

7th INTERNATIONAL WORKSHOP ON THE ECOLOGY OF SHOREBIRDS, HOLLVIKEN,
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Variables influencing male mating success in
the Great Snipe *Gallinago media*

Jacob Hoglund, Dept. of Zoology, Uppsala
University, P.O. Box 561, S-751 22, Uppsala,
Sweden

A set of variables likely to influence territorial behaviour in the lek-breeding Great Snipe and individual male mating success was studied during the 1985 breeding season (mid May to late June). Male morphology and behaviour as well as territory features were recorded using individually-marked birds on three adjacent leks. Exploratory analyses of the different variables were conducted using multiple regression techniques. Individual male mating success, expressed as the number of female solicitations, was negatively correlated with the distance of a display territory from the lek centre and positively correlated to the territory area covered by low bushes. No other variables contributed significantly to explain the variation in male success. This implies that central males obtain more matings than peripheral ones and that the cover from low bushes also is important in this respect.

Sexual size dimorphism in the Dunlin *Calidris
alpina schinzii*; Why are males smaller than
females?

Paul E. Jönsson, Dept. of Animal Ecology,
University of Lund, S-223 62 Lund, Sweden

"Reversed" sexual size dimorphism, i.e. females being larger than males, is common in Scolopacid shorebirds. In a Dunlin population in south Sweden, females were found to be significantly larger than males on average. The difference was most pronounced in bill length and body mass. Furthermore, male bill length proved to be approximately 10% shorter when scaled to body mass^{0.33}.

In the study population, a pattern of disassortative mating was found, so that small, short-billed males and large, long-billed females nested earlier in the season than average-sized birds. In females there was in some years a positive correlation between time of arrival to the breeding grounds and time of egg-laying (i.e. large females arrived earliest). This was not found in males, so an active selection (by females choice?) for small, early-nesting males apparently takes place after their arrival. In the study area, males seem to be non-territorial and the females normally leave the family about a week after hatching.

Possible selective factors for the observed sexual size dimorphism in the Dunlin were discussed. In males, energy saving during flight display and brood attendance may select for small body size, while efficient feeding during the critical period of brood attendance in a purely terrestrial habitat, may attribute to the shorter bill. In females, large size may be selected for due to size dominance for mates and food resources during the pre-laying period. There may also be a selective advantage

for large females because they lay larger eggs which may produce more viable chicks. The selection for long bills in females may be due to a demand for efficient feeding in the marine, littoral habitat that is used during most of the year.

Evolution of clutch size in the Dotterel
Charadrius morinellus

John Atle Kalas and Lars Lofaldli, Directorate
for Nature Management, Research Division,
Tungasletta 2, N-7000 Trondheim, Norway.

An increase in clutch size from 3 to 4 eggs in a Dotterel nest, was estimated to increase the overall energy use of the single incubating Dotterel male by 16%. Based on these calculations, clutch size was experimentally enlarged to 4 eggs in 3 Dotterel nests, and effects on the physical condition (i.e. weight change) of the single incubating male and on the incubation schedules were measured. Birds in good physical condition when the experiment started (N = 2) showed a rapid reduction in weight and a reduction in nest attentiveness. This reduction in incubation constancy was caused by an increased number of periods off the nest, while the average length of these periods did not change. The male weights seemed to stabilize at about 10% weight reduction, and there was about 5% reduction in incubation constancy. Birds with poorer physical condition (15-20% < average) showed another incubation schedule (N = 2). These males had an even lower incubation constancy and left their nests for on average longer periods. An increase in clutch size of one of these nests did not alter the incubation schedule. All original eggs in the experimental nests hatched. These data indicate that the clutch size of the Dotterel (3 eggs) is evolved as a compromise between a high incubation constancy and the energetic demand of the single incubating male.

Nest defence and parental investment theory:
Variation in anti-predator behaviour of Golden
Plover *Pluvialis apricaria* and Dotterel
Charadrius morinellus

Ingvar Byrkjedal, Museum of Zoology, Univ. of
Bergen, N-5000 Bergen, Norway.

