catcher enthusiasts amongst members will see in particular that after a mere 20 years the birds has finally moulted from an immature or non-breeding adult with a white neck-collar into a fully adult bird. Judging by its bill-shape, however, our Oystercatcher's feeding habitats seem to have remained unchanged since its days of youth.

The new emblem will gradually appear throughout the *Bulletin*, and on WSG letterheads and labels. It is particularly appropriate that the bird should finally reach its age of maturity at this time, since the WSG itself celebrates its 'coming-of-age' next year, when the group is 21 years old.

Nick Davidson

WADER STUDY GROUP ANNUAL CONFERENCE 1990.

LIDO DEGLI ESTENSI, ITALY

The 1990 Wader Study Group AGM and annual conference took place over the weekend of 4/5 October 1991 at the Hotel Conca del Lido in the Adriatic coast resort of of Lido degli Estensi, near Commachio in Italy. The meeting was attended by over 80 people from 13 different countries, and provided a great variety of interesting and exciting talks about wader work in many parts of the world. We were particularly pleased that five participants from the USSR were able to attend the meeting and present papers about their studies, as were members from Poland, Bulgaria and Hungary. Our discussions during the meeting have led to some very exciting plans for a future special WSG meeting in Odessa, Ukraine in spring 1992. More details about this will appear in the next Bulletin.

We also heard details from Hermann Hötker of this summer's highly successful international studies on the breeding waders and wildfowl of various parts of the Taymyr Peninsula. Further reports of these projects will also be published in future Bulletins.

A particular focus of the meeting was hearing the first results of the extensive East Mediterranean migration studies undertaken this spring co-ordinated by WIWO, the Netherlands-based wader studies foundation. It was particularly interesting to hear of the many exciting discoveries about this poorly understood flyway, and to compare how waders use this route with the better-known East Atlantic flyway. Abstracts of talks and posters from many of the presentations appear elsewhere in this Bulletin, and more detailed reports of the East Mediterranean project work are in preparation for publication in future issues.

At the Annual General Meeting a number of changes to the administration of the Group, and in the preparation and appearance of the *Bulletin*, were announced. Some of these improvements will be apparent already to anyone reading this far through the *Bulletin*, and all the changes are outlined by the Chairman, Mike Pienkowski, elsewhere in this *Bulletin*. At the conference there was a great feeling of excitement about future wader work and international co-operation, and the new opportunities developing for contact between western Europe and wader workers further east.

The conference was splendidly hosted by Nicola Baccetti, Fernando Spina, Alberto Massi and their colleagues of the Istituto Nazionale di Biologia della Selvaggina "A. Ghigi" in the comfortable surroundings of the Hotel Conca del Lido which provided large quantities of delicious food, and a spectacular storm blowing in from the Adriatic Sea a few hundred metres away to greet participants on their arrival. Our thanks to all involved in the organising of the meeting for their hard work in making it so successful.

Nick Davidson, on behalf of the WSG Executive Committee

ABSTRACTS OF TALKS AND POSTERS AT THE 1990 WSG MEETING

Spring tide counts in the Wadden Sea - a project to determine seasonal and long-term trends in numbers of Wadden Sea birds

Hans-Ulrich Rösner, Norbert Kempf & Peter Prokosch, WWF-Wattenmeerstelle, D-2250 Husum, FRG

Since 1987 we have been counting the Wadden Sea birds on about one-third of all high tide roosts in the Schleswig-Holstein Wadden Sea. The counts are carried out during the whole year at spring tide time (about every 15 days). About 30 observers are involved in each single count. The whole area was declared as a National Park in 1985 and this "migratory bird monitoring" is supported by it`s administration. The counting sites are representative for the whole area. Therefore the results can be compared with the results of complete synchronous counts, which are carried out internationally about three times a year.

The aims are:

- *to determine trends in numbers;*
- *to calculate totals at every time of year;*
- *to compare different areas; and*
- *to collect basic data for the evaluation of human influences.*

The poster presentation showed the counting sites and some examples of results.

