Annual conference of the International Wader Study Group, Kollumerpomp, The Netherlands, 31 August–2 September 2001

The 2001 WSG annual conference was held in the delightful surroundings of the YMCA Centre "Kollumeroord" near Kollumerpomp, The Netherlands. All who took part are grateful to Meinte Engelmoer and his team of helpers as well as the Centre staff for all they did to make it such a successful and enjoyable weekend.

- Gerrit Krottje produced drawings for the badges and programme.
- Tom van der Have and Eddy Wymenga organised the programme for the "Workshop on Farmland Waders".
- Arrivals by train were collected by Klaas van der Bij, Jaap Feddema, Henk Hiemstra and Sjouke Kazimier.
- Teckla Sierks, Esther Timmerman, Brechtje Veenstra and Amarins Veenstra attended the reception desk; Martin de Jong and Nils Anthes were in charge of projection equipment and schedules.
- Harry Blijleven, Grietien Fortuin, Joop Hellinga, Henk Hiemstra, Gerrit Krottje, Robert Kuipers, Erik Schothorst, Jaap Veenstra and Jan Willems guided the excursions.
- Eiso Beukema, Age Bruining, Acronius Bijlsma, Elmer Grozeler, Wijnand Hulst, Erna Kiers, Albertha van der Meer, Christiaan Veenstra, Heidi Veenstra, Pieter Wagenmakers and Audrey van der Werf of the Centre "Kollumeroord" did much to make our stay comfortable and enjoyable.
- Financial support was provided by the provinces of Groningen and Fryslân, the provincial landscapes of Fryslân (It Fryske Gea) and Groningen (Het Groninger Landschap), the National Forest Service (Staatsbosbeheer), the Dutch Society for the Conservation of Nature in the Netherlands (Natuurmonumenten), the Dutch Society for the Preservation of the Wadden Sea (Waddenvereniging) through Fiene de Vreese and Anky Woudstra and the Dutch Centre for Field Ornithology (SOVON).
- In overall charge was the organising committee: Johan Taal (bookings, reception), Jaap Veenstra (money), Titia Zijlstra (transport, signs, reception desk), Grietien Fortuin (excursions, posters, badges) and Meinte Engelmoer (coordination).

* * *

A personal account of the Kollumerpomp conference

Oscar W. (Wally) & Patricia Johnson

Montana State University, USA

In spring 2001, I was in Nome, Alaska trying to locate radio-tagged Pacific Golden-Plovers when the decision "let's go to Kollumerpomp" was made. My wife, Patricia, on the phone from Montana, was excited about returning to The Netherlands after nearly 25 years since our last visit. Following the long flight and a few days in and around Amsterdam, we travelled on Thursday by train (the on-time, efficient train service in Holland is impressive) to Fyslân and our first Wader Study Group meeting. We were warmly welcomed upon arrival in Buitenpost, and the same spirit of friendship and hospitality pervaded the entire conference.

Discussions about waders began in the shuttle-car en route to the Conference Center, and continued, interspersed with topics ranging from politics to personal reflections on home and family, for the next four days. Assembled at the Center (in a quiet and charming rural setting), we found an outstanding "flock" of wader-folk from many parts of the world. Unfortunately, the US was under-represented as there were only four Americans in attendance. It was a great pleasure to make a number of new acquaintances, and also to finally shake hands with colleagues we had known previously only through correspondence.

We were glad to have arrived a day early in time for an unexpected treat Thursday evening when Chris Schenk showed marvellous transparencies of waders and other subjects taken during his visits to the Siberian tundra. Adding to the enjoyment that night, Pavel Tomkovich shared slides and commentary about his experiences in Alaska this past summer.

Formal sessions began on Friday and were as geographically wide-ranging as many of the birds themselves; e.g., Taimyr, Churchill, Paraguay, Australia, Hawaii, South Africa. We heard interesting papers on a diverse array of topics including population trends, foraging ecology, timing of migration, functions of preen gland waxes, and moult. Being "*Pluvialis* people", we especially enjoyed a number of reports featuring Eurasian and American Golden-Plovers. We were honored to be among those presented (by Theunis Piersma) with a complimentary copy of the lovely new book "*Goudplevieren en wilsterflappers: eeuwenoude fascinatie voor trekvogels*" (Golden plovers and wilsternetters: a deeply rooted fascination with migrating birds) written by Joop Jukema *et al.* Wader biologists will want to examine this impressive work closely, it is an important addition to shorebird literature. Along with many of the conference participants, we watched a demonstration of the "wilsternet" in a nearby meadow. Clearly, this centuries-old device to capture waders has potential application in contemporary studies. Notably, Ingrid Tulp and Hans Schekkerman reported data from the Taimyr acquired by "wilsternetting", and the technique is used extensively in The Netherlands for ringing of Eurasian Golden Plovers and other species.

Mother Nature favored us with clement weather for field trips and the picnic on Saturday afternoon. Of three trip-options, we elected to see the Groningen North coast and the Lauwersmeer. It was an enjoyable excursion (we appreciated

the knowledgeable guides) with numerous birds, idyllic countryside, windmills, panoramas of the Wadden Sea, huge dikes and water control structures. Somehow, good viewing of Eurasian Golden Plovers eluded Pat and me, but this was corrected many times over the following Monday. Music and camaraderie prevailed on Saturday night. We send additional applause to the delightful multi-talented musicians of "Rem'oly" and "Birdy Birdy in the Sky"!

After the meetings concluded on Sunday, several of us stayed on for further adventures the next day. We had the good fortune to be invited by Joop Jukema for "wilster-netting" near Oosterbierum. It was a thoroughly enjoyable experience that gave us a unique opportunity to more fully appreciate this remarkable capture technique and the traditions surrounding it. Although no plovers were caught (not unlike some of our own mist-netting efforts in Hawaii!), we had a marvellous time nonetheless. The day with Joop, which included seeing thousands of Eurasian Golden Plovers, was a superb finale to a well-organized (congratulations to the committee!) and productive conference.

As we write these impressions of a memorable and enjoyable time, the United States faces grave uncertainties in the aftermath of horrible terrorism. We are grateful to have arrived safely home from the meetings before these awful events occurred, and grateful too that our son (a pilot with United Airlines) was not flying on 11 September. May we take this opportunity to extend heartfelt thanks to our gracious hosts at Kollumerpomp who were "worried" about us and kindly sent a collective e-mail asking about our well-being. We look forward to the meetings in Poland next year!

Officers' reports

Chairman's Report (Gerard C. Boere) – with notes on waders, flyways, politics, policy, money and the future!

Dear friends and colleagues

The WSG year 2000–2001 has been a regular one, without important sad and exiting events or outputs as we experienced last year, such as the death of Pablo Canevari, the publication of the Odessa Proceedings and the final establishment of the WSG as a legal entity in the Netherlands. We all could use a year like this one just to return to the regular work, which is still a large output for a volunteer organisation. In the meantime many of us have been very active such as Petra de Goeij in supporting the organisation of the Virginia meeting, Humphrey Sitters by jumping into the deep water of editing the WSG *Bulletin* and the draft paper on wader population estimates by David Stroud and Nick Davidson. This draft paper, which has already been around for some time, will play an important role in submitting data for the next volume of World Waterbird Populations Estimates to be published in September 2002. The purpose of this is to support, with good technical data, both the Conferences of the Parties of the Bonn Convention (September 2002) and the Ramsar Convention (November 2002).

The Wader Study Group plays an active role, together with some, not really volunteer, professionals, in the preparation of the Wader Atlas for the African–Eurasian Waterbird Agreement. This is a type of publication for which there are few precedents. The Anatidae Atlas, published in 1996, was the first, well received example but could be improved. A few more simple productions, are the flyway atlases for the Asian–Australasia Anatidae, Cranes and Shorebirds. There is much interest in similar publications in other parts of the world and waders, as long distance migrants, are obvious candidates for such publications.

There has been a considerable increase in conservation, monitoring and research activities on waders (shorebirds) in North America. The USA Shorebird Conservation Plan was published and the Canadian Shorebird Plan is in press. Brad Andres, originally from USFWS office in Alaska, is now based in Washington at USFWS headquarters, to co-ordinate the implementation of the USA Shorebird Conservation Plan. He also is involved, with Dr Jon Bart in the lead, as chair of the Working Group setting up the monitoring and research programmes. I have had the pleasure to have some lengthy discussions with him on international wader conservation and I have confidence that he will approach the USA Plan with a real global outlook. He is also very interested to establish the necessary international contacts to co-ordinate with similar activities elsewhere in the world. A Shorebird Conservation Plan (and Atlas) for Mexico is also in preparation with Manomet Center for Conservation Sciences in the lead. Impressive documents are circulating with the arrangements for a comprehensive monitoring programme for the whole of North America. The plan is to expand the existing International Shorebird Counts, which also cover a large part of South America and the Caribbean.

The new USA Neotropical Migratory Birds Conservation Act, accepted last year by Congress during the last days of the Clinton administration, provides a good framework for our North American colleagues to work outside the traditional three countries of Canada, USA and Mexico, to protect long distance migrants, including waterbirds. There is a budget of US$5 million; not much money to conserve migratory birds in the two continents, but it is a start.

I had the pleasure of attending, as an observer, a number of meetings of steering groups and boards relating to these activities during the North American Wildlife Conference in March 2001 in Washington. These included the Shorebird Plan Committee and the Western Hemisphere Shorebird Reserve Network Board. It was impressive to see how much is being done, but it is also significant that much is concentrated in very few countries. In fact, only the Western Hemisphere Shorebird Reserve Network, based at Manomet with Jim Corven as the Director, is taking a real all-Western-Hemisphere approach.

Our Virginia meeting was an excellent opportunity to strengthen the contacts between the WSG and New World shorebird people. We should keep up the momentum of these new contacts and increase co-operation with our North American colleagues and organise regular exchange of information in the WSG *Bulletin*. Also, contacts with the umbrella structures like the North American Bird Conservation Initiative (NABCI) could be a good thing. I must confess that, for an outsider, all the governance, co-ordination and adminis-

trative structures I have encountered make it rather difficult to understand how this all works in practice, but it does!