Nest defence behaviours were recorded upon controlled intrusions by man at 46 Golden Plover nests and 39 Dotterel nests in a study area on Hardangervidda, southern Norway. The occurrence of (presumably) risky, but more efficient, behaviour increased with date in Dotterel, and with day of incubation in Golden Plover. Models suggesting increased parental investment with a) decreasing re-nesting potential, and b) decreasing difference between parental and offspring survival with offspring age, may explain the variation in nest protection intensity in the Dotterel and the Golden Plover, respectively. In this Dotterel population the egg-laying season extends over 1.5 months, compared to 3-4 weeks in the Golden Plover population. Thus, the re-nesting potential is higher among Dotterels than Golden Plovers.

What causes changes in intake rate and prey selection of Oystercatchers *Haematopus ostralegus* during the breeding season?

Sjoerd Dirksen, Research Institute for Nature Management (RIN), Texel, The Netherlands, and Zoological Laboratory, University Groningen, The Netherlands

Research was carried out on Oystercatchers foraging on a mudflat area on Texel throughout their breeding season. Feeding observations were gathered of marked birds whose breeding performance also was followed. Cockles and mussels together formed over 90% of the food. Intake rates (mg AFDW/s foraging) of birds with eggs or young were the highest (3-4 mg/s). Data on foraging behaviour of birds feeding on 2-year old cockles show that these high intake rates are mainly the result of working harder by the Oystercatchers.

In the course of the season the birds selected for smaller-sized cockles and mussels. Throughout the season larger prey are more profitable than smaller ones. This problem can probably be solved when we take into account that the condition of bivalves increases in spring. Speakman has shown that Oystercatchers select, within a given size class, for mussels with small posterior adductor muscles. When mussels gain weight, this muscle grows as well. For Oystercatchers this probably means a growing risk to damage their bill, and a good reason to avoid the larger prey-sizes.

The effect of breeding effort and success on survival and pair bond in the Oystercatcher *Haematopus ostralegus*

Uriel N. Safriel, Department of Zoology, The Hebrew University of Jerusalem, Jerusalem, Israel and M.P. Harris, Institute of Terrestrial Ecology, Banchory, Scotland

It has been proposed that birds restrain their breeding effort in a current season so as to increase their chances of surviving to the next season, and thus maximize their overall reproductive success. Among the ca. 250 individually marked Oystercatchers *Haematopus ostralegus* that bred on Skokholm Island, Wales between 1963-1977, survivorship to next season increased with an increase in breeding effort of the current season, as expressed by the number of eggs laid (0-9), and young hatched and fledged (0-6 and 0-4, respectively). Thus, breeding effort and survivorship probability are indicative of the bird's quality; those that invest more are those that can afford it, without jeopardizing their future survivorship and overall success.

It has been proposed that pair-bond stability too is associated with breeding success. We found that only ca. 10% of the cases in which birds paired to each other at a preceding year and returned to breed, were divorce cases, but that the chances for a divorce increased with a reduction in the preceding season's breeding success. Yet success of first breeding after divorce hardly improved, and for females only. This is because divorced males remain tied up to their territories, whereas divorced females move around and may be more choosy.

There is some evidence that divorce is not an incidental by-product of reproductive failure, but a result of a specific assessment of breeding potential. We suggest that crucial elements of the Oystercatcher's breeding

behavioural ecology such as breeding effort and the maintenance of pair bond, are determined by the birds' assessment of their own and their mates' quality.

Intraspecific stealing in juvenile Oystercatchers *Haematopus ostralegus* feeding on Mussels *Mytilus edulis* on the Exe Estuary, South Devon, England

John T. Cayford, Department of Psychology, Washington Singer Laboratories, University of Exeter, Exeter EX4 4QG, U.K.