Population fluctuations of migrating waders in inland Europe

Johannes Melter, OAG Münster, Biologische Station, Coermuhle 181, 4400 Münster, Germany

It is well known that for some species, especially sandpipers, the numbers of migrating birds resting at inland sites can differ greatly from year to year. For single sites it is often not clear if these fluctuations are a consequence of changes in the state of the habitat or if they do indeed represent changes in wader populations such as arise from variable breeding success.

The calculation of the total numbers resting at one site during a migration period is even more difficult than, for example, estimating the number of birds wintering in a region or migrating along the coast. There are many methodological problems and little previous data for topics such as length of stay and rates of turnover.

To provide more information on the inland migration of waders the data collected during the Wader Study Group "Inland Wader Counts" project have been analysed to assess possible population changes of some species on autumn migration over an 11-year period from 1979 to 1989. Data from a

number of sites were grouped into six geographical regions and the relative frequencies of each species per year and region were calculated.

Relative numbers of Ruffs *Philomachus pugnax*, Wood Sandpipers *Tringa totanus* and Curlew Sandpipers *Calidris ferruginea* varied greatly from year to year, but there were few correlations between the trends for different regions.

In contrast the relative numbers of Little Stints *Calidris minuta* on migration also varied from year to year, but consistently between regions. There were many correlations between the populations in different regions especially in central Europe. The graphs suggest that the populations fluctuate in 2-3 year cycles.

Despite the difficulties in calculating absolute numbers of birds migrating through inland sites, our analyses have show the value of the inland wader counts in giving an insight into the differing intensity of migration. Inland wader counts will therefore be continued in the form of a monitoring programme.

Social organisation in a breeding population of Spoon-billed Sandpiper Eurynorhynchus pygmaeus

Pavel S. Tomkovich, Zoological Museum of Moscow State University, Herzen St., 6, 103009 Moscow K-9, USSR

Studies of a colour-marked population of the Spoon-billed Sandpiper on Belyaka Spit, Chukotski Peninsula (67°05'N 174°40'W) in 1986-88 revealed that 63.6% to 67.6% of adults returned each year. Males, with one exception, established their territories in the same place each year. Territory size varied from 1.9 - 8.4 ha (mean 4.0 ha, n=32), but one pair occupied an area of about 13.3 ha. Territory boundaries varied between and within seasons.

When both members of a breeding pair returned in a subsequent year 71% (n=24) bred together again. Monogamous relationships are characteristic. Both parents alternately incubate their clutch. Non-incubating birds can feed both within and outside their territories, and sometimes feed in communal feeding areas. Females leave broods before males, most commonly when the chicks are 4.5-6 days old. Males usually accompany the young up to an age of 15-20 days.

However in the latest hatching broods only the males were found with the chicks from the day of hatching. In two cases a female accompanied its brood for longer than the male. During the few days after hatching the brood stay within or close to the male's territory. Later on the brood can move up to about 2 km from the nest before fledging. Agression of adults towards other conspecifics close to their broods probably prevents the exchange of chicks between broods.

The riddle of the Sands: why are migrant shorebird densities so high in southern estuaries ?

Dr Philip A R Hockey, Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Private Bag Rondebosch, 7700 South Africa,

The winter competition model predicts that, during the non-breeding season, waders should exert greatest pressure on their food resources at sites which are close to the Arctic and sub-Arctic breeding grounds. The rationale for this prediction is the assumption that the risks of long distance migration override the benefits of spending the non-breeding season at climatically benign sites far from the breeding grounds. As a corollary, the intensity of competition for food should decrease in proportion to distance from the breeding grounds.

