NETHERLANDS WADER EXPEDITION TO MOROCCO 1982 - SOME PRELIMINARY RESULTS

by Nelly van Brederode, Marcel Kersten, Theunis Piersma and Piet Zegers

From 21 March to 26 April 1982 we visited the intertidal flats and salines near Sidi Moussa to study the spring migration of waders along the Atlantic coast of Morocco. Our main objective was to extend the information obtained during a previous expedition in March 1981 (Kersten et al. 1981).

Censuses. The results of the counts in the study area are presented in Table 1, together with two counts in Merja Zerga, which is the most important wader site in Morocco. The total numbers counted in March and April 1982 were, on average, lower than in March 1981 and showed more vigorous fluctuations (Figure 1). Dunlin Calidris alpina was again the most numerous wader species, accounting for about 50% of the total numbers.

Migration. Many wader flocks were seen or heard flying over the study in a northerly direction. As far as we could ascertain, all these flocks crossed the dunes within a few minutes to disappear above the ocean. This suggests that migrating waders travel over the sea instead of following the shoreline. Consequently, the waders seen migrating were probably birds that had just departed from the study area, or areas in the immediate vicinity. Several flocks were seen departing from the study area.

Figure 2 shows the number of migrating flocks observed each day. There is no doubt that migration was more intense in 1982 than it was in March 1981, although migrating flocks were not systematically counted during that year. The only wader species regularly observed migrating in 1981 was the Curlew Numenius arquata. Figure 2 indicates that its spring migration finished during the first half of April.

On most days the majority of migrating flocks were observed in the late afternoon between 1600 hr and 2000 hr. Figure 3 shows that the daily pattern of migration intensity differs between species. Curlews migrated throughout the day and night, although the intensity was relatively low in the morning and early afternoon. Redshanks Tringa totanus were observed almost exclusively between 1600 hr and 1900 hr, whereas Dunlins showed two peak intensities of migration; one in the late afternoon and the other around midnight.

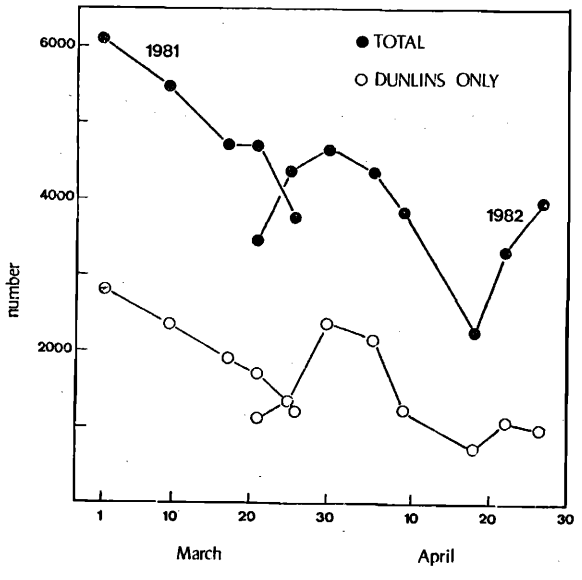

Figure 1. Numbers of waders counted in the study area near Sidi Moussa during the expeditions in 1981 and 1982.