Juvenile Oystercatchers found few mussels and had low overall intake rates during their first month on winter feeding grounds. The rate they attacked conspecifics for mussels was twice as high as adults under similar conditions. Juveniles had low success initially but reached adult proficiency in 6 weeks. With experience they made more undetected attacks, rejected fewer mussels left by fleeing victims and became increasingly selective in their choice of victim. In late autumn a high proportion of kleptoparasitic attacks launched by juveniles were rebuffed by the victim. In addition, juveniles found themselves increasingly the victims of attacks as their skill at finding mussels independently improved. Stealing mussels may compensate juvenile Oystercatchers for poor foraging skills when they first arrive on winter feeding grounds.

Survival and breeding success in the Kentish Plover *Charadrius alexandrinus* in south Sweden

Paul E. Jonsson, Dept. of Animal Ecology, University of Lund, S-223 62 Lund, Sweden

The Kentish Plover has decreased markedly in NW Europe during the last 50 years. In south Sweden the species was formerly widespread and locally common, but today the population is down to less than 40 individuals on the south-westernmost tip of Scania. The Swedish population can be regarded as isolated, now that the nearest regular breeding sites are situated in SW Jutland, nearly 300 km to the west.

A population study of the Swedish Kentish Plovers has been going on since 1982 and a total of 38 adults and 32 young have been colour-ringed up to 1986.

The survival of adult birds, expressed as return-rates between two successive years, averaged 85.0% in males and 79.0% in females. In 1985, the return-rates were significantly lower than in the other three years, being 77.7% in males and 61.1% in females.

The recovery-(return-rate) after two or more years, of young Kentish Plovers, ringed as non-fledged pulli was 44.4%.

Breeding success has varied greatly between years. Hatching-rate was 0.9 young/adult in 1982, but down to 0.05 in 1983 and 0.17 in 1985. Intensive egg-predation by Red Fox *Vulpes vulpes* and Hooded Crow *Corvus corone* was the main reason for reproductive failure in the years 1982-85. A WWF-supported project aiming to save the Kentish Plover from extinction was formed in 1985.

Distribution and migration of Arctic shorebirds: the importance of stop-over places during spring migration

Thomas Alerstam and Paul E. Jonsson, Dept. of Animal Ecology, University of Lund, Sweden

A study of the transglacial bird-migration across Greenland (Alerstam *et al.* in press), focused the attention on the importance of Iceland as a stop-over and refuelling place for Nearctic waders and geese during their spring migration from Iceland to the Nearctic wintering grounds. As the distances from Iceland to the Nearctic breeding grounds is smaller than from corresponding spring staging sites in North America, we think distance may have been a key factor in the evolution of the observed migration pattern. However, staging sites probably have a dual effect as "spring-boards" and "bottle-necks", respectively, on the evolution of migration patterns. Gaps in the circumpolar distribution of arctic species, and a relatively low diversity of breeding species (as found around Greenland), may be due to competition for limited staging resources in combination with isolating effects (i.e. long distance to nearest suitable spring staging area).

In order to investigate if there is any relationship between the diversity of arctic breeding shorebirds and the proximity to spring staging sites, the number of breeding species in 30 different sectors along 70° N and in 5 distinct areas around 80° N, was correlated to the distance of the nearest known spring staging-area. The circumpolar diversity of breeding shorebirds along 70° N was found to be surprisingly even, with the exception of the sectors in West Greenland and the Eastern Canadian Arctic where the numbers of species dropped significantly. However, no correlation was found between the diversity of breeding species and the distance to the nearest spring staging area.

Do we know anything new about Dunlin migration?

Jadwiga Gromadzka, Ornithological Station, 80680 Gdansk 40, Poland

Two basic questions were presented: 1) the eastern border of Dunlin populations migrating through the Baltic, and 2) migration between the Baltic and the Mediterranean/Black Sea.