However, on the east Atlantic seaboard, densities of waders at estuaries and coastal lagoons during the non breeding season increase with increasing distance from the breeding grounds, and interannual variability in numbers does not increase with increasing migration distance. Additionally, there is no evidence that survivorship decreases with increasing migration distance. A simulation model is use to examine the relationship of estuarine carrying capacity to the intensity and seasonality of predation by waders and to production invertebrates. The model demonstrates that carrying capacity of southern hemisphere estuaries, where peaks of predation and production coincide, is higher than that of their northern counterparts, where production and predation peak asynchronously. The carrying capacity of an estuary at 30°N is 70-75% of that of an estuary at 30°S.

The predictions of the simulation model and the empirical relationship between wader density and latitude suggest that waders at estuaries throughout the non breeding range occur at densities that are closely linked to carrying capacity, and there is no reason to expect a north-south gradient of decreasing competition for food resources.

Sexual differences in biometrics and moult of Grey Plovers breeding in West Siberia

Przemyslaw Chylarecki & Arkadiusz Sikora, Ornithogical Station, Nadwislanska 108, 80-680 Gdansk 40, Poland

Moult and biometrics of west Siberian Grey Plovers were studied on a sample of 45 breeding adults caught in spring 1990 on Sibiriakov Island, west Taymyr. Of these birds 84% could be correctly sexed using discriminant function derived from five external measurements. Males have significantly longer skull (=total-head minus bill), middle toe, total head and tail than females. This contrasts with results obtained from samples of migrating or wintering individuals, where no sexual difference in biometrics have been detected.

We suggest therefore that sexual selection may biased our sample of mated birds in favour of males with such body proportions. Pre-nuptial moult of mantle feathers occurs more often and is more extensive for male Grey Plovers than for females. Retrices were renewed by 91% of males and 45% of females before breeding.

Condition index and fledging success in meadow bird chicks

Albert Beintema, RIN, Postbus 9201, 6800 HB Arnham, Netherlands

A condition index for meadow bird chicks is introduced. The index is based on the assumption that a chick can easily lose body weight under bad conditions, but that it never can shrink. Thus, one might expect to find chicks that are too light or too heavy for their bill length. Assuming that bill length is a reliable age estimator, one can judge whether chicks are light or heavy for their age. The method was tested with recaptures of chicks of known age. There is a good relationship between 'true' condition (weight relative to true age), and "estimated' condition (weight relative to bill length). Standard expected body weights are introduced for each possible bill length, in a large sample.

The condition index of a chick encountered in the field is the ratio between its observed body weight and its expected body weight. Variations in condition index between years coincide between bird species, and seem to be related to rainfall in May. In wet years, the chicks are relatively heavier than in dry

years.

Most of the many thousands of chicks ringed and aged on their bill length in an extensive ringing programme between 1976 and 1985, must be dead by now. They have yielded a large number of recoveries. Fledging success can be estimated from age specific recovery rates. Fledging success also varies between years. Indications for relationships with condition index and/ or rainfall could only be detected in Lapwing.

Sightings of Slender-billed Curlew *Numenius tenuirostris* in the Balkan countries.

Dimitar Nankinov.

The first report of sightings of the Slender-billed Curlew within the Balkan countries belongs to the Italian traveller Count Luigi Ferdinando Marsigli (1726) who visited the banks of the Danube between the mountain Kalenberg and the the confluence of the Yantra River in 1682-83. Precise data on this bird however was only gathered after 1840.

Since then and up until 1987, there have been 766 recorded sightings of the curlew. Before 1900 they amounted to 312 individuals, between 1901 and 1950 another 45 birds, 1951 to 1975, 243 and after 1975 166. The highest number was between 1888-1900 and 1965-1979. The Slender-billed Curlew occurs in the Balkans throughout the year and is supposed to have nested around the lakes in Dobrudzha and Greece. Birds on migration constitute 25% during the summer, 24% during the summer, 42% in autumn and 8% in winter.

Migration was most marked in April, 14%, and July-October,66%. The greatest numbers converged in lakes and marshy land, situated along the banks of the Maritsa (150 specimens), along the Bulgarian Black Sea coast, in Dobrudzha, near Sofia, Mesologion, in Voivodina and elswhere.

