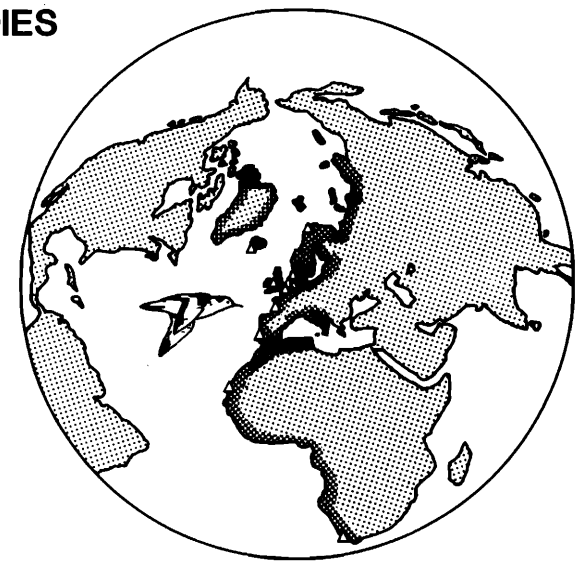
INTERNATIONAL WADER MIGRATION STUDIES ALONG THE EAST ATLANTIC FLYWAY DURING SPRING 1985



FINAL ANNOUNCEMENT OF A WADER STUDY GROUP PROJECT

INTRODUCTION

A great deal of information has accumulated in recent years about wader migrations along the East Atlantic Flyway. (This Flyway covers birds migrating to and through western Europe, in some cases onward to western and southern Africa - see Figure 1). Much of this information has come from ringing recoveries and counts of birds. Identification of sites at which waders occur is vital in developing effective conservation strategies, as well as in providing information to help in understanding many basic aspects of wader biology. Many studies, including expeditions to remote areas of great importance to waders (e.g. the Banc d'Arguin in Mauritania, and the Archipelago dos Bijagos in Guinee-Bissau), continue to expand and refine our knowledge.

Despite this wealth of knowledge, there is surprisingly little known about how, during a single migration, waders use the network of sites available to them as stopovers. Such information (e.g. whether a bird uses a network of many sites, or whether it uses only a few sites and flies non-stop long distances between them; which sites are used; and whether all members of a species use the same sites) is essential in understanding and conserving migrant birds.

A major reason for the lack of such information for any bird species has been the great difficulty in obtaining it. This results largely from the very fact that many birds do migrate long-distances. To gather such information therefore needs co-ordinated observations spread over a wide geographical area. To add to the difficulty, many important areas used by these birds are inaccessible and seldom visited. Despite these difficulties, waders are useful birds in which to study these problems, as they are relatively easy to observe because of their use of open habitats; and because they are restricted to a limited number of, mainly coastal, sites. This dependence on these sites, which are vulnerable to human activity, also makes work on these birds directly useful for conservation.

The first major wader migration study to be organised internationally was the 'WSG Project on the Spring Migration of Siberian Knot' (Dick 1979). This yielded much important information on the timing of migration, and use of specific sites, by Siberian Knots *Calidris canutus* during their northwards migration from southern and western Africa. Knots use relatively few stopovers, migrating long distances between them. Despite this, there are still gaps in our knowledge of their migration system. There is very little comparable information on other waders (Davidson 1984).

The Siberian Knot project demonstrated that wader migration studies on an international scale could be successful and produce valuable scientific results. Indeed, without such co-operation the pattern of movements of long-distance migrant waders could not be worked out. The project has been the impetus for other co-operative WSG projects, although on a smaller geographical scale, such as the Movements of Wader Populations in Western Europe (Pienkowski and Pienkowski 1983) and the Spring Migration of Waders through Western Britain in 1984 (Ferns and Moser 1983). These studies have further refined the techniques appropriate for such investigations.