When migrating from the areas east of the Urals to wintering grounds, Dunlins regularly fly over Poland. They start their moult whilst breeding and show some plumage patterns easy to recognize: after the moult their new median coverts (usually only some of the feathers), are of "adult buff" type. This is characteristic of the Central and Eastern Siberia populations, which moult very early, when still on their breeding grounds. From the Baltic these birds do not regularly migrate to Western Europe, and so probably overwinter in the Mediterranean.

Some Dunlins from the Baltic migrate south-east in autumn. The origin of these birds is not known, but this south-east direction may be used by Polish breeding *Schinzii* Dunlins.

Some Dunlins ringed in the Baltic in autumn, have been recaptured in the Black Sea in spring. It seems they may migrate in autumn through the Baltic, to the Mediterranean, and in spring they pass through the Black Sea

towards their breeding grounds.

Not all the Dunlins spend each winter in the same winter grounds.

Heavy metals in autumn migrating Dunlins *Calidris alpina* and Curlew Sandpipers *C. ferruginea*, staging at Ottenby, Sweden

Sven Blomqvist, Ottenby Bird Observatory, Pl. 1500, S-380 65 Degerhamn, Sweden

The concentration of ten metals (Ca, Cd, Co, Cu, Fe, Mg, Mn, Pb, V and Zn) have been determined in liver and kidney tissues of Dunlin (n = 70) and Curlew Sandpiper (n = 28). Element associations were reported. Copper displays an age-related concentration decrease, whereas the opposite is true for cadmium. The mean biological half-life of renal cadmium in Dunlins has been estimated as about one year (with an implied maximum of 2.5 years). The potential of cadmium as a future environmental hazard to aquatic birds is addressed.

Foraging ecology of migrant waders in an artificial salt water lagoon in the Wadden Sea area

Arne Kiis, Game Biology Station, Kalo, DK-8410 Rønne, Denmark

During 1979-1981, a new dike was built across the Danish-German border enclosing Margrethe-Kog and Rickelsboller Koog (55°N 8°30'E). Formerly, the 1100 ha Margrethe-Kog was one of the most important breeding and resting areas for birds in the Danish part of the Wadden Sea. Therefore, the Danish Folketing (Parliament) decided to establish a salt water lagoon in Margrethe-Kog aiming to improve the living conditions of the natural flora and fauna. The lagoon was finished in spring 1984. It is circa 4.5 km by 0.3-0.8 km. The water surface covers about 225 ha while the rest of the 350 ha reserve is salt marsh. The water is shallow, 10-30 cm in most places. A biological monitoring program was established in order to obtain experience that could benefit the long-term management of the lagoon. The wader studies include prey choice and energy intake during the spring and autumn migration periods. The most important prey (in terms of energy) and the energy intake of the species studied during 1984-1985 were as follows: Oystercatcher *Haematopus ostralegus*: *Nereis diversicolor* contributes 96% to an energy intake of 521 ± 557 J min⁻¹ (x ± SD, n=40 focal birds observed, 108 min). Lapwing *Vanellus vanellus*: *Corophium volutator* contributes 98% to an energy intake of 215 ± 97 J min⁻¹ (n=25/32 min). Grey Plover *Pluvialis squatarola*: *N. diversicolor* contributes 54% (juv.)-71% (ad.) to an energy intake of 240 ± 274 J min⁻¹ (n=198/564 min). Curlew *Numenius arquata*: *N. diversicolor* contributes 83% to an energy intake for juveniles of 114 ± 181 J min⁻¹ and 94% to an adult of 482 ± 791 J min⁻¹ (n=87/238 min). Bar-tailed Godwit *Limosa lapponica*: *N. diversicolor* contributes 70% (ad. males)-84% (juv.)-96% (ad. females) to an energy intake of 196 ± 244 J min⁻¹ (n=90/193 min). Redshanks *Tringa totanus*: *C. volutator* contributes 59% to an energy intake of 249 ± 293 J min⁻¹ (n=55/113 min). Spotted Redshank *Tringa erythropus*: *Pomatoschistus minutus* and *Gasterosteus aculeatus* contribute 85% to an energy intake of 161 ± 227 J min⁻¹ (n=13/28 min), Greenshank *Tringa nebularia*: *N. diversicolor* contributes 55% to an energy intake of 286 ± 370 J min⁻¹ (n=15/11 min).