Reproductive success of Kentish Plover *Charadrius alexandrinus* in two habitats.

Tamás Székely, Department of Zoology, Kossuth University, Debrecen, H-4olo, Hungary

Kentish Plovers breed in two types of habitat in Hungary, in alkaline grasslands and in the dry bottom of fish-ponds. Cluch size, egg measuements, incubation period and growth rates of chicks are compared between the two sites. Hatching success and fledging rates are lower in the man-made habitat (fish-pond) than in the natural one (alkaline grassland). In addition when predator pressure was tested by a field experiment, the risk of predation proved to be higher fro the fish-pond than the alkaline grassland.

Why, then, do Kentish Plovers breed in the bottom of fish-ponds at all? One hypothesis is that alkaline grasslands are in short supply, so some birds must accept the lower quality habitats. The other hypothesis is that Kentish Plovers are attracted to settling by the rich food supply of fish-ponds and they do not trade off a less apparent cost of high predation pressure.

Effects of military sound production on foraging waders in the Wadden Sea near Lauwersoog.

George Winterman, RIN-Texel, Postbus 59, 1790AB Den Burg, The Netherlands

From October until the 15th of December 1989 studies were carried out on the effects of military shooting practices in the Lauwersmeer area. This newly created military fiting range directly borders the Wadden Sea. Shooting practices lead to sound pressure levels on the tidal flat varying from 55 to 80 dB and therefore may have an effect on foraging waders.

• Densities of the foraging waders in the undisturbed and disturbed situations were tested. Only Curlews and to a certain degree Grey Plovers appeared to avoid or leave the foraging area under the influence of the sound produced on the firing range

The diversity of waders in the disturbed and undisturbed situation did not change significantly.

The time Curlews, Oystercatchers and Bar-tailed Godwits spent on the distinguished ways of behaviour and the intake rate (mg AFDW/s) in the disturbed and undisturbed situation did not appear to differ significantly.

Studies on the influence of sound production on the behaviour and food-intake of waders are limited by the difficulties that arise in defining the precise time spent on the distinguished ways of behaviour and the precise intake rates.

Waders and their feather mites (Acari: Astigmata)

Jacek Dabert, Department of Animal Morphology, Poznañ University, Szamarzewskiego 91 A, Poznañ 60-569, Poland

Feather mites are a group of arachnids, which live exclusively on birds, primarily in the plumage. These strange conditions are reflected very strongly in morphology, biology and evolution of these mites. As common with highly specialised parasites, their course of evolution can follow or be parallel to the evolution of the host. Almost 9,000 species of recent birds have characteristic feather mite fauna.

In wader plumage can be found specific and characteristics pertaining only to these individual species and showing phylogenetic relationships between host.. In fact, some phlyogenetic relationships between waders correspond largely to phylogenetic relationships between mites. *e.g.* European species of *Tringa* genus and their quill mites of *Syringobia* genus.

Sometimes feather mites confirm one of the hypothesis referring to phylogenetic relationships among birds. This is the case of sandgrouse, Pteroclididae being included to Columbiformes not Charadrii or the case of Burhinidae being included to Charadrii not Gruiformes. Mites can also support the less popular hypothesis *e.g.* including Jacanidae to Ralli not to Scopopaci. However there are examples which negate such evolutionary parallelism *e.g.* acarofauna of Common Sandpiper, *Actis hypoleucos* or mites of woodcocks *Scolopax*. In this case we probably have to do with partial or complete invasion of mites from one bird taxon to another. It seems that feather mites could be useful to parasitophyletic studies of wader phlyogenesis but we must use this method with great care. Cases of adaptative convergence, mite exchanges between birds and accidental contamination can lead to false conclusions.

Habitat preference and breeding success of the Black-Winged stilt *Himantopus himantopus* **in Italy.**

R. Tinarelli

Data on annual fluctuations of the number of Black-Winged Stilt breeding pairs in 13 different types of habitat, has been gathered during a monitoring programme on the breeding population in Italy from 1983 to 1987.