During spring 1985 research groups will be active at sites important for waders throughout the coastlines of western Africa and western Europe (see Figure 1). These groups plan to study various aspects of the northwards migration of subarctic and arctic breeding waders. Such an extensive network of skilled research workers offers an unprecedented opportunity to answer many of the crucial questions about how waders migrate along this flyway; questions relevant to the conservation of coastal wetlands as stop-over sites for migratory waders. An opportunity on this scale to assess how waders use a flyway during a single migration has not arisen previously; nor is it likely to arise again in the near future. The Wader Study Group (WSG) has therefore initiated the project described here. The project will co-ordinate work on the international aspects of wader migration and will provide links between the different research projects, and other observers. The organisation and membership of the Wader Study Group places it in a unique position to make such co-ordination. We must stress that the WSG is not involved in organising or funding the individual studies; rather it is concerned with those aspects of the work that can be studied only by co-operative work over large distances.

Figure 1. Coastal sites along the East Atlantic Flyway (shown shaded) at which intensive wader migration studies are planned for spring 1985. Numbers refer to those in the text.

WSG has approved the use of its name by the studies listed later in this announcement: such use means that the groups involved have agreed to participate in the international project. Any other research groups or expeditions wishing to participate should note that they need approval from WSG before they can use WSG name in association with their project. Any such groups should contact the WSG Co-ordinator, Theunis Piersma, as soon as possible.

This international study will lead to a detailed description and analysis of the timing and pattern of spring migration of coastal waders from their African wintering grounds to their sub-arctic and arctic breeding grounds during one spring season. This in turn will establish more precisely the importance of the chain of wetland sites for the survival of waders during their migration.

In this main announcement of the project, we give details of the species that will be studied during spring 1985, the organisation of the project, the methods and techniques of study to be used by the major participating groups, the main groups involved, and how other observers can help.

METHODS

The methods used during the various studies that will be in progress during spring 1985 will depend partly on the particular research aims of each group. However, to collect information for the international project standard methods are needed. These methods, agreed by the main participating groups, are described below.

Counts

Regular counts of the numbers of waders at various sites along the flyway will help greatly in interpreting the timing of migration at each site. The method was used successfully in the earlier co-operative WSG projects organised by Dick (1978) and Ferns (1978). Comparison of counts from different latitudes can produce clear pictures of the timing of northwards migration: see Dick (1979) for Siberian Knot. Trials at the Severn Estuary, U.K. (P.N. Ferns pers. comm.) have shown that counts should be made at least every 5 - 7 days to detect the major migratory influxes and departures of birds.

Dye-marking, ringing and measuring

The catching of waders is planned at most of the major study sites. Ringing and measurement of body size gives general information about the breeding and migratory origins of the birds, both from the recaptures of ringed birds generated by these studies, and comparison of body size with those of known populations. To determine accurately the origins and body size of waders several body size measures are often needed: wherever possible 4 body size measures (wing length, bill length, total head length and tarsus-plus-toe length) should be taken as

standard. Tarsus-plus-toe length is emerging as a good measure of body size for waders. It is measured with a wing-rule, by placing the 'knee-joint' of the leg, bent at 90°, against the stop of the wing-rule, and measuring the maximum length to the end of the underside of the longest toe (but not the toe-nail) - see Figure 2.

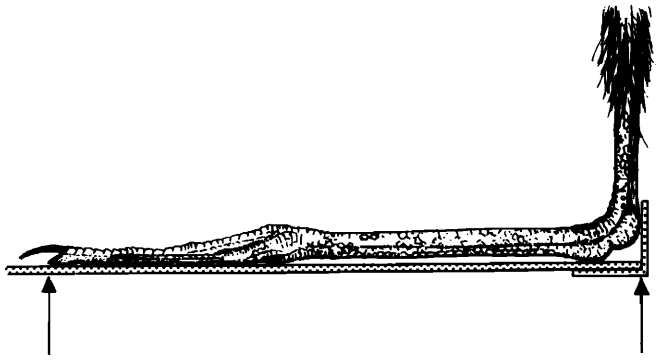


Figure 2. The method of measuring the tarsus-plus-toe length in waders.

Measuring accurately the body weight (mass) is also very important. Record also the time of weighing in relation to the time of capture, so that mass loss after capture can be allowed for. Body weight, especially in conjunction with the measures of body size listed above, is a vital tool for assessing migration strategy. It allows assessment of arrival and departure condition, and potential flight ranges (for details of the methods, see Davidson 1984).