Wader foraging and benthic food production at a spring migration staging site in Morocco

Theunis Piersma, Zoological Laboratory, University of Groningen, P.O. Box 14, 9750 AA Haren, The Netherlands

The coastal areas between Oualidia and El Jadida along the Atlantic coast of Morocco are important refuelling stations for waders migrating between wintering areas in West Africa and north European breeding grounds. At an intertidal feeding area near Sidi Moussa (studied in March and April 1981 and 1982), the most important prey for waders was the ragworm *Nereis diversicolor*. Predation pressure on *Nereis* by waders was estimated in early April 1982 by three methods: 1) measuring actual intake rates (only feasible for Ringed Plovers *Charadrius hiaticula* and Grey Plovers *Pluvialis squatarola*, together responsible for at least a quarter of the total predation), 2) estimation from theoretical energy requirement times density, under the assumption that all food is collected on the study site, and 3) estimation of ragworm mortality due to waders, from the difference in mortality between areas with and without wader predation (outside and inside enclosures, respectively). The three methods give comparable estimates of predation pressure on *Nereis*: on average 0.2 g AFDW/m².day (range: 85 - 120% of average). This means that more than 1% of the average standing crop of *Nereis* is removed each day, and about 3% of the simultaneous production by somatic growth. Only because there was immigration by *Nereis* from the subtidal onto the intertidal area did the waders not deplete the food stock during the spring migration period (which lasts c. 100 days). Such a high predatory impact has seldom been shown in studies of shorebird-macrobenthos interactions. However, even with accurate figures for standing crop and production of benthos, in addition to figures on predation pressure of waders, we are still unable to decide whether food production limits wader predation. This leads me to propose a heuristic model in which the causal steps between benthic production and wader density are examined. It is suggested that measurements of 'production of acceptable prey' along with data of wader predation pressure, are required to find out if cumulative wader predation is limited by benthic food production.

Effects of shorebird predation on prey abundance in a tropical environment (preliminary results)

Francine Mercier and Raymond McNeil, Centre de recherches ecologiques de Montreal and Department de sciences biologiques, Université de Montreal, C.P. 6128, Succ. "A", Montreal, Quebec, Canada H3C 3J7

Preliminary results were presented for a study of the effects of shorebird predation on prey abundance in Chacopata Lagoon, northeastern Venezuela. Four enclosures were placed in an area extensively used by shorebirds and sampled each month from February to May, and July to December 1985, as well as in January and February 1986. A significantly higher density of invertebrates was found inside the enclosures as opposed to outside when all invertebrates were considered together, but not when prey groups (e.g., annelids, bivalves, amphipods-sipunculids) were considered separately. The seasonal variation in prey abundance and the seasonal impact of shorebirds on invertebrates were discussed. The detrimental effects of algal fouling of the enclosures were also commented upon.

Where in Africa do subadult Black-tailed Godwits spend the summer?

Albert J. Beintema, Rijksinstituut voor Natuurbeheer, Postbus 46, 3956 ZR Leersum, The Netherlands

Ringling recoveries of Black-tailed Godwits born in the Netherlands, show that adults perform a regular migration along the Atlantic coast to winter quarters in Senegal and Guinea-Bissau, with a stop-over in Morocco. Young birds generally do not return to Europe after their first winter, but stay in Africa through the summer. After their second winter in Africa, they turn up in southern Europe during spring migration, but not only in France (along the ordinary Atlantic route) together with the adults. A significant proportion of young birds also appears in Italy, where the adults are generally absent.