It looks as if government administrators and others have been reading the Odessa Protocol, given the number of initiatives in various flyways. However the number of flyways, as presented in the Odessa Protocol, is what I call "the scientific picture" (and you can add more, for instance in North America). Here, however, I am talking about what I call "the global political flyway map" with 4–6 large flyway areas around the globe. For these, administrative arrangements, such as the African–Eurasian Waterbird Agreement, will be important in furthering the conservation of migratory wader populations.

A few examples

Although still at the discussion stage, there are plans for an **America Pacific Flyway Project**. The area this is to cover stretches from the southern border of Mexico along the Pacific coast of S. America and includes the whole of Central America. It will be easy to connect this project with the Pacific Coast of Mexico, USA and Canada; as well as the Russian Federation. It will be very much based on Pablo Canevari's ideas. Indeed it was he that drafted the first proposal though he could not finish it. The Netherlands Government provided a development grant for the project and the Netherlands South America expert, Kees van Dijk, together with a South American colleague, Louis Roman, finalised the document. This was done after a number of missions to the region and in close consultation with the governments concerned and many NGOs.

In my other capacity, as International Programme Coordinator within Wetlands International, I am responsible for further consultations with all possible North American stakeholders and partners. In this connection, a first workshop with 30 participants representing the main players on migratory waterbirds took place on 19 July 2001 in Washington. There are many opportunities to feed into the project the shorebird work which is ongoing and the draft proposal underlines the need for much more basic information on the migration of waterbirds and the importance of individual wetlands. By the end of the year the plan is to submit a final proposal for funding to the Netherlands Development Aid Agency. You will all understand that I personally feel strongly committed to get this programme running as we all owe it to the memory of Pablo Canevari that his original ideas and proposals become a reality and bring waterbird conservation a step forward in that part of the world. In the meantime the activities of WHSRN continues and are expanding.

It is also an exiting time for wader research in an area so little studied and with so much to discover – the **Central Asian Indian Flyway**. Work to put this area on the international migratory bird's conservation map could start this spring with a development grant from the Netherlands Government to Wetlands International. Dr Alexander Solokha from the Russian Hunting Research Institute, who has been working in the area for more than ten years, is co-ordinating the work in his position as flyway officer at the Wetlands International office in Moscow. This important contact could be instrumental in setting up expedition work on rare waders and inland migration (Phalaropes, Bar-tailed Godwits, Sociable Plover etc.!) in this region of which we know so little.

Further to the east, the new **Asia Pacific Migratory Waterbird Conservation Strategy (APMWCS)** for the period 2000–2005, was endorsed by an important international government-supported conference on Okinawa in October 2000. A substantial part of the strategy is concerned with migratory shorebirds. The Australian Government continues to support Doug Watkins as the Shorebird Flyway Officer within the Wetlands International family for that part of the world. Links with New Zealand are increasing and more activities are developing with good support from David Melville and our former Dutch colleague and professional ornithologist (but also mussel farmer and forester!) Rob Schuckhart, who has lived in New Zealand since the late eighties. Wader work in that part of world is well organised with the Australasian Wader Study Group in the lead and the WSG should keep close contacts with them and stimulate joint publications, exchange of information in the bulletins etc.

The number of formal parties to the **African–Eurasian Waterbird Agreement (AEWA)** continues to grow. There are now 33 and there is great interest among governments. Financial support for several of the activities is quite good. Next year, the parties meet again and perhaps that will be a good opportunity to measure the effect of the Odessa Protocol and Proceedings and present, as a Wetlands International Specialist Group, an overview report on waders and flyways since the time of the Odessa meeting in April 1992.

Both in my previous work for the Dutch Government and my present work for Wetlands International, I am increasingly confronted with the need for long-term and reliable biodiversity data in order to evaluate the success of projects and programmes and the large investments involved. This is certainly true for the substantial programme of the Global Environment Fund (GEF), the financial facility of the Convention on the Conservation of Biological Diversity (CBD). Their investment in about 33 large migratory species related projects was over US$170 million and total investment in biodiversity conservation is many times more. Many projects relate to large wetlands and coastal zones, all very important for waders, and the AEWA, for instance, receives substantial funds for its work.

Also interesting is the discussion within GEF and the World Bank about the value of financing a number of site-related projects in whole flyways. Is it a good investment just because "they" (that is we, the conservationists) tell them it is important? And how effective is large investment in a few flyway sites if all the other important ones do not get any attention, not to mention the hundreds of smaller sites? All this means that they are giving serious consideration to financing flyway projects (though only developing countries can receive money). They also like to have formal statements from the more wealthy countries that they have protected at least the international important sites. These are really good developments: the money stick so often works! All this is one reason why GEF is in favour of formal binding flyway agreements, such as the AEWA.

From time to time, the effectiveness of all these investments and costs has to be evaluated. This is when it becomes widely known that the International Waterbird Census (run since 1967 and including vast quantities of wader data) is a rare long-term dataset that is globally applicable and available for use. It is not totally comprehensive and there are some important gaps but, compared with data for groups like bats and butterflies (not to mention mozzies!), it is excellent. This also brings the importance of the Wader Study Group's

work for international conservation into perspective. Simple regular counts of waders play a vital role in deciding where money for shorebird conservation should be invested.

Evaluating the need and effectiveness of international conservation instruments is also the driving force behind a recent report of the Director General of UN Environment Program, Klaus Töpfer. This describes the functioning of about 40 Multilateral Environment Agreements (MEAs) such as the Ramsar and Bonn Conventions, CITES, CBD, FCCC, but also treaties on such matters as pollution of the marine environment. It is very interesting material to read and to understand that something on co-ordination and streamlining of all these treaties is soon going to happen.

This is all high level politics and probably far removed from the daily activities of the average WSG member. However, the interesting point in the UN Environment Program report is that in the analyses to find possible gaps in international conventions, the protection of migratory waterbirds is identified as such a gap!

Here comes a whole package of work for the WSG and others! If the report is accepted, the development of flyway agreements will be boosted – and not only in terms of the political flyway map of the world!

The identification of this gap has, in my opinion, resulted from the increasing policy of working at a flyway level and the successful start of the AEWA and the APMWCS. This is also in line with the general policy of the Convention of the Conservation of Biological Diversity (CBD) to promote conservation activities on the basis of an ecosystem approach. I have often argued that stimulating flyway agreements and working on the conservation of migratory birds on the basis of the flyway is in fact applying an ecosystem approach. Flyways are the ecosystems of migratory birds and are what most wader species need to meet the requirements of their annual cycle.

I prepared an overview of recent flyway activities for the Sixth Meeting of the Scientific and Technical Body of the CBD (March 2001 in Montreal). Copies are available for any members who would find it useful (7 pages).

These political developments are a welcome support for a proposal I have recently submitted to the Netherlands Government, in my Wetlands International capacity. This suggests that the Netherlands Government should take the initiative and act as the host government for an International Flyway Conference in late 2003 or early 2004. The idea for such a conference has been around for some time. However, I believe that now is the right time to formulate a comprehensive global overview of flyway conservation activities. This should cover what has been achieved, what is currently going on and what should be planned and implemented in the future. The Odessa Protocol has paved the way and all members should be ready to participate. [Latest news (October 2001): the Netherlands Government has now agreed to be the host of an International Flyway Conference to take place in early 2004; the first detailed announcement will be made in early 2002.]

Finally some personal remarks

Many years ago, I took the decision to retire from government service when I was 61. I also planned that, if possible, the last few years of my government career should be devoted more to work of substance and be a little more relaxed. Wetlands International was an obvious choice for many reasons. As it has turned out, my first year with WI (since September 2000) has been rather more exciting, less relaxed and not as satisfying as I had hoped.

I am confident that all present problems will be resolved and I am pleased to be able to play a role in assisting the organisation with its recovery and reorganisation. I am, for example, taking on some general management work as well as representation and development work in the Americas. I am also drafting a strategic plan for the International Waterbird Census, flyway activities and a number of other aspects of WI's core activities. A draft of this document will soon be sent to WSG who will be asked to provide input for a final document to be ready in November for WI decision.

All this, and other matters, has meant I have not had much time this year for the WSG and other interesting things (for instance no Russian expeditions!). I regret that, but it is as it is. Anyway, after ten years in the chair it is time for a change. I am extremely pleased that Hermann Hötker has agreed to accept nomination as the new chairman. In late July, we had several hours of good discussions when I visited him and Birgit (and the four sons ...) in Husum.

It is also with regret that I will leave the EXCO with its hard-working officers and members who managed to get things done in a way that left me with little to do but concentrate on general policy and fundraising. We often agreed to do much more than we actually could do in the time available to EXCO members with their busy everyday commitments. That was sometimes frustrating but we should remember that the minimum package has always been delivered: the *Wader Study Group Bulletin* and the Annual Conference. Apart from that, members have often received much more, especially the Odessa Proceedings!

I sincerely thank all members of the WSG and EXCO for your co-operation and for the enduring friendships, the hospitality (EXCO's on Texel for instance) and for so many enjoyable annual conferences, sometimes at quite exotic places. Hopefully there will be many more to come. It was a great time and a rich experience to be your Chairman for ten long years!

Treasurer's report (Bob Loos)

Receipts and Expenditure account

During the year 2000, the financial course of the Wader Study Group was satisfactory.

Membership income remained stable as in previous year. The comparatively high amount of subscriptions from previous years is explained by an administrative fault by the British Girobank that was discovered and resolved during this year.

Interest received was about 25% lower than in 1999. At the end of October we placed £10,000 on a one-year deposit at 6%. The interest will be paid out just once a year at the date of maturity, and not at a monthly basis as we have on our savings account. Taking this action means that we will see an increase in interest received in 2001 – estimated at £800.

The backlog of invoices relating to the Colour Marking Register was eliminated in 1999. This resulted in a very high receipts and expenditure total in that year. By 2000, it had returned to more normal levels.

Selling back bulletins and International Wader Studies remains a welcome extra source of income!