Dye-marking (with various colours of plumage dyes) is a powerful way of identifying sequences of sites used during one migration, since it provides a means of identifying the origins of birds without having to catch ringed individuals. Dye-marked birds are highly visible on estuaries, and have been used very successfully in previous studies of wader movements (Pienkowski and Pienkowski 1983, Ferns and Moser 1983).

Much dye-marking is planned for the Banc d'Arguin, Mauritania, the area of departure of many of the birds that may be seen subsequently further north. Dye-marking is planned also in Portugal, France and West Germany. Since most waders moult their body plumage during early spring, dye-marks on the body can disappear rapidly at this time. Dye will be applied mostly to the non-moulting parts of the body (wing-bar, underwing and tail). On some major estuaries in western Britain extensive dye-marking (on the body) will take place as part of the WSG/BTO West Coast Spring Passage project (Ferns and Moser 1983), which forms part of this international project in 1985. Several of the major studies will use dye-marking in studies of population turnover (see *e.g.* Kersten *et al.* 1983, Moser and Carrier 1983). These studies will use coloured leg-flags, in addition to the dye-marks. Projects using dye-marks will be informed of the details of the marking scheme that has been agreed with the WSG Colour-marking Register. We must stress the importance to a complex study of this nature of adhering to the marking scheme precisely, so that overlap of marking schemes and consequent confusion over identities of dye-marked birds does not occur. Equally, if anyone else is hoping to use dye-marks on waders on the flyway during spring 1985, but has not registered their scheme with WSG they should contact the WSG Colour-marking Register immediately.

Observations of marked birds

Observations will be made during all the intensive studies; they will be valuable also elsewhere from all parts of the flyway. For the purposes of this project we need simply sightings of colour-marked birds. The most important procedure is therefore to check sites regularly for marked birds. (Detailed counts and proportions marked, as needed in some previous projects *e.g.* the Movements of Wader Populations in western Europe (Pienkowski and Pienkowski 1983) are not essential for this project.) Checks for marked birds are often best made when birds are concentrated by the tide onto feeding areas near the top of the shore. Anyone seeing a marked bird, should note particularly the colour(s) and position(s) of any dye-marks, and the colour and position of any leg-flags (or other marks). Dye-mark colours will include probably yellow, green, blue and pink. Precise description of dye-mark position(s) is very important. Positions may include breast, belly, under-tail coverts, tail, upper-wing and under-wing. More than one position may be dyed on a single bird. Sightings should be sent as usual to the WSG Colour-marking Register (*Dr. D.J. Townshend, Department of Zoology, University of Durham, South Road, Durham DH1 3LE, U.K.*).

Observations of departing flocks

Compass bearings of departing flocks have proved very helpful in interpreting the migration pathways of Knots, in particular the role of different staging areas for the Nearctic and Palearctic breeding populations (Dick 1979, Prokosch in prep.). Departing wader flocks are often very conspicuous in spring. Birds tend to call loudly before and during flight. Birds often depart by first spiralling upwards, and then flying in a fairly straight line whilst often still gaining height. For this reason, departing flocks should be followed for as long as possible to ensure an accurate compass bearing. Note that the compass bearing you take when watching a departing flock can depend partly on your position relative to the starting position of the flock. We suggest that observers try to note compass bearing, time (also in relation to high tide) approximate height of departing flocks, and estimated distance over which the flock was watched.

PROJECT DURATION

Most work for the project will occur during the main period of spring migration on the East Atlantic Flyway, between 1 April and 10 June 1985. Colleagues at both ends of the flyway (South Africa, Mauritania, and the U.S.S.R) may be making observations some weeks before and after the main period of the study.