Information on the breeding success (ratio between total number of fledged young and total number of breeding pairs) and average number of young per pair tending young (ratio between total number of fledged young and total number of successful breeding pairs) collected in 1984-88 period are analysed, pooling the data of different localities and years for the same type of habitat.

Migration of waders between the Baltic and the Mediterranean.

Jadwiga Gromadza, Ornithological Station, 80-680 Gdansk 40, Poland

Most wader species migrating through the Baltic are also present in the Mediterranean in migration time or in winter. During the autumn they cross Europe in south/west, due south and south/east directions.

This last direction is used by at least 11 wader species. During spring they reach the eastern coast of the Mediterranean and also the Black Sea coast. Some of these birds belong to the Scandinavian breeding populations the majority of existing data is for Little Ringed Plover, Little Stint, Ruff, Wood Sandpiper and Red-necked Phalarope) Their wintering places are not known (Arabia?). Dunlin using this route seem to be of Siberian origin: starting from their breeding grounds they migrate first along first along the East Atlantic Flyway and in the Baltic area they turn towards the Mediteranean. Wintering in Arabia is also probable.

Some Dunlin migrating through the southern Baltic during autumn use another route during spring (loop migration). These Dunlin spend their winter in the Mediiterranean and pass through the Black Sea returning to their breeding grounds in northern Siberia. The loop migration is also evident for Ruff and probably for other species.

Analysis of variance as a statistical method for analysing birds count results.

Ralph Tiedemann, Institute of Biology, University of Iceland, Grensásvegur 12, IS-108 Reykjavik, Iceland

Results from bird counts are usually not statistically analysed, though the possibility of biases due to counting errors or high turnover rates cam make interpretation difficult. Here, a method is presented whereby counting results may be analysed by using a two-way analysis of variance on data which were transformed by a square root transformation.

Using the method in migration studies statistically significant differences in seasonal and annual (spatial) migration patterns can be detected. The method assumes that the counts are standardised and the results are POISSON-distributed, at least for short distinct periods. The latter may not always be the case, but it can easily be tested by a KOLMOGOROV-SMIRNOV test on the transformed data. Applications of the method are demonstrated for wader maigration studies in south-east Iceland.

The production of DNA probes specific for bird mitochondrial DNA and their intended use in genetic population studies on Calidrine sandpipers.

Ralph Tiedemann, Institute of Biology, University of Iceland, Grensásvegur 12, IS-108 Reykjavik, Iceland

Restriction Fragment Length Polymorphism (RFLP) analysis on mitochondrial DNA is increasingly used in population studies. A brief description of this method is given. Usually specific DNA probes are required. Here, a method is described how to isolate mtDNA from poultry which can be used as such a probe. The mtDNA can be cloned into a plasmid or bacteriophage Lamda vector which is introduced into *Escherichia coli*-cells in order to produce larger amounts of the probe.

Homology in the mtDNA of birds is supposed to be enough to make such probes suitable for probing any bird's mtDNA. Here, the probes are to be be used for inter- and intraspecific genetic studies on caladrine sandpipers of different geographic origin. Appropriate sampling methods are described. Anyone who may be able and willing to support this project by sampling blood (or occasionally tissue) of *Calidris*-species is kindly asked to contact the author for further information. Equipment for blood taking and storing will be sent to anyone upon request.

Annual energetics of Knots: expenditure and intake studies

Theunis Piersma, NIOZ, Den Burg, Texel, The Netherlands.

The different subspecies of Knot *Calidris canutus* show a fascinating range in their wintering sites, and therefore wintering climates. For the two subspecies frequenting Europe, the *canutus* subspecies winters in tropical west Africa, whereas the *islandica* subspecies winters in temperate west Africa. A small step in understanding the evolution and maintenance of these two migration strategies would be to make an energetic comparison of the two. Our studies aim to empirically describe the changing energy expenditure and intake rates these to concurrent body mass changes. Growing and declining, and sometimes adaptive, fat and protein reserves accomodate the daily energy gains and deficits. The building of empirical models hierarchically incorporating the various factors affecting energy expenditure and intake, should eventually also allow the exploration of the energetic limits to Knots' distribution.