The printing costs of the *Wader Study Group Bulletin*

Accounts of the International Wader Study Group for the year 1st January to 31st December 2000

(All figures are in British pounds)

RECEIPTS AND EXPENDITURE ACCOUNT

Receipts	1999	2000
Subscriptions	7,856.03	8,567.18
Subscriptions from past year	322.03	675.78
Interest received	725.75	546.08
Colour Marking Register	1,023.51	336.77
Sale back Bulletins and publications	72.61	247.70
External contributions to publications	0	0
Conference	0	0
Miscellaneous	24.23	41.29
Exchange profit	0	0
Wader Atlas	0	0
Total income	10,024.16	10,414.80
Expenses		
Bulletin costs – printing	3,870.00	2,920.00
– dispatch	2,245.62	2,916.47
Editorial	0	0
Secretarial costs and miscellaneous	1,306.79	1,743.34
Colour Marking Register	613.45	241.22
Bank charges	137.10	252.21
Depreciation on computers etc.	480.00	480.00
Exchange loss	175.27	16.87
Investments	0	0
International Wader Studies	0	0
Wader Atlas	0	0.00
Reservation Breeding Waders	150.00	150.00
Total expenditure	8,978.23	8,720.11
Excess of income over expenditure	1,045.93	1,694.69

BALANCE SHEET

	31.12.1999	31.12.2000
Computers & printers	960	480
Stock back bulletins & IWS	p.m.	p.m.
Cash at Bank and on deposit	24,388	17,995
Debtors	1,399	2,204
	26,747	**20,679**
	31.12.1999	**31.12.2000**
Capital	12,662	14,357
Subscriptions in advance	166	766
Conference Fund	2,486	2,486
Bull.69 Methodology Issue	2,000	2,000
Breeding Waders in Europe	621	673
Odessa Proceedings	8,720	295
Donations 2001	0	10
Hebrides Project	92	92
	26,747	**20,679**

BUDGET FOR 2002

Subscriptions	8,550
Interest received	750
Colour Marking Register	300
Sale back bulletins and IWS	200
	9,800
Bulletin costs;	
printing	3,300
DTP	1,050
postage	2,650
Secretarial costs & misc.	1,810
Colour Marking Register	300
Bank charges	300
Depreciation	240
Breeding Waders	150
	9,800

were much lower than in the previous year. The bulletins published in 1999 consisted of 220 pages, while in 2000 only 144 pages were produced.

Although printing costs may have been less, the packing and postage remains as high as before, due to the dispatch of the proceedings of the fifth Woodcock and Snipe Workshop. Also there was an invoice for envelopes and labels relating to the 1999 issues, which was received and paid in 2000.

Bank charges saw a heavy increase: since 1st January we have had to pay a monthly maintenance fee and charges for the various transactions. Fortunately, the British Pound increased by only 1% against the Dutch Guilder between 1st January and 31st December 2000, so the exchange loss for our savings in Dutch currency is rather small.

Balance sheet

The stock of back bulletins and International Wader Studies is hard to quantify in British Pounds; therefore it is recorded as "p.m." which means "pro memorie". This stock is unquestionably of value, but it is very hard to quantify it because it is just paper, which can only be turned into money by selling it; so selling the stock makes the money, not having the stock!

Debtors: the Wader Atlas phase 1 was completed this year, but unfortunately the budget was exceeded. Wetlands International will pay this overspend from the phase 2 budget, but that has been delayed at the moment. I am convinced however, that the amount shown in the balance will be paid in due course.

The Odessa Proceedings issue has now been published, thanks to an additional contribution from Wetlands International. There are a few small expenses to be paid in 2001.

With the renewal form for 2001 we made a particular request to British members for extra donations. This situation has come about by the strength of the British Pound over several years which has meant that British members have enjoyed a stable subscription rate for at least eight years compared to many other nationalities who have seen an increase in their subscription rates merely through changes in exchange rates. We received £10 from the members who paid their membership in 2000 and we hope to receive at least a further £100 as extra gifts in 2001.

It only remains to me to thank all executive committee members, officers and other volunteers who have invested so much time and energy in the Wader Study Group to keep our Group as healthy as it is now, where increasing the membership rate has been such a rare event for the last decade!

Membership Officer's report (Rodney West)

After a re-organisation and re-assessment of gratis membership and also finally removing members still paying only £10 and £12 by bankers order, a new baseline membership figure has been produced for the year 2000.

However, even allowing for this re-adjustment of the existing membership, it appears that the Group also saw a real fall in membership of around 10–15 individuals in the year 2000 which continued a similar fall of around 10 individuals in 1999.

	Year 2000	Year 1999
Individual members	444	481
Institutional members	17	17
Gratis members	73	94
Exchange journals	17	17
Total	551	609

Editor's report (Humphrey Sitters)

Julianne Evans was re-elected as editor of the *Bulletin* at the last Annual General Meeting of the International Wader Study Group. It was announced at the time, however, that I had already agreed to take over this task during the ensuing year with a view to formal election at the 2001 AGM. Although the December 2000 and April 2001 issues indicated that I was already the editor, the transfer of duties did not actually take place until the spring. Therefore my first issue as editor was that for August 2001.

Julianne edited the *Wader Study Group Bulletin* with skill and dedication for five years and I am sure all members are grateful for her contribution. As I have quickly discovered, editing the *Bulletin* is an onerous, time-consuming task and I think it is admirable that Julianne managed for so long to combine it with the demands of her job at the Royal Society for the Protection of Birds and her family.

The Group also owes a special debt of gratitude to Rodney West who has, for the last eleven years, done all the desktop publishing work on the *Bulletin*. He also has found it difficult to cope with the demands of that task as well as that of Membership Secretary and all his other activities. Therefore, as from the August issue, it has been all change and we are grateful that, through Les Underhill, the typesetting is now being done by Felicia Stoch at the Avian Demography Unit, University of Cape Town.

New people bring new ideas and new ways of doing things. First, we have taken the opportunity of redesigning the layout of the *Bulletin*. We hope that members will like what they see. Constructive comments about this or any other aspect of the *Bulletin* are always welcome.

Also, Rowena Langston and Robin Ward have been appointed assistant editors. Rowena will concentrate on soliciting new material. Robin will continue collating *Notes & News* as he has for some years as well as other "front end" material.

Another innovation is the publication of abstracts from wader theses – bachelors' and masters' as well as doctoral. This will serve as a means of making new work widely known well in advance of formal publication. Authors of theses and supervisors are invited to submit abstracts to the editor. We also hope to include articles in future on a wide variety of subjects ranging from wader study methods to wader research groups, profiles of wader people, particular wetlands, particular flyways as well as review papers on areas of research or conservation concern. None of this, however, will happen without the whole-hearted support of members providing regular contributions in the form of news items, articles and papers. Keep up the flow!

Project Co-ordinator's report (Ole Thorup)

Again in 2000, the only WSG project involving fieldwork was "Tringa glareola 2000", co-ordinated by Magdalena Remisiewicz. The project aims at throwing light on the migration pattern of the Wood Sandpiper by colour ringing and observations at a large number of sites, primarily in Eastern and Central Europe (*WSG Bulletin* 84: 21–22, 89: 30–32).

In the project "Breeding Waders in Europe 2000", data on breeding populations have been included from a few of the hitherto missing countries, and recent updates have been received from a number of other European countries during 2000. Applications for funding publication of the data have so far been unsuccessful. It is still possible to hand over important new information instantly to the national co-ordinators (list in *WSG Bulletin* 89: 19–20).

Conference Co-ordinator's report (Petra de Goeij)

We can look back on two very pleasant and interesting WSG meetings. The annual meeting was held in Norwich. There were many interesting talks and the excursion with two rare waders plus hot weather made it memorable. An extra WSG meeting took place in Virginia, USA, in May 2001. It was the first time we had had a meeting in the Americas. The main theme was the migration of Red Knots from Tierra del Fuego to the Canadian Arctic. It was a very good and productive weekend.

A new aspect of the Virginia conference was posters sent in by people who could not attend the meeting due to travel costs. Maybe this is something for future conferences as well. The 2002 annual conference will take place during 4–7 October 2002 at Hel, near Gdansk, Poland.

WSG–Wetlands International Liaison Officer's report (David A. Stroud)

This year much effort has gone into two major projects, both of which are moving closer to fruition.

Significant progress has been made in writing up the conclusions of the WSG's re-estimation of international wader populations in the East Atlantic Flyway (and other African and Eurasian flyways) in the 1990s. A major paper is being drafted that summarises the data and information collected by the workshops associated with annual conferences in 1996 and 1998. The initial results of this review were summarised by Nick Davidson in 1998 (*WSG Bull.* 86: 18–25).

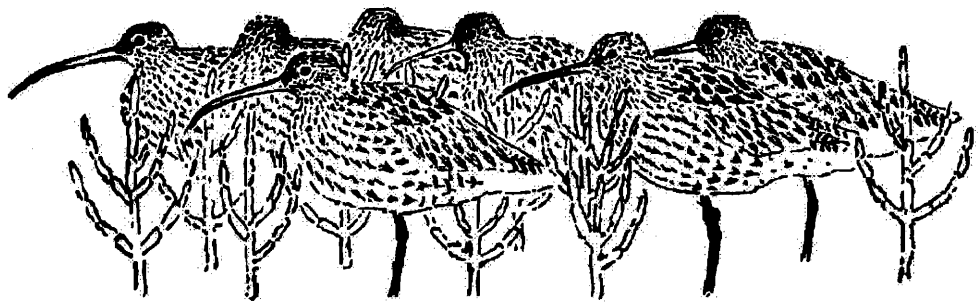
It is hoped that the final summary paper will be submitted for journal publication by the end of 2001, and hence appear in the international literature in 2002. One of the themes of the review is to highlight the current state of international monitoring from each biogeographical wader population. The conclusions make depressing reading! – there are no populations whose trends can be assessed at international scale with any specified degree of statistical precision, and for the majority of populations, size estimates are based on little more than educated guesses.

The other major project that has moved forward is the drafting of the *Flyway atlas for waders in Africa–Eurasia.* Much of the drafting of this major publication has been funded by generous financial contributions paid via Wetlands International.