TARGET SPECIES

About 19 different wader species migrate along the East Atlantic Flyway (Engelmoer 1982). Even with the level of effort planned for spring 1985 we cannot make detailed studies of all these species in one season. To attempt to do so would risk vital information being missed because different groups have concentrated on different species. To avoid this we plan to make detailed study of 6 species: Ringed Plover *Charadrius hiaticula*, Grey Plover *Pluvialis squatarola*, Knot, Sanderling *Calidris alba*, Dunlin *Calidris alpina*,Bar-tailed Godwit *Limosa lapponica*. The current knowledge (or its absence) is summarised below. It should be emphasised that this understanding is based largely on reports of ringed birds between years: almost nothing is known of how waders migrate between sites in a single season (Davidson 1984).

Ringed Plover
Breeding populations in temperate Europe overwinter usually at or near their breeding grounds, but northern breeding populations from the Nearctic, northern Europe and western Siberia are thought to migrate to West Africa (Taylor 1980). Little is known of their spring migration (Ferns 1980a).

Grey Plover
Birds using the East Atlantic flyway breed in arctic U.S.S.R. and overwinter along the coasts of temperate Europe and West Africa (Engelmoer 1982). Some birds move from north-east England to the German Wattenmeer in spring (Pienkowski and Evans 1984), but otherwise very little is known of their spring migration system.

Knot
Two breeding populations use the flyway: the north-east Canadian/Greenland (Nearctic) population *C. c. islandica* which winters around the North Sea, and the Siberian population *C. c. canutus* which winters around the West African coast as far south as South Africa (Dick *et al.* 1976). In spring Nearctic Knots migrate from estuaries on the west coast of Britain and the Schleswig-Holstein Wattenmeer (Morrison and Wilson 1972, Wilson 1981, Prokosch in prep.). The Siberian population migrates northwards from (mainly) the Banc d'Arguin, Mauritania. Some birds are known to alight in the Vendee (France), Schleswig-Holstein and northern Norway (Dick 1979, Haland and Kalas 1980, Prokosch in prep.). Knots usually make only a few long-distance flights during their spring migration, but although comparatively much is known about the spring migration of Knots, much of this comes from ringing recoveries and interpretation of body sizes. In particular, the roles of the Banc d'Arguin and northern Norway in the spring migration system are very little known.

Sanderling
Birds from breeding areas in both Greenland and Siberia are thought to overwinter in Europe and West Africa. However neither recaptures of ringed birds nor measurement data have enabled the winter and spring distribution patterns of the 2 populations to be established. There is some evidence that Sanderlings, like Knots, migrate in very long flights (Davidson 1984) but with probably less clearly defined premigratory fattening areas in spring (Ferns 1980b, Clark *et al.* 1982, Moser in prep.).

Dunlin
Birds breeding around the Baltic, and in Britain, Iceland and Greenland (*C. a. schinzii* and *C. a. arctica*) are considered to overwinter in western Africa south to the Banc d'Arguin (Pienkowski and Dick 1975). The northern European and Siberian population *C. a. alpina* overwinters in temperate Europe. Dunlins wintering in West Africa are believed to migrate by fairly short flights between estuaries along the north-west African and western European coasts (Ferns 1981, Kersten *et al.* 1983, in prep.). However this information comes again mostly from ringing recoveries and interpretation of biometric data. We aim to discover how Dunlins of the different races migrate northwards, and establish if both *arctica* and *schinzii* races overwinter in West Africa, as has been supposed (Pienkowski and Dick 1975).

Bar-tailed Godwit
All birds of the East Atlantic flyway breed in arctic Europe and as far east as the Taymyr peninsula in Siberia. Over three-quarters of these birds overwinter in West Africa (Engelmoer 1982, Zwarts 1984), with the remainder in Europe. Their spring migration system is little known, but Dugan (1981) considered that many moved from wintering grounds in Britain to the Wadden Sea in spring. The Dutch Wadden Sea is certainly of major importance as a spring stop-over (Boere 1976).

ORGANISATION

The sites at which major co-operative studies are planned are shown in Figure 1. Any project involving so many major groups, not to mention other contributors, needs well-defined lines of communication, so that information reaches the correct people, queries can be dealt with rapidly, and confusion over procedures avoided. Overall communication is managed by the organiser for the project, the WSG Co-ordinator Theunis Piersma. To ensure good contact with each group, we have established a local organiser for each of the major areas and studies involved in the project.