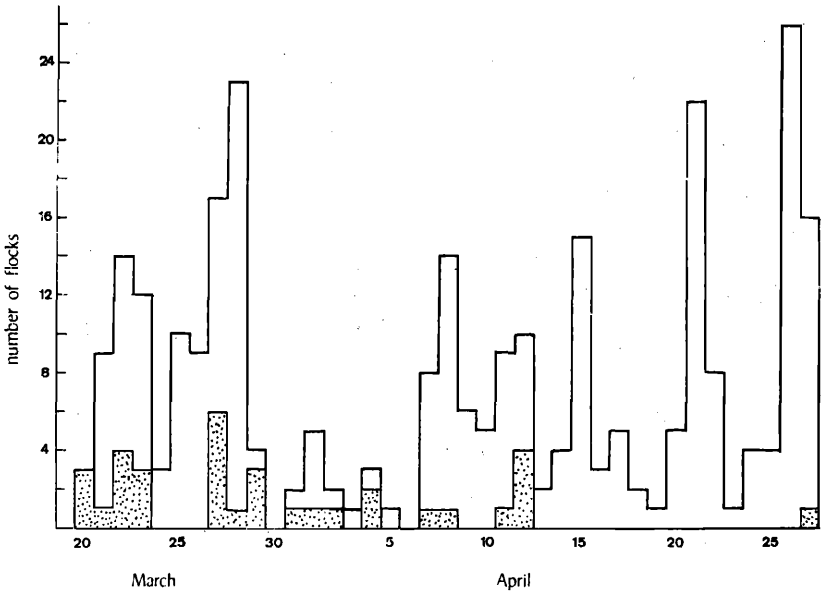

Figure 2. The number of wader flocks migrating over the study area in 1982 (n = 274). The stippled histogram shows the number of Curlew flocks.

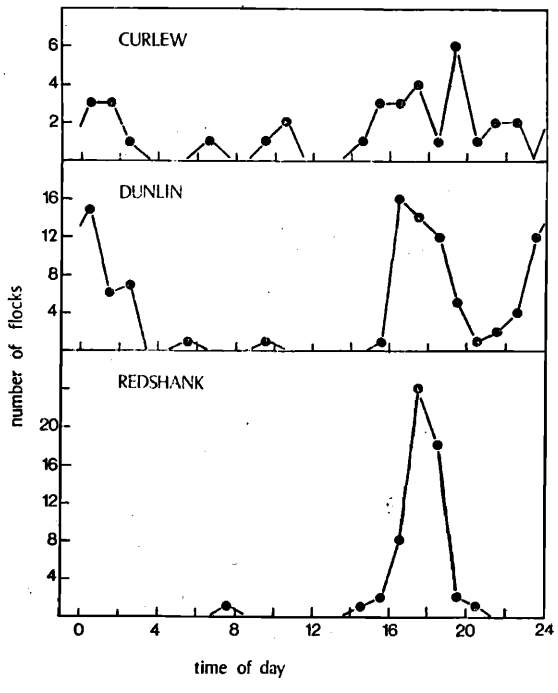

Figure 3. Migration intensity through the day in three wader species.

Table 1. Results of the wader counts at Sidi Moussa and Merja Zerga by the Netherlands Wader Expedition to Morocco 1982.

	Sidi Moussa								Merja Zerga	
	21/3	25/3	30/3	5/4	9/4	18/4	22/4	26/4	18/3	30/4
Haematopus ostralegus	5	7	11	17	5	8	8	2	95	37
Himantopus himantopus	314	258	196	137	154	109	137	138	38	13
Recurvirostra avosetta	339	343	184	35	12	1	38	246	2873	640
Charadrius hiaticula	125	203	196	206	355	118	203	291	235	2063
Charadrius alexandrinus	259	380	214	257	290	200	284	296	1776	954
Pluvialis squatarola	223	416	495	507	708	327	490	736	1631	1145
Calidris canutus	31	23	30	125	250	50	192	261	1	15
Calidris alba	43	28	32	37	17	34	33	24	77	46
Calidris minuta	125	176	167	119	201	117	198	149	144	957
Calidris ferruginea	32	40	23	23	60	77	45	50	-	4325
Calidris alpina	1122	1356	2343	2138	1214	692	1048	963	11208	4111
Limosa limosa	84	31	11	2	-	-	2	-	620	510
Limosa lapponica	114	295	130	203	170	94	93	199	80	161
Numenius phaeopus	1	4	1	1	-	-	2	-	-	4
Numenius arquata	11	25	46	18	26	32	120	22	620	146
Tringa ochropus	1	-	-	-	1	-	-	-	-	-
Tringa glareola	-	1	-	-	-	-	-	-	-	1
Tringa erythropus	39	135	6	-	1	1	-	-	6	1
Tringa totanus	315	370	323	261	111	88	58	66	448	296
Tringa nebularia	4	18	23	15	5	4	9	11	135	17
Actitis hypoleucos	3	2	3	1	6	3	1	5	-	15
Philomachus pugnax	107	80	17	22	51	48	28	11	140	-
Gallinago gallinago	19	7	18	7	3	3	1	-	2	-
Arenaria interpres	151	137	186	200	159	173	201	346	40	15
Glareola pratincola	3	5	1	?	23	51	107	121	-	110

Unfortunately it was not always possible to determine the size of migrating flocks at night, but the data clearly shows that the total numbers involved are considerable. For instance, 1016 Redshanks were counted in 52 flocks. This is about three times the maximum number counted in the study area (Table 1).