Although the first phase of this atlas was completed in draft in 1999, the editorial team has decided to delay publication of these texts so that the atlas can be published as a single volume, in uniform format, covering all 88 species occurring within Africa–Eurasia. At present, it is hoped that publication will occur in late 2002.

WSG is one of Wetland International's several Specialist Groups and an important element in its global structure. Accordingly, considerable time during the year has also been spent in assisting Wetlands International develop its plans for organisational restructuring and with a range of other internal issues. These plans will be discussed at the next Board of Members meeting to be held in The Netherlands in late 2001. An important element in discussions there, as at previous meetings, will be how Specialist Groups can effectively contribute to the work of Wetlands International and the global conservation conventions that it supports.

WSG is one of the more active of the Specialist Groups, but the extent to which we are able to contribute to project work initiated by Wetlands International (and others), is highly constrained by the lack of volunteer time (we are rare in having no "staff" to develop such work areas). So, as ever, offers of help and assistance (however limited) are always welcome!



Minutes of the 2001 WSG Annual General Meeting

The 2001 WSG Annual General Meeting was held at 09.00 hrs on Saturday 1 September during the annual conference at Kollumerpomp, The Netherlands.

1. Apologies

Apologies were received from Nick Davidson, Julianne Evans and Mike Pienkowski.

2. Minutes of the previous AGM

The minutes of the previous AGM held on 9 September 2000 at the University of East Anglia, Norwich, UK, and published in *Bulletin* 93: 1–4 were accepted as a true record of that meeting.

3. Chairman's report (Gerard Boere)

The Chairman emphasised the important role of the WSG, one that is recognised internationally and not confined to its own membership.

4a. Treasurer's report (Bob Loos)

The WSG finances are generally healthy, and no rise in subscriptions is necessary for 2002. With effect from 1 January 2002, the Treasurer expects that it will be possible for WSG members to pay their subscriptions by credit card. Arrangements will be announced in the *Bulletin.*

4b. Auditor's report (Martin de Jong)

The accounts were found to be in order. The meeting voted to retain the external auditors as Martin de Jong and Peter Evans.

5. Membership Officer's report (Rodney West)

Contact had been made with the *gratis* recipients of the *Bulletin*, requesting an update of contact details and feedback on the usefulness of the arrangement. The membership list had been revised accordingly for future *gratis* exchanges of the *Bulletin* and non-respondents removed. The Membership Officer expressed some concern about the reduction in membership of WSG and encouraged all members to assist with recruitment so as to re-establish the membership to at least 600.

6. Editor's report (Humphrey Sitters)

Humphrey Sitters expressed the gratitude of all members to his predecessor, Julianne Evans, who had edited the Bulletin with skill and dedication for five years and to Rodney West who had done all the typesetting work on the Bulletin for eleven years. This was warmly applauded by the members present.

The Editor reported the decision taken by the Executive Committee, at the meeting on Thursday 30 August, to put *Notes & News* and *Recent Publications* on the WSG web site routinely in future. The abstracts from the Virginia meeting in May 2001 would be posted on the web site too. The content of the WSG web site would be kept under review by the Executive Committee.

The Chairman thanked Les Underhill and the Avian Demography Unit of the University of Cape Town for setting up the WSG web site.

7. Project Co-ordinator's report (Ole Thorup)

There were two active projects during 2000. In 2001, there were three active projects:

Breeding Waders in Europe 2000. Data for current totals of breeding waders for many European countries had been compiled, and funding was currently being sought to allow the publication of this data and information in *International Wader Studies.*

Tringa glareola 2000: Ole Thorup invited Magdalena Remisiewicz to present a brief update. This was the fifth year of this project. A total of 30 ringing stations took part, collecting standard measurements at 35 sites in 18 countries within Europe and Africa. Data are being collated and a second workshop is planned for the end of 2001, at Gdansk in Poland. A final meeting is planned for 2002.

Spring passage of ruff: Ole Thorup invited Eddy Wymenga to present a brief update. The second spring census of ruff took place in 2001 (the first was in 1998), to determine the timing of migration through Europe and identify important staging sites. Eddy was pleased to report a high level of participation in central and eastern Europe. Roost counts included sex ratios. Sexual differences in migration strategy were identified, with a predominance of males in western Europe and females in central and eastern Europe. Unfortunately, there were some restrictions to fieldwork, resulting from the outbreak of Foot and Mouth Disease. The third count is planned for 2004. It is hoped that this project will enable the development of a monitoring scheme for future application.

8. Conference Co-ordinator's report and future conferences (Petra de Goeij)

The 2002 WSG Annual Meeting will be held at Hel, near Gdansk in Poland, over the weekend of 5 and 6 October 2002, with workshops planned for 7 October. Our hosts will be the Wader Research Group Kuling.

There are several possibilities being explored for the 2003 WSG Annual Meeting: Morocco, Spain and Germany. Also, an extra meeting at Odessa is being considered for 2003/04, to focus on developments since the Odessa Protocol. Confirmation of future arrangements will be announced as usual through the *Bulletin.*

9. WSG–Wetlands International Liaison Officer's Report – 2001 (David Stroud)

David Stroud noted that activity during the year had focused on internal work with Wetlands International, progressing the wader flyway atlas and pushing forward the publication of revised population estimates for African–Eurasian migratory waders. Significant progress had been made with this latter area, and it was hoped to submit a paper for publication by the end of 2001.

10. Subscription rates for 2002

In view of the income for 2002 covering the expenses and the remaining capital being sufficient to cover WSG's running costs for a year, it was not necessary to propose an increase of the subscription rate in 2002 for those paying in UK Sterling.

11. WSG Annual Meeting 2002

As stated above, **the 2002 WSG Annual Meeting will be held at Hel, near Gdansk in Poland, over the weekend of 5 and 6 October 2002**, with workshops planned for 7 October.

12. Election of Officers

Newly elected:

Chairman – **Hermann Hötker**
Editor – **Humphrey Sitters**
General Secretary – **Rowena Langston**
Executive Committee, ordinary member – **Patricia Gonzalez**

Re-elected:

Treasurer – **Bob Loos**
Conference Organiser – **Petra de Goeij**
Executive Committee, ordinary members – **Elena Lebedeva, Pavel Tomkovich, Jim Wilson**

The outgoing Chairman, **Gerard Boere**, thanked members of the WSG and its Executive Committee for their co-operation and friendship during his ten years in office. The role of WSG Chairman had been a rich experience, but it was time for a change, although he looked forward to his continued involvement with the WSG.

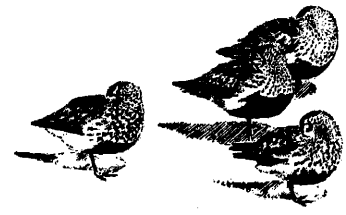
The newly elected Chairman, **Hermann Hötker**, thanked the membership for their confidence in appointing him as Chairman.

13. Any other business

The recommendations from the Workshop on Farmland Waders that took place on Friday 31 August were presented to the meeting by David Stroud as **The Kollumerpomp Statement** and unanimously agreed upon.

Hermann Hötker led the vote of thanks for the retiring Chairman, **Gerard Boere**. Gerard was presented with a doorbell for his house in France, to remind him of WSG and the Executive Committee whenever it rings, together with a wooden wader sculpture, complete with coloured leg flags expressing the good wishes of members of the Executive Committee. Gerard Boere was appointed as the second Honorary President of the WSG. The AGM expressed their appreciation of Gerard's successful Chairmanship of WSG through prolonged applause.

There being no other items of business, the meeting closed at 10.00 hrs.



Wader Study Group Annual Conference 2002
Welcome to Hel(l)!

The Annual Conference of the WSG will be held during 4–7 October 2002, on the Hel Peninsula (Gulf of Gdansk, northern Poland), organised by the Waterbird Research Group KULING. The Annual General Meeting and talks will take place on Saturday and Sunday 5–6 October. On Monday 7 October, two workshops are planned: one on "Declining populations", the other will be "The third workshop of the Project Tringa glareola 2000". More details on the event can be found at the KULING Website: http://free.ngo.pl/kuling. For further information please contact: Wlodek Meissner, WRG KULING, c/o Dept. of Vertebrate Ecology and Zoology, Univ. of Gdansk, al. Legionów 9, 80-441 Gdansk, Poland, tel./fax +48 58 341-20-16; e-mail: biowm@univ.gda.pl.

WSG Workshop on Farmland Waders, 31st August 2001

Introduction

DAVID A. STROUD

Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY, UK, e-mail: david.stroud@jncc.gov.uk

The 2001 Conference commenced with a Workshop on the waders of European farmland. A wide-ranging programme of brief presentations had been organised and the abstracts of these appear below. Although, most of this programme addressed issues relevant to breeding waders, the workshop commenced with a series of presentations on staging and wintering waders – in particular, Lapwings *Vanellus vanellus* and Golden Plovers *Pluvialis apricaria*.

In the morning, the first volumes of the major new Dutch publication on the cultural history of wilster-netting (and the scientific insights that this activity has given) were presented by the editors of the book to key collaborators.

The workshop concluded with a wide-ranging discussion that commenced by reviewing the conclusions and recommendations of the last WSG workshop on this theme – in 1989 in Ribe, Denmark. Whilst there has been some progress since that meeting in terms of research activity (and notably with many experimental wetland restoration projects now occurring across NW Europe), the overall plight of farmland waders in Europe appears to have become dramatically worse.

Of particular concern was information presented regarding major declines of Black-tailed Godwits *Limosa limosa* in The Netherlands, and wide-scale collation of information on population trends in temperate breeding Ruff *Philomachus pugnax*. This indicates long-term declines in virtually every European country – even in situations where land-use change appears not to be a significant factor.

In the light of this poor overall situation, workshop participants drafted a Statement (below) that was unanimously agreed by the Annual General Meeting the following day.

There was enthusiasm for the proposal to create a Wet Grassland Working Group (see "Notes & News" in this *Bulletin*). The Group will act as a focus for information exchange on this topic within WSG. The list of priority issues raised by the 2001 workshop, and given in the technical annex below, will provide an agenda for action.