In Italy, most birds recovered are two years old, with a few one year old and three year old birds. There are no recoveries of older ones. In contrast, birds recovered in France are well distributed over all older age classes. Three year old birds are the most numerous and two year old ones are underrepresented. Thus, age distributions in France and Italy are complementary and it seems that the spring migration route through Italy is only used by those birds returning to breed for the first time.

The spring occurrence of subadult godwits in Italy may give a clue to where these birds have summered in Africa. One possibility is that after their first winter, birds move to Mali to summer. Consequently, they also winter in Mali and return home via Tunisia and Italy. Birds summering in Senegal/Guinea-Bissau will eventually return through France, like the adults. Little of this has yet been proven. Counts in Mali in March and August 1985 have not resulted in any sightings of ringed birds.

However, the route from Tunisia and Italy to the Netherlands has now been proven. In the spring of 1984, 1985 and 1986, 19 Black-tailed Godwits have been caught in Italy and 75 in Tunisia. These birds have been dyed. Five of these (one from Italy and 4 from Tunisia) have been sighted in the Netherlands shortly after ringing.

In West Africa, the problems remain to be solved.

Restoring inland shore meadows for breeding waders and other shore birds

L. Nilsson, Dept. of Animal Ecology, University of Lund, Sweden

Lake Kavsjon in Store Mosse National Park in south Sweden (57°17'N, 13°55'E) was once a famous breeding site for different wader species and a number of other wetland species. The main breeding areas were meadows of low grass and sedges *Carex* sp. formed on sandy areas opened up after lowering of the water level in 1840, the shore meadows being maintained by grazing and hay-making. The use of the shore meadows decreased from about 1940, and since 1960 no grazing was undertaken. The areas were invaded by *Myrica gale* bushes and high *Carex rostrata* vegetation. In 1975 attempts to restore the old type vegetation were started. The *Myrica* vegetation was cut, some areas were opened up by rotor cultivation and grazing was introduced into one area. The breeding bird fauna of the study plots were

censused before and after the restoration work. The short grass and the *Carex* vegetation spread over the newly opened areas. The mean number of wader-pairs increased from 9 to 12, and a steady increase from 1 to 7 pairs of *Motacilla flava* was noted. Breeding waders included *Vanellus vanellus*, *Gallinago gallinago*, *Tringa glareola*, *T. totanus*, *T. nebularia* (2 years only) and *Philomachus pugnax*. After 1980 habitat conditions deteriorated again due to higher water levels in the lake, but management work continues.

Does bird density affect the overwinter survival of juvenile Oystercatchers?

J.D. Goss-Custard, ITE, Furzebrook Research Station, Wareham, Dorset

Assuming the birds' behaviour is such as to allow it, the effect of removing inter-tidal flats for reclamation etc. will be to force birds to feed closer together, i.e. at higher densities. We therefore need to know how the density of foraging birds affect their ability to feed if we are properly to understand how the loss of winter habitat might affect wader numbers. The key groups to look at are the juveniles which are already most vulnerable in winter and whose survival directly affects the size of the next generation of adults. This field study on the Exe estuary showed that, as juveniles become more efficient at foraging on mussels during their first autumn and winter, they become increasingly vulnerable to competition from older Oystercatchers *Haematopus ostralegus*. By February, their intake rate decreased sharply as bird density increased. In winter juveniles feeding at the densities of birds already occurring on the mussel beds, suffered a reduction of over 40% in this intake rate because of interference from other birds. Were bird density to increase still further, the reduction in their intake rate would be even more severe. This would be expected to increase their winter mortality, and so reduce stable population size in the long-term.

Breeding ecology and population dynamics of the Curlew *Numenius arquata* in Finland

Juha Ylimaunu, Onni Ylimaunu & Ossi Hamminki, Mikkelin Laaninhallitus, PL 50, SF-50100 Mikkeli, Finland.

The breeding ecology and population dynamics of curlews were studied in Tornio, northern Finland (66°N) in 1982-85 and in Kauhava, western Finland (63°N) in 1983-85. Data came from 83 nests in Tornio and 84 nests in Kauhava. In total 64 adults and 120 young were colour-ringed in Tornio.