Living exposed and in the cold: thermostatic costs of Knots.

Popko Wiersma

Wintering on the open mudflats, Knots have little opportunity to hide away from the elements. Knots are fairly small birds, and with a lower critical temperature of 20°C the birds wintering in western Europe usually incur energy costs for thermoregulation. For these northerly wintering Knots thermostatic costs are likely to contribute significantly to the daily energy budget. How large are these costs, and how do they vary in the course of the northern winter? Could thermostatic costs limit the northerly wintering distribution? My contribution provides a field approach using heated taxidermic mounts calibrated under laboratory conditions.

Fattening of Knots: a gourmet in Spring?

Ingrid Tulp & Yvonne Verkuil

The long flights between the spring staging posts force Knots to store large energy reserves before take-off. This must entail a substantial increase in the daily intake rates. Spring in temperate tidal flats shows many changes in the behaviour, condition and depth distribution of the benthic mollusc prey of Knots. In spring 1989 we studied the feeding of Knots at two staging sites. In February-April we examined *islandica* population at Texel, in the Netherlands, as they prepared for their flight to Iceland and northern Norway, and in May we intercepted

the *canutus* population during their stay in Schelswig-Holstein, west Germany, en route to Siberia. We wondered whether: (1) intake rates do indeed increase in spring, (2) the benthic species making up the Knots' diet show corresponding and favourable changes in availability, and (3) any increases in daily food intake were due to increases in the birds' effort or to improving food availability.

Nest site selection by Avocets *Recurvirostra avosetta* and Black-winged Stilts *Himantopus himantopus* in a mixed colony.

José J Cuervo, Estació Biológica de Doñana, Apdo. 1056, Sevilla, Spain

I examined nest site selection in a mixed colony of Recurvirostrdae during the breeding period (end of April to the end of June) in 1989. It took place in Guadalquivir Marshes (S.O.Spain) in the area called "La Esparrago-silla" (Isla Mayor, Seviile, Spain).

Colony size was over 350 pairs, about half of these were Avocets *Recurvirostra avosetta* and half Black-winged Stilts *Himantopus himantopus*. The colony was located beside a spit in the middle of a brackish pond, with water levels artificially controlled, *Arthrocnemun spp* was the dominat vegetation.

For each nest I measured internal diameter, external diameter, height, distance to water, distance to vegetation, vegetation cover in 1m area around the nest-site, and its exact location in the colony, so I knew distance to spit, to centre of colony and to nearest nests.

I found signicant differences ($p<0.001$ Student's t) for several of the above mentioned parameters between Avocets and Stilts. For example, Stilt nests were higher, narrower (their external diameter), and closer to the water than the Avocet nests.

Phenology of waders in the salinas La Tapa (Cadiz Bay), south west Spain.

F Hortas, Laboratorio de Biologica Marina, Dpto. de Fisiologica Biologica Animal Facultad de Biologica, Universidad de Sevilla, Apartado 1095, Sevilla E-41080, Spain

This work shows the importance of the Salinas La Tapa, 36°36'N, 6°13'W, in the Bay of Cadiz, south-west Spain, with regard to the waders in the East Atlantic Flyway. From the wintering data for the Bay and comparing them to the ones of the Salinas with some 10% of the wintering birds (30 000 waders).

The study area was carried out from December 1985 until January 1990, with 103 census. The phenology and status of the twenty seven species observed are considered, we refer more specifically on the fourteen most representative species. The analysis of the total numbers shows that the wintering and the post nuptial migration are the most important events. There are four species which are outstanding for their dominancey, with Black-tailed Godwit *Limosa limosa* as the most important one.