Catching. The numbers of waders ringed and recovered are presented in Table 2. The controls include birds ringed in Mauritania, Portugal, France, Great Britain, Norway and the Soviet Union.

The average weights of the birds were rather low, as was the case in 1981. In addition, the data from the retraps, shown for the Dunlin in Table 3, hardly give any indication of a large weight increase. The weight decrease in the three days after ringing may be due to an effect of the first handling. Dunlins recaptured more than three days after ringing show slow rates of weight increase. Only one Dunlin accumulated weight rapidly. This was an adult bird which weighed 37.5 g at capture, and 54 g when it was recaptured 4 days later, this yields an average rate of weight increase of 4.12 g/day! The potential rate of weight increase shown by this "exceptional" bird demonstrates that Dunlins preparing themselves for a long migratory flight are able to accumulate the necessary lipid reserve within a few days.

Table 2. Numbers of waders captured and recovered by the expedition. Controlled = ringed elsewhere and recaptured at Sidi Moussa; retrapped = ringed and recaptured at Sidi Moussa.

	newly ringed	controlled	retrapped	total
Himantopus himantopus	1	-	-	1
Charadrius hiaticula	39	4	2	45
Charadrius alexandrinus	25	-	-	25
Pluvialis squatarola	22	-	1	23
Calidris canutus	2	-	-	2
Calidris minuta	43	2	-	45
Calidris ferruginea	28	-	-	28
Calidris alpina	694	21	24	739
Numenius phaeopus	1	-	-	1
Tringa totanus	18	2	-	20
Tringa nebularia	3	-	-	3
Philomachus pugnax	2	-	-	2
Arenaria interpres	17	1	-	18
Glareola pratincola	7	-	-	7

Table 3. Rates of weight change in retrapped Dunlins. Data for adults and juveniles are combined.

Number of days between ringing and recapture	mean rate of weight change (g/day)	number of birds
1	- 1.33	3
2-3	- 0.95	6
4-5	+ 0.56	6
6-25	+ 0.12	9

The proportion of Dunlins in summer plumage increased steadily throughout the study period. This enabled us to identify the subspecies from the colour of the mantle feathers (Ferns & Green 1979). Subspecific origin could be determined in this way for 325 birds out of a total of 407 adult Dunlins caught. None of these birds belonged to the alpina subspecies. The majority 192 (59%) were schinzii, the rest 133 (41%) being arctica. These results are in accordance with the short average values for wing-length and bill-length of Dunlins caught during the expedition.

Food and feeding. The highest densities of foraging waders were found on the mudflats in the northern part of the intertidal area. The total biomass of macrobenthic invertebrates in this area averaged about 20 g ash-free dry weight per m^2 in March 1981, but the waders consumed a considerable proportion of the standing crop during that month (Report of the Netherlands Morocco Expedition 1981, in prep). Hence, in the absence of macrobenthic production, depletion of the food source might become a serious problem later in the season. In order to get some information on macrobenthic production, samples from one area were taken at regular (two week) intervals. These data are not yet fully analysed, but it was obvious at first sight that there was an enormous spatfall of a small tellinid bivalve Abra tenuis. Hopefully the data will allow us to calculate minimum growth rates of these animals and other potential prey species such as Nereis diversicolor, Scrobicularia plana and Scrobicularia cottardi.

The results of the expedition will be published fully in an expedition report.

References

Ferns,P.N. & Green,G.H. 1979. Observations on the breeding plumage and prenuptial moult of Dunlins, Calidris alpina, captured in Britain. Gerfaut 69: 286-303.