It is hoped to revisit some of these issues at next year's conference. Ideas are currently being developed for a workshop in Poland on conservation action for declining wader populations (including a review of globally threatened waders).

* * *

The Kollumerpomp Statement

The International Wader Study Group (WSG) held its 2001 Conference at Kollumerpomp, The Netherlands, between 31 August and 2 September attended by 153 scientists and wader experts from 17 countries across the world. A technical workshop on farmland waders was held on 31 August. This reviewed current knowledge of the conservation status and population trends of waders breeding and wintering on farmland in Europe.

The participants agreed on the following Resolution:

AWARE that European Union Member States have obligations under the 1979 EEC Directive on the Conservation of Wild Birds to maintain the favourable conservation status of waders, including the need to establish protected areas, as well as taking "*requisite measures to preserve, maintain or re-establish a sufficient diversity and area of habitats*";

FURTHER AWARE that non-European Union signatories to the Berne Convention (the 1979 Convention on the Conservation of European Wildlife and Natural Habitats) have assumed similar obligations;

NOTING the obligation of the signatory nations of the Ramsar Convention (which includes all European countries) to endeavour to wisely use *all* wetlands in their territories, whether or not these are formally listed under the Convention;

NOTING that, 12 years since the WSG reviewed the status of breeding waders on European farmland in 1989, negative population trends have continued and in many cases have become significantly worse;

NOTING further that the process of agricultural intensification has been, and remains, a highly significant factor in causing these declines;

INFORMED of the continental-scale decline in breeding Ruff *Philomachus pugnax* in the last two decades;

CONCERNED at the rapid extensive decline in numbers of breeding Black-tailed Godwit *Limosa limosa* in The Netherlands, the European stronghold of this species, and of the critical implications unless urgent actions are taken to address the causes of this decline;

RECOGNISING the need for regular re-assessments of

population sizes and trends of breeding waders so as to monitor policy changes that will assist the recovery of populations;

AWARE that European Action Plans have been drafted by the Birds Directive's Ornis Committee for quarry species in an unfavourable conservation status, including plans for Woodcock *Scolopax rusticola*, Redshank *Tringa totanus*, Black-tailed Godwit *Limosa limosa*, Curlew *Numenius arquata* and Jack Snipe *Lymnocryptes minimus*; **RECALLING** WSG input to these plans in 1998; **BUT NOTING** that they have yet to be fully implemented;

RECOGNISING the significant role that the International Wader Study Group — as an international network of specialists — can play in collating appropriate data and information relevant to the conservation and management of breeding wader populations, and thus assist others in necessary conservation actions; and

NOTING the technical conclusions of the workshop appended to this Resolution;

THE CONFERENCE:

CONSIDERS that land management policies that can cause widescale (often continent-wide) declines in waterbird populations, cannot be considered as "wise-use" of wetlands or other habitats;

STRONGLY URGES European Union Member States to fully implement Action Plans for Woodcock, Redshank, Black-tailed Godwit, Curlew and Jack Snipe (which aim to halt and reverse current negative trends) and for the European Commission to provide necessary co-ordination to this end;

CALLS FOR concerted action, at all levels and by all sectors, for positive conservation measures for Black-tailed Godwits throughout The Netherlands so as to restore the species to former levels of abundance;

URGES the WSG, working with others, urgently to collate and publish the most recent assessments of national breeding wader population sizes and trends in Europe;

ENCOURAGES the establishment of a Wet Grassland Working Group within WSG to aid exchange of information and expertise on waders breeding on farmland habitats;

HIGHLIGHTS the continuing need for information on habitat management for breeding waders to be appropriately targeted to farmers and other land managers;

AND REQUESTS that this Resolution be transmitted to the European Commissioners responsible for agriculture and the environmental policy, the Ramsar Bureau, the Secretariat of the Berne Convention, the Technical Committee of the African–Eurasian Waterbird Agreement, and the Dutch Government, both for their information and to ask them to respond to the issues raised.

ANNEX: TECHNICAL CONCLUSIONS

The Workshop on farmland waders reviewed the concluding statement of the last conference on this theme held by the International Wader Study Group in Ribe, Denmark, in 1989. Whilst there has been progress in some research areas, conservation needs remain as pressing now as they did then.

A range of points was noted in discussion, and the Wet Grassland Working Group will endeavour to promote appropriate actions related to these.

Survey and monitoring

- There remains a need for better surveillance and monitoring of breeding wader populations in Europe. Common standards of survey should be promoted to give greater consistency, but pragmatic solutions which may statistically "merge" results derived from different monitoring programmes should continue to be explored. WSG should liase with the European Bird Census Committee to encourage appropriate activity.

- Both Iceland and Russia hold very significant proportions of European totals of some wader populations, although information on population sizes in these countries is of low precision. Further survey work in these areas is a priority and should be encouraged.

- There is merit in the promotion of simple, and rapid, survey and monitoring techniques that might be extensively applied on a sample basis.

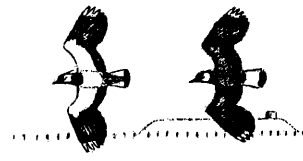
Research needs

- The implications of increased habitat fragmentation for breeding wader populations should be explored.

- The role of predation, and increases in predator numbers, on breeding waders needs to be better understood.

- The implications of increasing use of antihelmithic drugs on cattle and sheep for soil invertebrates is unclear. These may be having significant effects on the food supply of waders.

- There is generally poor understanding of the significance of soil invertebrates for the breeding and feeding ecology of waders. Initiatives that lead to a greater integration of soil science with wader research, and to a monitoring of soil biomass, are needed.



- In undertaking relevant research there is need for explicit hypothesis testing and greater use of formal experimentation to resolve management options.

- There is an urgent need to resolve the causes of the rapid decline of Dutch Black-tailed Godwit populations.

- Implications of ever more intensive forms of farming and agricultural technology need to be kept under review. Development of new techniques of slurry spreading and silage cutting were mentioned as examples.

- It was strongly recommended that greater use be made of modelling population processes as a guide to development of research agendas as well as to assist the formulation of policy options.

Habitat management needs

- There is a need for information on the management of winter cereals for Lapwings and other waders wintering in this habitat.

- The implications of different habitat mosaics for breeding wader populations is unclear and should be investigated.

- Generally, there is a range of good technical information on appropriate habitat management for breeding waders. The issue now lies in ensuring its dissemination to land-managers and appropriate application. To this end, the dissemination of easily understood, non-technical summaries of sympathetic management is a priority. The "farmer-friendly" material produced in The Netherlands by nest protection schemes was noted as a good example.

Conservation issues

- The management of protected areas, whether for breeding waders or otherwise, should be driven by a statement of explicit aims formulated in the context of a site management plan. As noted in 1989, such management planning should make full provision for monitoring (the costs of which should be included in necessary budgets).

- The importance of wader populations in the EU accession states of eastern European was noted. These are of major significance, yet are potentially at risk from intensification processes should the Common Agricultural Policy (CAP), in its current form, be implemented in these countries. The reform of the CAP is complex, and a range of innovative new policies are needed for application both within the current Union and in the accession states. These could include the development of premiums for "wildlife-friendly farming", eco-taxation, and extensification of farming to encourage the boosting of rural incomes through eco-tourism and other such activities.

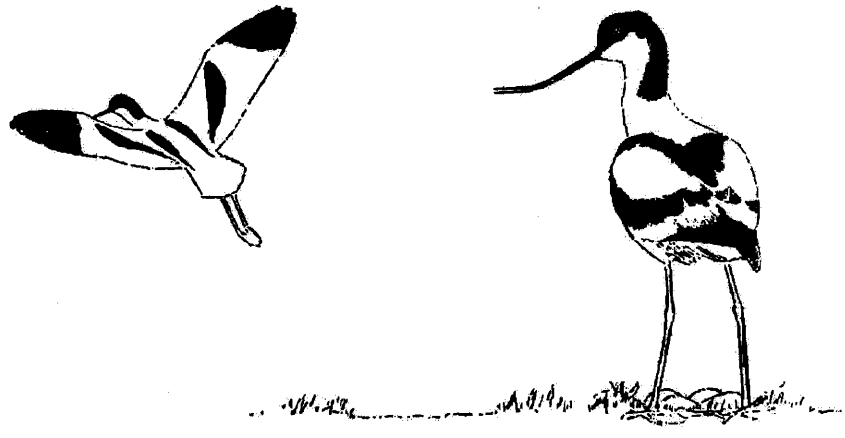
- Links between the Wet Grassland Working Group and the European Forum for Nature Conservation and Pastoralism should be developed so as to share knowledge and information of joint significance, in particular, relevant aspects of agricultural policy reform.

- The abandonment of farmland in many areas of Europe is a potentially serious issue for breeding waders.

- There may be a need to review Annex I of the Birds Directive to ensure that it reflects appropriately the current status of European bird species.

- There is an urgent need to halt and reverse the decline of Black-tailed Godwits in the Netherlands.

- The implementation of Annex II Action Plans for Woodcock, Redshank, Black-tailed Godwit, Curlew and Jack Snipe by EU Member States is an urgent need.



Workshop on Farmland Waders – Abstracts of talks

Winter ecology of Lapwings and Golden Plovers in England

Simon Gillings

University of East Anglia & British Trust for Ornithology, The Nunnery, Thetford, Norfolk, IP24 2PU, England, e-mail: simon.gillings@bto.org

This talk discusses abundance and distribution, habitat use, foraging ecology and nocturnal behaviour of plovers on arable farmland.

The majority of the 1.5 million Lapwings and 250,000 Golden Plovers that winter in Britain utilise lowland agricultural land, yet their current status and the effects of recent agricultural and climate change are poorly known.

The new "Winter Farmland Bird Survey", organised by the British Trust for Ornithology and the Joint Nature Conservation Committee, provides information on abundance, distribution and habitat selection of 30 farmland species including Lapwing and Golden Plover. Across three visits, volunteers surveyed a stratified sample of 1 km × 1 km squares distributed randomly throughout lowland Britain.