With regard to wintering, the following species stand out *Recurvirostra avosetta, Charadrius hiaticula, Charadrius alexandrinus, Pluvialis squatarola, Calidris alpina, Limosa limosa* and *Tringa totanus*.

The pre-nuptial migration is important for *Charadrius hiaticula, Pluvialis squatarola, Calidris canutus, Calidris alba, Calidris minuta* and *Calidris ferruginea*. Finally, in the post nuptial migration stand out *Himantopus himantopus, Recurvirostra avosetta, Charadrius hiaticula, Charadrius alexandrinus, Calidris alba, Calidris minuta, Calidris ferruginea* and *Limosa limosa*.

Some information about the use of salines and marine cultures by wintering shorebirds in Cadiz Bay, southern Spain.

A. Perez-Hurtado & F. Hortas, Laboratorio de Biologica Marina, Dpto. de Fisiologica Biologica Animal Facultad de Biologica, Universidad de Sevilla, Apartado 1095, Sevilla E-41080, Spain

Cadiz Bay, recently declared Natural Park, it's an important area for the wintering waders in southern Spain, 30,000 birds.

The geographic position in the East Atlantic Flyway and the presence of different habitats (mudflats, estuaries, salines and marine cultures) allow the support of these bird numbers. In recent years these habitats have come under threat by human activities, now intertidal mud areas are transformed to bivalve cultures and the traditional salines are reclaimed to modern salines.

So, the importance of the salines and marine areas could be increasing for waders. In this work we show some preliminary results about how the shorebirds use the saline and marine areas. In general the birds use these areas to feed and roost, 70% of birds feed in the salinas at low tide. But the work shows that not all the birds use the habitats to feed in the same way or at the same point of the tide. Some implications in relation to energetics requirements, morphological adaptations and possible availability of the prey are discussed.

Information about the diet of the Redshank, *Tringa totanus*, feeding in traditional salinas of Cadiz Bay, south west Spain.

A. Perez-Hurtado & F J Garcia Garcia, Laboratorio de Biologica Marina, Dpto. de Fisiologica Biologica Animal Facultad de Biologica, Universidad de Sevilla, Apartado 1095, Sevilla E-41080, Spain

A study about the diet of the Redshank, *Tringa totanus* during the winter, 1989, was carried out on the traditional salines of Cadiz Bay, south west Spain. This type of salines are being reclaimed for other uses and is a habitat used by the Redshank for alternative feeding areas.

180 Redshank pellets were collected from two feeding grounds for further analysis the work shows size differences between the two pellet groups in relation to the differnt prey composition. The main prey types selected were *Hydrobia ulvae*, Chironomidae larva and Epphidridae. The percentage occurence of each prey species in the pellet depended on the feeding ground. In one of them the prey selected were *Hydrobia* (66.66%) and Chironomid larva and Ninfa (100%) and in the other feeding area were also *Hydrobia* (100%) and *Ephidrida* (80%). Some implications in regard to the prey selection, prey availability and preference are discussed.

Results of a survey on wader spring migration in Italy, (March - May, 1990).

L.Serra, L.Casini, M.Della Toffola, A. Magnani, A.Meschini, R. Tinarelli.

The results of a survey on wader spring migration in Italy contemporary with the Eastern Mediterranean Wader Project organised by WIWO are reported.

During the months of March, April and May, 1990, weekly counts were made in four sample areas, ricefields near Vercelli in Piedmont, settling ponds of two sugar factories near Bologna in Emilia-Romagna, saltpans of Cervia in Emilia-Romagna and saltpans of Tarquinia in Latium.

Monthly counts were made also in other coastal wetlands. Migration patterns and quantitative trends for the most abundant and the less known species are analysed.