Kersten,M., Piersma,Th., Smit,C. & Zegers,P. 1981. Netherlands Morocco Expedition 1981 - some preliminary results. Wader Study Group Bulletin 32: 44-45.

Nelly van Brederode, Marcel Kersten, Theunis Piersma & Piet Zegers, Hendrikstraat 21, 9724 NA Groningen, The Netherlands.

NOTES ON 'DISABLED' WADERS IN EAST ASIA

by David S. Melville

The occurrence of disabilities in western Palearctic waders seems to be relatively low, but has been little documented. Damage to the legs and feet of Oystercatchers Haematopus ostralegus by wool has been documented by Dare and Mercer (1968), there are a number of records of waders being caught by bivalve molluscs (e.g. Anon 1974, Summers & Whitelaw 1978), and Smith (1980) noted Red-necked Phalaropes Phalaropus lobatus with damaged abdomens.

The incidence of disabled waders in the Far East has received no attention, apart from records from Fiji (Manson-Bahr 1956). All waders which I caught in mist nets in Hong Kong (1976-1980) and Thailand (1980-1981) were examined for injuries and abnormalities and the results are listed below. Totals of birds examined and details of disabilities are presented separately for the two areas as, in most cases, it is likely that different populations are represented in the samples. Most waders in Hong Kong were caught on spring passage in April/May. In Thailand, birds were caught in each month, except December, between September and April inclusive, thus including part of both spring and autumn passages as well as the wintering population.

Results

The numbers of waders examined and found disabled are listed in Table 1. The proportion found disabled was very similar in Hong Kong and Thailand. Details of the disabilities are listed below, with apparent congenital deformities included in brackets. Abbreviations used are: HK=Hong Kong, Th=Thailand, L=Left, R=Right, IT=Intertarsal joint.

Kentish Plover. Th: blind left eye.

Lesser Sand Plover. Th: L leg broken + healed; L leg amputated c20mm below IT, IT damaged; R leg broken + healed just above foot, foot at right-angles to leg; L leg broken, foot still attached by tendon but rotten; R leg amputated c10mm below IT; R leg amputated just below IT; L leg amputated 15mm below IT; inner + centre toes R foot missing; broken outer toe R foot, healed; L foot damaged + partly paralysed, claw centre toe missing; L back of skull appeared to be cracked but healed, bird healthy; (claws of R foot growing sideways, toes normal).

Greater Sand Plover. Th: ball R foot swollen + outer toe missing claw, L tarsus bent inwards in 'U'-shape.

Lesser Golden Plover. Th: R leg amputated halfway along tarsus.

Grey Plover. Th: R leg broken + healed above IT.

Red-necked Stint. HK: R leg broken + healed, outer claw missing both feet. Th: large lumpy swelling on R tibia - leg broken and healed?

Long-toed Stint. Th: ('wart' on top of head giving 'tufted' appearance, not attached to skull).

Curlew Sandpiper. HK: ball R foot damaged. Th: blind L eye; R leg amputated just below IT; R foot amputated; outer toe L foot missing.

Broad-billed Sandpiper. HK: claw + end joint inner L toe amputated. Th: all three toes L foot missing claw and end joint.

Common Snipe. HK: outer toe R foot missing claw.

Bar-tailed Godwit. HK: R tibia freshly broken.

Redshank. HK: (undershot bill, mandible 43mm, maxilla 39.5mm). Th: L leg broken + healed just above IT; R leg amputated just below feathering; L leg broken + healed 20mm above IT; L leg broken IT joint; end all toes L foot missing; blind L eye; R naris damaged; hole in pectoral muscle just below clavicle, approx. 10mm x 5mm x 5mm deep, cause unknown, fully feathered; (undershot bill, mandible 44mm, maxilla 32.5mm).

Marsh Sandpiper. HK: R leg broken + healed. Th: R foot missing central claw; (tarsus bent inwards on both legs, especially R, possible rickets?).

Wood Sandpiper. Th: end all toes L foot amputated, mid toe 18mm cf. 35mm mid toe R foot; claw missing R centre toe; damaged R centre toe.

Red-necked Phalarope. HK: R leg amputated at IT, L leg amputated just below feathers (Melville in press).