During the first winter of the survey 869 squares were visited. Golden Plovers were found in only 7% and Lapwings in 24%. Maximum densities were 800 and 705 birds per km^2 respectively. Mean densities gave population estimates of 590,000 Golden Plovers and 1,600,000 Lapwings though confidence limits were wide (±44% and ±25% respectively). These suggest an increased Golden Plover population since the *Winter Atlas* of the early 1980s. Golden Plovers were concentrated in south and east Britain where use of grassland was secondary to use of cereal crops. Lapwings were more evenly distributed, with use of grassland predominating in the west of Britain. Use of grassland in the east was associated with coastal and river valley grazing marshes. Elsewhere in eastern Britain, birds were found on cereal crops and bare tillage. Compared with the *Winter Atlas*, the distribution of both species appears to have shifted to the east. This is supported by the pronounced increase in the number of plovers wintering on east coast estuaries. This may be a result of the recent trend towards milder winters.

An intensive study in East Anglia showed maximum counts of over 4,000 birds per field. This suggests that the extensive Winter Farmland Bird Survey may have missed some large flocks and has implications for the accuracy of the population estimates. Detailed records of habitat use show that use of cereal crops matched availability as more crops were sown through the winter. In contrast, sugar beet stubbles were scarce but were used intensively in mid-winter where prey intake rates were higher than on any other habitat. Diurnal intake rates, however, were still insufficient to meet daily energy requirements so nocturnal feeding is essential for these species in this area. Contrary to the daytime, plovers occurred in small flocks at night (often <20 birds) and used different habitats and different fields. These differing patterns of day and night distribution mean that conservation prescriptions based on diurnal patterns alone may be inadequate. The importance of linking extensive surveys with intensive studies is emphasised for their correct interpretation.

Dutch Golden Plover studies

The following three abstracts summarize some of the information recently assembled in the book referenced below on the lore of "wilsternetting" (the netting of Golden Plovers and other grassland waders) and the biology of Golden Plovers. Some of these data derive from the extensive wilsternetting effort undertaken over the last 50 years in The Netherlands. A review of the book will be published in a future issue of the *Wader Study Group Bulletin*.

Jukema, J., Piersma, T., Hulscher, J. B., Bunskoeke, E. J., Koolhaas, A. & Veenstra, A. 2001. *Goudplevieren en wilsterflappers: eeuwenoude fascinatie voor trekvogels.* [Golden plovers and wilsternetters: a deeply rooted fascination with migrating birds.] Fryske Akademy, Ljouwert/ KNNV Uitgeverij, Utrecht. (In Dutch with an English summary.) ISBN: 90-5011-147-5. (Note that a separate folder with captions to Figures and Tables in English is available free of charge from T. Piersma, NIOZ, PO Box 59, 1790 AB Den Burg, Texel, The Netherlands).

Golden plovers, a grassland loving migrant in The Netherlands – Timing of migration

Jan Hulscher

Rijksstraatweg 305, 9752 CE Haren, The Netherlands, e-mail: J.Hulscher@biol.rug.nl

Dutch-ringed Golden Plovers recovered in the breeding season come mainly from Scandinavia and Russia, east to the Ural mountains. In The Netherlands, Golden Plovers frequent open grassland in the western, low-level, coastal half of the country. Peak numbers occur in October–November and again in March–April. Winter numbers are usually low, but may vary considerably depending on the severity of the weather.

Several series of long-term counts in different areas of The Netherlands show decreasing numbers in autumn/early winter in the 1980s and 1990s. The decrease was particularly striking on the inland areas that harbour the highest numbers of Golden Plovers and less evident, or even turning into a small increase, in the Delta and Wadden Sea. The decrease of inland staging Golden Plovers was also paralleled by a decrease in total numbers and an acceleration in the timing of observed autumn/early winter migration in The Netherlands (50% of all birds had passed at an earlier date) and an increase in the juvenile proportion of the population (netted birds) in autumn (July/December) and springtime (February/June).

International counts (Table 1) in November 1978 and

Table 1. Estimates of total autumn population.

	November 1978	October 1993
Denmark	64,000	240,000
Schleswig-Holstein	37,000–70,000[1]	70,000
Lower Saxony	46,000	100,000
The Netherlands	403,000	195,000[2]
Total	550,000–620,000	605,000

[1] No count in 1978 but the range of numbers is based on a count in October 1993 and the ratio of the two year counts in Lower Saxony.
[2] No count in 1993 but in October 1996.

October 1993 showed an increase in numbers in Denmark and Lower Saxony, but no real change in the total numbers of birds frequenting those countries. In 1982, hunting Golden Plovers in Denmark was forbidden. This might have been one of the factors responsible for the increase in that country (Rasmussen 1994). If that is right, how can we explain the changes in the behaviour of the birds leading to the redistribution of their numbers within the whole autumn migration area?

Three factors may be important. First, after shooting was abandoned, the survival of juveniles may have increased because juveniles are usually more vulnerable to being shot than adults. Second, adults may have learnt that Denmark had become a safe country in which to moult. Consequently increasing numbers of adults went to Denmark to complete flight feather moult and decreasing numbers to The Netherlands. After completion of the moult, most birds from Denmark may pass directly to the wintering areas by-passing The Netherlands or by flying over at great height unseen by observers. Consequently fewer Golden Plovers were counted on the staging areas in The Netherlands as well as migrating overhead. Third, juveniles do not moult flight feathers in the first autumn. We may assume that the juveniles keep to the normal time pattern during their first migration. This might be determined principally genetically, bringing roughly the same number of juveniles to The Netherlands as before.

In summary, fewer adults and unchanged numbers of juveniles visit The Netherlands so the proportion of juveniles in the population increases. Most adults that visit the Netherlands do so to complete the flight feather moult. They arrive early in the season, accelerating the mean arrival time.

Besides the ending of shooting in Denmark, deterioration of the main inland habitat in The Netherlands due to changing agricultural practices may also have changed the migration pattern in the same direction.

Rasmussen, Lars Maltha. 1994. Landsdaekkende optaelling af Hjejler *Pluvialis apricaria* i Danmark, Oktober 1993. *Dansk Orn. Foren. Tidsskr.* 88: 161–169.

Staging and wintering areas of Dutch-ringed Golden Plovers and the change in hunting mortality

Erik J. Bunskoeke

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The talk highlights results from the analysis of ringing data and recoveries of Golden Plovers ringed in The Netherlands as published in the new book on wilsternetting. I begin by showing the breeding grounds and the southbound migration using recovery data. In early autumn, migration is concentrated in Denmark and the Netherlands. Later, after October, the birds move further south to the Iberian peninsula and the Atlantic coast of North-West Africa. The northward migration in spring is the mirror image of the autumn migration, but with a major difference. A minor though significant part of the population migrates north via the East-Mediterranean Flyway through Italy. This is a shorter route to the south-eastern part of the breeding area. However, recoveries show that birds taking this route do not always choose this flyway because some were ringed in The Netherlands in spring. The analyses suggest a further complication. In autumn, part of the Norwegian population appears to fly direct to the British Isles, but in spring migrates through The Netherlands.

Dutch-ringed Golden Plovers are shown to be remarkably site-faithful. Recoveries in The Netherlands >184 days after ringing show that 75% are recovered within 30 km of the place were they were ringed and 40–45% within 10 km. This is even true for birds ringed as juveniles.

I also present data on the hunting mortality of Golden Plovers, especially in recent decades. Some major developments were the cessation of commercial wilsternetting in The Netherlands in 1978 and the cessation of hunting Golden Plovers in Denmark in 1984 and in spring in Italy in 1988. Although, according to the EC Bird Directive (1979), there should be hunting statistics, information on the number of Golden Plovers shot each year are scarce. Using estimates of bag totals from France and the recovery data of Dutch-ringed Golden Plovers, estimates are made of the number of birds shot each year. Compared with the scarcity of information in the literature, these estimates seem to be fairly good. Comparing the 1980s with the 1990s, the estimated number of Golden Plovers shot each year dropped in most countries; for example in France from >70,000 to 50,000–55,000, in Spain from 15,000 to <6,000 and in North-West Africa (Algeria/Morocco) from almost 8,000 to 3,500. Only in Portugal does the number of birds shot seem to be stable (>15,000). The overall picture shows a 40% lower hunting mortality in the late 1990s compared to the early 1980s. Nowadays, about 100,000 Golden Plovers are killed each year by hunters; that is 5–10% of the population.

Integrated assessment of the population of Golden Plovers: a century of catching and ringing, using wilsternets

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In The Netherlands, a specific local culture and lore has developed around the traditional commercial netting of Golden Plovers *Pluvialis apricaria*. Up to the 1950s and 1960s, the catch of Golden Plovers, or "wilsters", had provided a source of livelihood for hundreds of people in the north of the country. This so-called "wilsternetting" relies on birds being attracted to a small section of a field. The net is wind-driven and operated by means of a string pulled by a wilsternetter hiding behind a screen. The birds do not have to land, they just have to take a close look at a spot made interesting by the presence of stuffed decoys and live decoys that flap their wings in ways that suggest a landing. The imitation of the calls and song phrases made on special flutes by the wilsternetter is meant to attract passing flocks from long range, and then keep such flocks attentive to the catching area. When a flock passes low over the catching area, always in the direction of the wind, the wilsternetter pulls the net up from behind the screen. The flock meets the net, which is loose and baggy, in mid-air and then it is too late for most birds to evade entanglement in the wide meshes. Often a catch comprises only a single plover but sometimes more, and occasionally several tens of birds.

Using daily catch rates, it is possible to derive rough estimates of population size going back 100 years. Ever since birds were ringed rather than taken for food, now almost 40 years ago, we can also use ringing and recapture data to assess changes in the demography of Golden Plovers.