Curlews showed high fidelity to breeding sites: in Tornio and Kauhava 90% of territories were exactly the same as in the previous year, when both of the parents returned to the study area in the spring. All pairbonds between males and females were also the same as in the previous year when both parents returned to study areas. The annual survival calculated from return rates of breeding curlews was about 90% for 1982-85 in both study areas, except in spring 1985: in Tornio when less than 60% of colour-ringed adults returned. The lower return rate in 1985 may have been caused by very cold winter in Europe and cold spring weather in

Fennoscandia. In the spring 1985 many pairs did not lay eggs in Tornio study area.

Predators such as Red Foxes *Vulpes vulpes* and Hooded Crows *Corvus corone* were the main reason for nest losses in Tornio (30-80% of nests destroyed yearly). The nest predation was significantly lower in Kauhava where only 20% of nests were destroyed yearly. The hatchability of eggs was 94% in Tornio and 97% in Kauhava. Eggs produced an average of 1.6 hatchlings per pair in Tornio and 2.9 hatchlings per pair in Kauhava.

Egg dimension variability in the Ringed Plover *Charadrius hiaticula*.

P. Andell, Ecology Building, S223 62 Lund, Sweden.

Shorebirds, which have a determined clutch-size, cannot increase fitness by increasing the number of eggs when breeding conditions are good. Instead they are left with manipulating egg size and egg volume. Several factors might influence mean egg volume (i.e. food availability, predation or other risks of egg losses, time of season and female size).

71 clutches of the Ringed Plover were studied during the years 1983-85. Conclusions are drawn that mean egg volume is lower in poor years; that females lay increasingly larger eggs, at least to egg number three, so that eggs three and four are significantly larger than eggs one and two; that larger females do not lay larger eggs than smaller females, although larger females are the only birds to lay full clutches (four eggs) during poor years; that the coefficient of variation within clutches increases significantly with female size during poor years; and that large females lay earliest in good years.

Counts of waders and wildfowl in the Danish Wadden Sea.

Karsten Laursen and John Frikke, The Game Biology Station, Kalo, Denmark.

The Wadden Sea is one of the most important resting sites for the West Palearctic wader and waterfowl populations. Part of the area is in south-west Denmark, the remainder stretching through West Germany and The Netherlands. The total area is approximately 8000 km², of which one-ninth is in Denmark.

In 1980 the Game Biology Station began regular aerial counts of waders and wildfowl in the area. Once a month during high and low water waders, ducks and gulls were counted. The aim was to measure the importance of the Danish Wadden Sea to the most numerous species and their distributions in the area. All numbers given here are the average peak numbers between 1980-1983.

Peak numbers occur during autumn, in October, when there are about 400 000 birds, of which most are waders. Dunlin *Calidris alpina* reaches its peak numbers in September with 250 000 birds, and 100 000 are present in spring (April and May). Likewise the Oystercatcher *Haematopus ostralegus* is most abundant in autumn with 30 000 birds, but there are also 22 000 in spring. In contrast, Bar-tailed Godwits *Limosa lapponica* reach peak numbers in spring (40 000 in May), and there are only 15 000 present in autumn (August). Avocets *Recurvirostra avocetta* are also important, with 8000 birds present at one site.

Most dabbling ducks reach peak numbers in November, when there are 22 000 Shelducks *Tadorna tadorna* and 16 000 Mallards *Anas platyrhynchos*. Mallards are numerous also in spring, with 14 000 birds. Teal *Anas crecca* are most numerous in autumn (10 000 birds), with 40 000 Wigeon *Anas penelope* in October.

Amongst diving ducks 2 species dominate: Eider *Somateria mollissima* and Common Scoter *Melanitta nigra*. Most Eiders are present in January and February (35 000 birds) and in August and September (16 000 birds). About 8000 birds moult during June and July. Common Scoters peak in June with 30 000 birds.

