numerius phaeopus</i>	54	
Eurasian Curlew	<i>N. arquata</i>	100	
Spotted Redshank	<i>Tringa erythropus</i>	198	1
Redshank	<i>T. totanus</i>	2,128	
Marsh Sandpiper	<i>T. stagnatilis</i>	1,916	2
Greenshank	<i>T. nebularia</i>	543	2
Wood Sandpiper	<i>T. glareola</i>	6,615	4
Terek Sandpiper	<i>Xenus cinereus</i>	290	
Common Sandpiper	<i>Actitis hypoleucos</i>	81	
Ruddy Turnstone	<i>Arenaria interpres</i>	311	1
Red-necked Phalarope	<i>Phalaropus lobatus</i>	148	
Solitary Snipe	<i>Gallinago solitaria</i>	5	
Pintail Snipe	<i>G. stenura</i>	22	
Common Snipe	<i>G. gallinago</i>	1,748	2
Jack Snipe	<i>G. minima</i>	499	
Asian Dowitcher	<i>Limnodromus semipalmatus</i>	15	
Red Knot	<i>Calidris canutus</i>	55	
Great Knot	<i>C. tenuirostris</i>	81	
Sanderling	<i>C. alba</i>	156	
Red-necked Stint	<i>C. ruficollis</i>	9	
Little Stint	<i>C. minuta</i>	42,810	29
Temminck's Stint	<i>C. temmincki</i>	1,372	1
Long-toed Stint	<i>C. subminuta</i>	35	
Sharp-tailed Stint	<i>C. acuminata</i>	1	
Dunlin	<i>C. alpina</i>	685	
Curlew Sandpiper	<i>C. ferruginea</i>	16,887	34
Spoon-billed Sandpiper	<i>Eurynorhynchus pygmaeus</i>	12	
Broad-billed Sandpiper	<i>Limicola falcinellus</i>	1,429	1
Ruff	<i>Philomachus pugnax</i>	10,328	60

Table 2. Primary moult duration of waders.

Species	Duration (days)
Grey Plover	72
Lesser Sandplover	200
Large Sandplover	150
Redshank	90-110
Little Stint	120
Ruff	100-110



young/adult ratio and their dispersal patterns in given habitats, and will be invaluable to understand the life histories of the bird species.

Table 3. Longevity records of waders.

Species	Years	Months
Crab Plover	9	2
Grey Plover	8	11
Bar-tailed Godwit	8	6
Kentish Plover	9	0
Lesser Sandplover	20	3
Large Sandplover	10	0
Redshank	12	2
Marsh Sandpiper	6	2
Greenshank	11	0
Wood Sandpiper	12	4
Red-necked Stint	10	5
Little Stint	10	6
Curlew Sandpiper	11	0
Broad-billed Sandpiper	10	2

## CONSERVATION ISSUES

This project is considered to be one of the strongest endeavours in the country to determine the trends in bird migration, to identify conservation issues and problems and identify possible action plans.

The major achievement of the project has been the highlighting of the importance of certain key wetlands and forest areas in the subcontinent. This has resulted in a better understanding of the ecology of these habitats and thereby greater protection of the areas.

The Great Vedaranyam Swamp (now recognised as a Ramsar site), Pulicat Lake and Khabertal (also both Ramsar sites), Dihaila Jheel (a newly discovered non-breeding site of the endangered Siberian Crane), Chari Dhand adjoining the Great Rann of Kachchh and Gulf of Mannar Marine National Park on the southeast coast, are some of the key wetlands which received attention due to project activities. The respective state governments have now included these sites in their future action plans.

## Relative masses of primary feathers in waders

L.G. Underhill & R.W. Summers

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Summers *et al.* (1983) showed that moult scores of retrapped Redshanks *Tringa totanus* tended to increase more slowly towards the end of primary moult than near the beginning. This was partly because the outer primaries are longer and heavier than the inner primaries. Therefore, by converting moult scores to percentage feather mass grown (PFMG) one can make the pattern of increase with time more linear (Summers 1980). A "moult index" that increases linearly with time is one of the underpinning assumptions of the moult model of Underhill & Zucchini (1988), and PFMG is undoubtedly more closely linear with time than the traditional moult score. In order to compute PFMG, the relative masses of the primary feathers for the species under consideration need to be known.

One of the purposes of this note is to point out that, for those wader species for which the relative masses of the primaries are known, there is sufficiently little variation to suggest that a set of average values might suffice for all (or at least most) wader species. The other purpose of

this note is to suggest a standard procedure for determining the relative masses and for computing PFMG. Improved standardisation of methods will facilitate comparisons between species and between areas in the timing and duration of moult.

To date, the relative masses of the primaries have been determined for 13 wader species (Table 1). For these species and each primary, the maximum difference between the average relative masses and the relative masses for the individual species was 1.3%. The consistent differences were for Grey Plover *Pluvialis squatarola*, which appears to have relatively lighter inner and heavier outer primaries than average, and Redshank for which the opposite pattern occurs (Table 1).

The recommended procedure for finding relative masses was described by Summers *et al.* (1980), and is repeated here, with some refinements. Primary feathers in good condition (i.e. showing little feather wear and with no broken-off tips) are needed. The bases of the feathers