Continuity or adventure- Avocets in Portugal and Senegal

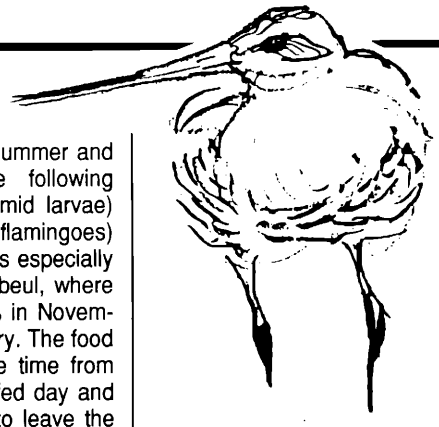
Sabine Dietrich, Anne Segebade, Bundesstr. 26, 2251 Hattestedt, Germany.

Hermann Hötker, Adolf-Brütt-Str. 37, 2250 Husum, Germany

Sightings of colour ringed birds show that Avocets from the Wadden Sea may spend their winter as well in the Tejo estuary in Portugal as in the delta of the river Senegal in west Africa. Both wintering sites differ fundamentally in habitat structure and stability of the food supply.

In the Tejo estuary the c.10,000 Avocets wintering on the site find a very stable and diverse food supply each year with a minimum biomass of about 6g AFDW/m². The feeding activity on the mudflats is ruled water after the rainy season in summer and they then dry out until the following February. Prey (mainly Chironomid larvae) and predators (waders and flamingoes) concentrate in a few sites. This is especially the Réseve du Faune de Guembeul, where the salinity increased from 5.2% in November to 16.0% at the end of January. The food biomass decreased in the same time from 4.2 to 0.12 AFDW/m². Avocets fed day and night on the lagoon. They had to leave the region by the beginning of February. Due to insufficient rainfall there is not any suitable habitat available in some years. Colour-ringed Avocets from the Waddensee were under represented.

The hypothesis that the Avocets reached the carrying capacity of the Tejo estuary is discussed.



List of Members-
changes since Bulletin 58

NEW MEMBERS

SWETS SUBS. SERVICE, PO Box 8452160, SZ LISSE, Netherlands.

K OSBORN, 20 Nederdale, Lerwick, Shetland, ZE1 05A, UK.

G O KEIJL, Stephensontraat 15/11097, BA Amsterdam, Netherlands.

J BLEW, Theenrade 2w-2323, DERSAM, Germany

J ELFRINK, Oude Doesburgseweg 446901, HK Zevenaar, Netherlands.

L CASINI, Via F. Casadei, 3097037 Rimini, (FO) Italy.

K KRAVOS' via Fornace 1,Trieste, Italy.

P UTMAR, Largo Mioni 334137, Trieste, Italy.

D PIACENTINI, Via San Marco 1531031, Caerano, San Marco (TV), Italy.

R JESSOP, 14 Myrtle Grove, Altona, Australia 3018.

P DANN, Riverbend ,Bass Highway, Bass, 3991Victoria, Australia.

P DE GOEIJ, Semarangstraat 31 hs,1095 GB, Amsterdam, Netherlands.

H FABRITUS, Oost-Myzen 61633 WB, Avenhorn, Belgium.

A DIDYK, 106-780 Montgomery St, Fredericton, New Brunswick, Canada E3B 2Y1.

J BROWN, 210B Woodward Hall, University of Rhode Island, Kingston RI 02881, USA.

L BRUINZEL, Donderslaan 219728 KN, Groningen, Netherlands.

Y VERHUIL, Dageraad 11797 SK, 9t Hornte, Texel, Netherlands.

CHANGE OF ADDRESS

R A CADMAN, 57 Greenways, Over Kellet, Carnforth, Lancashire LA6 1DE, UK.

R A EADES, 28 The Stray, South Cave, Brough, N Humberside, HU15 2A5, UK.

NATIONAL ENVIRONMENTAL RESEARCH INSTITUTE, Kalo, DK-8410 Ronde, Denmark.

N GROEN, Paardenkamp 491541, XN Koog aan de Zoon, Netherlands.

P S THOMPSON, Dept Biological Sciences, Science Laboratories, University of Durham, Durham DH1 3LE, UK.

K OOSTERBEEK, Bosgonw 2671352, GX Almere, Netherlands.