The Brent Goose *Branta bernicla* is the most abundant goose, with peaks of 13 000 in May and October. 2000 Pink-footed Geese *Anser fabalis brachyrhynchus* occur in February.

Most Herring Gulls *Larus argentatus* occur in September (18 000 birds), but there are also large numbers in March (15 000 birds). The Common Gull *L. canus* is most common in September (18 000 birds), the same time of year as the peak of 12 000 Black-headed Gulls *L. ridibundus*.

PERSONAL IMPRESSIONS OF THE 7th 7TH INTERNATIONAL WORKSHOP ON THE ECOLOGY OF SHOREBIRDS, SWEDEN, MAY 1986

by Yaa Ntiamoa-Baidu

I was very uneasy about going to Sweden in view of the news about the nuclear accident in Russia and the levels of radioactive material and possible health hazards in Scandinavia. I arrived at the FBU Conference Centre, Hollviken at 12 midnight on Sunday 11 May, having left home at 7.30 am. The place was dark and very quiet, as expected, and it took us (the taxi driver and myself) some time to find the right block, where Per Andell was still awake and ready to receive late arrivals. He welcomed me warmly to Hollviken.

The workshop started around 9.30 am on Monday 12 May. The attendance was restricted, mainly to people from western Europe, the only outsiders being one person from each of Canada, Israel and Ghana. I expected a more worldwide participation. The first day was rather disappointing, since most of the invited speakers were unable to attend and a number of the papers presented lacked substance. The second and third day sessions were much more interesting, with some very good talks and useful discussions. Outside the formal sessions, participants showed keen interest in each other and were eager to exchange ideas about their work.

The excursion was certainly a long day; we left FBU at 5.40 am and did not get back until after 1 am the following morning, but the experience was worthwhile. For me it was very exciting because it was my first opportunity to see waders on their breeding grounds. I was particularly impressed by the displaying Ruffs. I will always remember the 1 km walk through the Vako bogs to see a single displaying Wood Sandpiper. I am still thrown into giggles when I picture the group standing in the wet fields all with their heads up, looking at a single black dot in the air; and afterwards the two Englishmen sitting on the rock wringing-out their socks. The 1.5 hours solemn wait in very cold winds beside Lake Horssjön for the Jack Snipe was another memorable experience. Any outsider encountering the group would have thought: "what a crazy lot!" At 10 pm, when it started to drizzle, four people (me included -

I was freezing!), gave up and went back to the bus. The others stayed, and soon afterwards, did hear the Jack Snipe. These two events certainly illustrate the characteristics of the group and bird enthusiasts in general: determination, perseverance and an amazing degree of enthusiasm which is not found in any other group of professionals. Keep it up!

To conclude, I will sum up my impressions as follows:

1. *The Swedish people* - very friendly and willing to help: from the people on the hovercraft on which I travelled from Copenhagen to Malmo (one lady even offered to take me home for the night because it was so late); to the taxi driver who would not leave me until he was sure that I had a place to stay; and the conference organisers, Per Andell and Paul Jonsson who made every effort to ensure that I enjoyed my stay in Hollviken.
2. *Sweden* - very neat, plenty of open spaces and well-kept gardens.
3. *FBU Conference Centre* - the accommodation and meals, although of "student boarding-house" type, were quite acceptable.
4. *The Workshop* - both very useful and educational, and offered an excellent opportunity to exchange ideas with people of similar interests. It is indeed the sort of meeting that all shorebird ecologists/biologists should make every effort to attend.

I would like to take this opportunity to congratulate the WSG/IWRB and all the individuals who organised the workshop, and to express my sincere thanks to the Royal Society for the Protection of Birds (RSPB) for providing the funds and the opportunity for me to attend the meeting as representative of the Ghana Government/RSPB/ICBP Save the Seashore Birds Project - Ghana.

Yaa Ntiamoa-Baidu, Zoology Dept., University of Ghana, Legon, Accra.