Consistent with the idea that average daily catches made by the wilsternetters in a particular year may provide an index of the abundance of plovers, positive correlations were found between daily catch rates made by the various wilsternetters in November and December over most of the 20th century, between overwinter overall catch rates by the wilsternetters in the provinces of Friesland and Groningen, respectively, and between the monthly catch rates and the numbers of Golden Plovers present in one particular coastal area in northern Friesland. The daily catch rates in the course of the 20th century suggest peak population sizes immediately after the First World War. Numbers dropped in the early 1930s, increased and then dropped again during the Second World War (when the pressure from Dutch wilsternetters was high). After 1945, there was a steady increase in catch rates levelling off in more recent decades. The increasing trend in Golden Plover abundance over the last 40 or 50 years is confirmed by the Petersen estimates of sampled population size, based on captures and recaptures of plovers netted in The Netherlands, although locally there have been many declines in the numbers of staging birds which may have moved to stopover sites elsewhere in Europe, notably in Denmark.

We believe that the traditional wilsternetters have an important role to play in scientific studies. By the sustained catch and study of several thousand Golden Plovers per year, the wilsternetters collect comparative data on juvenile percentages, faithfulness to particular staging areas, location of the wintering areas, the use of alternative migratory routes in spring, the conditions in autumn and spring (based on moult assessments), annual survival and estimate population size. Given sufficient interpretative knowledge, these biological data on Golden Plovers can inform us in an integrated way about changes in the global environment. In this way, a centuries-old craft can be turned into a powerful tool in modern human society.

Nest site selection by Lapwings *Vanellus vanellus* in arable landscapes

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Micro-habitat nest site selection by Lapwings *Vanellus vanellus* was studied in a variety of crop types, including an agri-environment prescription (Option 1B) within the Pilot Arable Stewardship Scheme. Crop characteristics at the nest site, adjacent to the nest site and randomly within the same nesting field, were recorded to see if Lapwings were selecting nest sites with certain characteristics and to identify differences between crop types. Results showed differences between crops in relation to crop height, cover and ground topography. In winter cereals, Lapwings were shown to be nesting in areas with shorter crop height and less crop cover than would be expected by chance. Nests in Option 1B fields were in areas with shorter vegetation than expected, but there was no difference in vegetation cover. In spring crops, stubbles and set-aside, there was no apparent selection for crop characteristics and therefore, wider landscape features are assumed to be a more important factor influencing nest site selection. Nest site availability may be limiting in areas dominated by winter cropping and could contribute to the documented population decline recorded in the species. The implications for Arable Stewardship Option 1B are discussed in the context of nest site provision.

The effects of experimental management on Lapwing productivity and their food supply

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Management of lowland wet grassland in Britain has changed substantially since the 1950s. A high proportion is now managed intensively for grazing and silage production through drainage, application of inorganic fertilisers and reseeding with competitive species. As a consequence Lapwing productivity on lowland wet grassland has declined significantly in recent years however the mechanisms of this decline are poorly understood. At the Royal Society for the Protection of Birds Reserve at Loch Gruinart, Islay, Scotland, we have set up a large field scale factorial experiment to investigate the effects of water, fertiliser and reseeding manipulations on Lapwing productivity and their food supply.

Preliminary results from the first year of the study show that earthworm biomass is particularly sensitive to management with significant responses to water treatments ($F_{1,25}$=9.96, P=0.004), fertiliser treatments ($F_{2,25}$=7.13, P=0.004), reseeding ($F_{1,25}$=7.41, P= 0.012) and location i.e. rig and ditch ($F_{1,25}$=23.83 , P= 0). There was no effect of treatment on numbers of surface invertebrates. There was no effect of treatment or reseed on nest success. Significantly more broods used late fertiliser treatments than early and mid ($F_{2,177}$=17.18, P=0.022) and more used ditches than rigs (t=28.23, d.f.=119, P= 0) indicating preference for areas of shorter sward. Survival of chicks from nests that hatched on high and low water treatments did not differ significantly ($F_{1,9}$=0.012, P=0.911). Fertiliser treatment had no effect ($F_{1,9}$=0.007, P=0.931). First clutches survived better than relays ($F_{1,9}$=3.9, P=0.45).

The influence of environmental factors on the productivity of meadow bird populations in Germany – a new project

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For the past 20 years, measures for meadow bird conservation have been put into practice in the river lowlands of the Bremen basin, Germany. There are also numerous projects for the restoration of wet grasslands such as low intensity agricultural practice and the management of water levels. For the past 13 years, the settlement and breeding success of the birds has been studied.

After several years of successful minimization of agricultural impairment and of increasing meadow bird populations with good breeding success, present-day meadow bird conservation is confronted with other problems. During recent studies on Corn Crakes *Crex crex* and other meadow bird species, it was noticed that the breeding numbers of Lapwing *Vanellus vanellus*, Black-tailed Godwit *Limosa limosa* and Common Snipe *Gallinago gallinago* have decreased considerably (Boye & Mammen in prep.). We find substantial breeding losses mainly caused by predation during night (up to 80% of clutches). In some areas, the birds do not show breeding behaviour any more (up to 70% non-breeding pairs). The suspicion arises, that stress factors and food shortage influence fitness and conditions for breeding.

A new research and development project will analyse the factors influencing or limiting the productivity of meadow bird populations. This project will concentrate particularly on the condition of the breeding birds and predation. Also, attention will be paid to other aspects like available nesting space, food supply, competition, human activities and water management. The project starts with a detailed literature study. Also, the living conditions of meadow birds in primary habitats (e.g. arctic tundra) will be compared with the wet grassland biotopes (Zöckler in prep.). Therefore the project will identify research deficits. During the winter 2001/02, a website will be created setting out what we know from past research and calling scientists operating in this area to participate in the discussion of problems and research deficits. The project program in 2002/2003 is likely to include the following activities:

- the monitoring of nests and young with e.g. night-vision devices, a thermologger, video recording of nests and telemetry;
- the registration of the activities of potential predators of meadow birds;
- temporal and spatial registration of the activity budgets and condition of breeding birds;
- looking for adverse effects during migration and winter (flyway approach, hunting activities);
- analysis of climatic factors and the food supply for meadow birds.

Endangered species cannot be used for all investigations. Our main aims are: (1) to clarify the effect of predators on endangered bird populations in agricultural landscapes, (2) to identify gaps in our knowledge relating to the year-round protection of the endangered species involved, and (3) to devise recommendations for meadow bird conservation in the future.

Status of breeding Ruff *Philomachus pugnax* in Eurasia

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Breeding Ruffs have declined all over Europe. Evidence has been collected from the Netherlands, Germany, Denmark, Poland, Estonia and some Russian districts, as well as some areas in Scandinavia. Trends as far as available are shown for the entire breeding range in Eurasia and analysed in a flyway context.

The Ruff is still one of the most common wader species in the world. Often a declining trend in a common species like this is less likely to be noticed than a well-monitored rare species. This explains the lack of data for many areas in its main breeding area in the Eurasian tundra. A decline was first noticed in those areas and countries where the species is only a marginal breeder, such as Germany, The Netherlands and Poland. Although it was fairly common in these countries only 20–30 years ago, the last 10 years has seen a decline that has been drastic and alarming. Assessment of conservation priorities requires studies beyond that of a site or region; indeed it needs coverage of the entire flyway.

Before studying reasons for the decline, I have gathered details of what is known about the status of the species in terms of distribution, population size, trends and gaps in knowledge. A preliminary analysis suggests that various different factors might be responsible for the decline; not only local or regional factors, like drainage, intensive farming and predation, but also global factors such as climate change and desertification.

The causes of the decline in the Ruff population have often been thought to relate to intensive farming and drainage since it coincided with decreases in several other wet grassland birds. A more comprehensive flyway-oriented analysis covering the whole of the breeding range might reveal different answers and also provide solutions for the benefit of other wader species and for a wider biodiversity in open wetland habitats.

Population trend and breeding success of Black-tailed Godwits in The Netherlands: can we sustain a population in agricultural grasslands?

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The Netherlands is the European stronghold of Black-tailed Godwits, with about half the population breeding in about 1990. A major decline started in the early 1960s, but it was thought that this had been halted by conservation schemes during the 1980s. However, recent data reveals a loss of a third of the population since 1990 and a contraction of the range into the traditional strongholds in the north and west of the country. Identifying the cause of this decline is hampered by a lack of data on survival and reproduction.

Chick survival and breeding productivity were studied at nine grassland sites in the western Netherlands between 1997 and 2000. These sites were used for modern dairy farming, but measures aimed at the conservation of meadowbirds (postponed mowing, marking of nests and sparing them during mowing and grazing) were applied. Chick survival was measured in 62 broods of which one of the parents was radio-tagged. Based on radio-tagged birds, re-nesting rate after clutch loss was estimated at 100% at one site and 50% at the others, but no replacements were produced after late May. For ten sites/years, average clutch survival was 54%, with a mean of 3.3 chicks hatched per successful nest. On average 26% of these survived to fledging, giving a mean of 0.56 young fledged per breeding pair (*Limosa* 73: 121–134, 2000).

In 50–67% of all 12 studies in Dutch agricultural grass-

lands to date, breeding success was lower than the 0.5–0.7 young/pair required for a stable population based on published mortality estimates. This implies insufficient breeding success as one cause of the decline. Variation between our sites and the very limited data from nature reserves suggest that chick survival and breeding success increase with the proportion of grassland mown late (after 31 May). We conclude that "agricultural nature management schemes" can only safeguard a Black-tailed Godwit population on farmland when practical measures are applied at a larger scale, or more effectively, than at present.

Breeding success of Lapwings *Vanellus vanellus* at two German wetland reserves: Stable numbers in spite of high predation rates

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From 1997 to 2000, I studied the hatching and fledging success of Lapwings *Vanellus vanellus* at two wet grassland reserves in eastern Germany (in the valleys of the Havel and Oder in the state of Brandenburg). Study sites differed with respect to water regime and breeding densities of Red Fox *Vulpes vulpes*. A part of the Oder valley is subject to near-natural flooding in spring.

Numbers remained stable during the 1990s. Reproduction was not sufficient to maintain the local populations due to high nest predation. Temperature observations revealed that 62% of unsuccessful nests were taken at night, i.e. by mammals, regardless of local fox density. Another 13% were deserted without egg losses. Chick survival was adversely affected by severe drainage in the Oder valley.