The function of local organisers is twofold. Firstly each acts as a 'contact-person' between their group and the Co-ordinator. Information can be passed to these organisers, and they in turn are responsible for passing back to the Co-ordinator data relevant to the international project. Secondly, local organisers are arranging coverage of sites within their areas, so that regular checks for marked birds etc. can be made at as many sites as possible.

We must emphasise that WSG is not providing financial backing for any of the separate research projects: the role of WSG is to act as co-ordinator of the international aspects of the work.

Local organisers are listed below. Numbers refer to those in Figure 1.

1. South Africa. Manfred Waltner (Western Cape Wader Study Group), 5 Montagu Way, Pinelands 7405, South Africa.
2. Banc d'Arguin, Mauritania. Theunis Piersma (Project Banc d'Arguin 1985 of RIN, WIWO and NIOZ), Korte Nieuwstraat 4, 9724 LC Groningen, The Netherlands.
3. Faro and Tejo estuaries, Portugal. Rui Rufino, CEMPA, Rua Filipe Folque 46,5°, 1000 Lisboa, Portugal.
4. Atlantic coast between Gironde and Loire, France. Denis Bredin, LPO, La Corderie Royale, B.P. 263, 17305 Rochefort Cedex, France.
5. Great Britain. Mike Moser (BTO/WSG Spring Passage Project 1985), BTO, Beech Grove, Tring, Herts, HP23 5NR, U.K.
6. Delta area, The Netherlands. Henk Baptist, Deltadienst R.W.S. P.O. BOX 439, AK Middelburg, The Netherlands; and Rob Lambeck, Delta Instituut voor Hydrobiologish Onderzoek, Vierstraat 28, 4401 EA Yerseke, The Netherlands.
7. Friesian Wadden Sea Coast, The Netherlands. Klaas Koopman (Steltloperringgroep Fryske Feriening foar Fjildbiology), Tunkerij 5, 8501 TG Joure, The Netherlands.
8. Wadden Sea of Niedersachen, West Germany. OAG Munster, Biologische Station Rieselfelder Munster, Coermuhle 181, D-4400 Munster, West Germany.
9. Wadden Sea of Schleswig-Holstein, West Germany. Peter Prokosch, WWF, Biologiezentrum, 9.etage, Olshausenstr. 40-60, D-2300 Kiel 1, West Germany.
10. Norway. Karl-Birger Strann, Zool. avdeling, Tromso Museum, N-9000 Tromso, Norway; and Nick Davidson (Durham University

expedition to North Norway), Department of Zoology, University of Durham, South Road, Durham DH1 3LE, U.K.

11. Iceland. Gudmundur A. Gudmundsson, Institute of Biology, University of Iceland, Grensasvegur 12, 108 Reyjkavik, Iceland.

Although this list already covers many of the major wintering and stop-over sites on the flyway, there are still gaps in the coverage. We would be delighted to hear from anyone else who plans to be working on migrating waders along the flyway during spring 1985, and who could contribute to the project and/or act as a local organiser. We would like also to hear from anyone who can check for marked birds *etc.* Potential contributors should, wherever possible, contact a local organiser for their area. For other areas contact the WSG Co-ordinator.

COLLATION AND ANALYSIS OF RESULTS

Those groups and observers who have agreed in advance to participate in the project should send data to their local organiser, or to the WSG Co-ordinator for areas lacking a local organiser. Anyone who has not previously registered for the project and who collects information on colour-marked birds should, as usual, send these to the WSG Colour-marking Register. These sightings will be forwarded to the relevant people.

Data relevant to the international project will be asembled initially by the WSG Co-ordinator. The Co-ordinator can then make a preliminary assessment of the extent of the information available on each of the target species. The most suitable approach to analysis and publication of results will depend in part on the nature of this information. We plan to arrange a meeting of the major participating groups at the WSG meeeting at La Rochelle, France in October 1985, at which details of the further analysis will be agreed. Interim and progress reports will be published in *WSG Bulletin* as soon after the project as possible.

A French translation of this announcement is available from Denis Bredin or Theunis Piersma (see above for addresses).

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