The results are similar to those obtained for other German reserves. Water-level is expected to act as an ultimate factor of breeding success. Semi-natural spring inundations can lower the breeding density of foxes, but not the overall predation rates by carnivores.

Breeding waders, SPAs and the EC Birds Directive: the situation in Lower Saxony, Germany

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At 47,000 km^2, Lower Saxony comprises about 13% of total land area of Germany, but the portion of the breeding population is much higher for several wader species, particularly Black-tailed Godwit (66%) and Redshank (60%).

The populations of all wet meadow birds have decreased since the 1960s, mainly due to large-scale drainage and agricultural intensification. All waders that breed in Germany are on the Red Data list except Oystercatcher. However, only one species, the Ruff, is listed in Annex I of the EC Birds Directive.

To date, all conservation efforts have been insufficient to halt the decline of wader populations. For the western part of the country we have good data on trends for the last 15–20 years. Populations are still decreasing in the 109 most important sites (totalling 1,260 km^2) in southwest Germany. Calculated using the TRIM-program, we found a decrease in Snipe of 65% (970 to 340 pairs) and in Black-tailed Godwits of 50% (2,580 to 1,355 pairs) from 1987 to 1997. All other species, except Oystercatcher, are also declining.

Future government conservation measures will concentrate on Special Protected Area designation. However, designation of SPAs alone is insufficient for the effective conservation of breeding waders in Lower Saxony! Nevertheless we should still demand that all important sites be designated as SPAs. We also need to look at the question of changing Annex I of the EC Birds Directive and the CAP AGENDA 2000 (e.g. to establish an efficient meadow bonus).

The Black-tailed Godwit Appeal: a call for concerted action in The Netherlands

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In 1990, the Dutch government aimed to sustain 100,000 Black-tailed Godwit breeding pairs in The Netherlands. It was hoped that nature reserves and managed grasslands would assure the continued existence of this internationally important population of Black-tailed Godwits together with other farmland waders. Additional (and large!) numbers were thought to continue breeding on farmland. Before 1990, the quality of Dutch farmland had dropped below a level where Snipe and Ruff could be sustained. After 1990, infrastructure, rural and recreational development claimed more and more land and, as a result, farmland wader habitat was destroyed and fragmented further. Moreover, the quality of grassland in the remaining areas deteriorated through agricultural intensification, even in grassland reserves specially managed for breeding waders. During this period the number of "farmland wader" volunteers increased to several thousands. These volunteers work in close co-operation with farmers to protect clutches and chicks against trampling and mowing. In addition, the Dutch government developed financial incentives for farmers to "produce" successfully fledged wader clutches.

Despite all these volunteer and governmental efforts, Black-tailed Godwits breeding in Dutch grasslands continue to decline. A platform of organisations was established in 2000 for a concerted effort to turn the tide. Several meetings and a workshop for professional and volunteer conservationists and researchers were dedicated to the possible causes of the Black-tailed Godwit decline. These efforts will briefly be reviewed. In spring 2001, the campaign "The Black-tailed Godwit Appeal" was initiated and aims to address all parties involved in and responsible for Black-tailed Godwit conservation in The Netherlands. Politicians, farmers, reserve managers and "farmland wader" volunteers have been asked to follow up management recommendations for Black-tailed Godwits. An overview of the outcome of the appeal will be given and several scenarios for the future of the Black-tailed Godwit will be presented. It is argued that successful conservation of farmland waders, and the Black-tailed Godwit in particular will depend on how much ecological thinking can be incorporated in the thoughts and habits of farmers, grassland managers and politicians.

Nest-protection of ground nesting birds on farmland in the Netherlands

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Large numbers of ground nesting birds breed in The Netherlands including about 225,000 pairs of Lapwings and 60,000 of Black-tailed Godwits. Densities are much higher than in most other countries in Europe. Because these are widespread and attractive species, the government has developed several instruments for their conservation:

- reserves managed by nature conservation organisations from the beginning of the 20th century;
- management agreements with farmers in environmentally sensitive areas for maintaining a resting period on fields between 1 April and 1, 8, 15 or 22 June, from 1975.
- nest-protection by volunteers and farmers, on an national scale from 1994.

This talk focuses on the last issue: nest-protection.

Nest-protection involves searching, marking and (if necessary) protection of nests against loss by agricultural activities such as fertilizing the soil, sowing seed, grazing fields with cows, cutting grass etc. Nest-protection in the Netherlands started after the Second World War in the province of Fryslân by the Bond van Friese Vogelbeschermingswachten (BFVW) because the number of Lapwings had declined through the taking of eggs for human consumption (arising from the lack of food during the war). After 1945, egg-taking continued but less intensively and until a lawfully determined date after which nest-protection started.

Between 1980 and 1990, the organisations of Landschapsbeheer in Noord- and Zuid-Holland en Overijssel started to coordinate and facilitate nest-protection in their provinces because of the growing realisation that modern agricultural activities resulted in the loss of large numbers of nests. Along with other agricultural developments, such as lowering the water level in ditches, changing and destroying habitat, etc., this had contributed to declines in the populations of many ground-nesting farmland birds. In 1994, another threat to these species arose when farmers were required to dig slurry into the ground, with specially developed machines, rather than spread it over the ground (in an attempt to reduce ammonia emissions).

For all these reasons, in 1994 the Netherlands government started the project "Weidevogels". The aim was "to contribute to the maintenance of the populations of ground nesting birds on farmland by improving breeding success by minimising the loss of nests as a result of agricultural activities". Several organisations were involved, particularly those:

- that coordinate farmers and volunteers: LTO-Nederland (the farmers union and local groups of farmers involved in nature conservation), BFVW, Vanellus vanellus (both organisations of people that first seek out and take Lapwing eggs and then protect nests) and Landschapsbeheer Nederland (LBN);
- with a great number of local birdwatchers and/or skills relating to information, education and PR: Vogelbescherming Nederland (Bird Life) and the Centre for Agriculture and Environment.

The first period of the project was from 1994 to 1998 and the second period from 1999 to 2003. The annual budget is *f*1,500,000–2,000,000 (700,000–1,000,000 euro). The costs are paid jointly by the national government and the provinces with a contribution from the EU of 50% in 1995–1997. Actions undertaken are:

- coordination of farmers and volunteers;
- information and education for farmers and volunteers;
- monitoring and evaluation of nest-protection.

RESULTS

Because of the extra impetus of the project, the area with nest-protection increased from 118,254 ha in 1993 to 333,436 ha in 2000. The number of farmers involved increased from 5,370 in 1993 to 16,515 in 2000 and the numbers of volunteers from 5,528 in 1993 to 10,802 in 2000. In this way almost 16% of the total land area of the Netherlands is now covered by nest-protection. This is about 30% of the area important for ground nesting birds.

In an effort to gather data, farmers and volunteers are asked to record the nests they find and note whether the eggs hatch and, if not, the cause. They are also asked to note against what each nest was protected, e.g. grazing cows, mowing machines, etc. To promote data collection, LBN has developed a simple notebook for recording nest details and a computer program for collating the data and printing different kinds of reports. Therefore it is known that in 2000:

- 177,179 nests were found: 100,896 of Lapwing and 26,714 of Black-tailed Godwit.
- nesting success is known for 99,277 nests: an average of 71.4%;
- losses through predation were 15.3% and losses as a result of agricultural activities 5.3%;
- at least 25,171 nests were protected against agricultural activities of which 80.0% hatched, predation was 8.7% and loss to agricultural activities 3.8%.

In reality much more than 25,171 will have been protected because many volunteers do not record all relevant data. The figures presented above are good indications but not based on thorough research and they are not complete. Nevertheless the number of nests recorded is large enough to give some certainty about the results.

The question arises: is nest-protection effective? SOVON (the Dutch Centre for Field Ornithology) found in a three-year study that, in areas with nest-protection, twice as many eggs hatched than in areas without nest-protection. In areas with nest-protection, the number of breeding Lapwing, Oystercatcher and Redshank was significantly higher than in areas without nest-protection. Black-tailed Godwit showed a difference, but it was not significant. These results demonstrate the effectiveness of nest-protection. However, that is not enough by itself because, in order to maintain populations at a sufficient level, enough young must fledge. To achieve that for the Black Tailed Godwit it is necessary to have a large enough area of grassland where the grass is mown late (1, 8, 15 or 22 June). Therefore nature reserves are

needed or fields where the farmer has contracted to delay cutting the grass until June.

In the view of LBN, nest-protection is a good basis for the adequate management of ground nesting birds. However, it also requires reserves and/or management contracts in the same area. A mixture of strategies is needed in order to maintain the desired biodiversity and population size of ground-nesting birds.

Annual Conference – Abstracts of talks

Monitoring the abundance of migratory and wintering waders in the Dutch Wadden Sea: a progress report

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Much is known about the total number and distribution of waders using the Wadden Sea, far less about annual changes in abundance. As the area is of prime importance for migratory waterbirds, such data are vital for the proper evaluation of management policies. Despite the high level of protection given to the Dutch Wadden Sea (Ramsar site and Special Protected Area under EU legislation), all sorts of potential threats caused by human exploitation still exist. Due to the large size of the region, the inaccessibility of certain parts and the dynamics of the waterbirds in time and space, monitoring is not an easy task. There is a framework for the conservation of the Wadden Sea: the Trilateral Cooperation Agreement for the Protection of the Wadden Sea, a joint-monitoring programme started by the Wadden Sea countries in 1992/93. This includes infrequent synchronous counts of the whole Wadden Sea and frequent counts in a selection of sites. More recently, the Dutch Government has started a national programme to collect systematic data on biodiversity in the Netherlands, to be used for policy decisions (Netwerk Ecologische Monitoring). In that context, the suitability of the collected data is currently being evaluated in the context of the Netherlands as a whole. In this talk, we will show the progress that has been made in the quantity and quality of the data that has been collected since 1992/93. We will then describe the progress that had been made and some of the problems of combining the data in annual indices of wader abundance in the Dutch Wadden Sea.

Changes in migration timing and abundance of *Tringa* species at Münster sewage farm, Germany, 1969–2000

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Using data from 32 years of daily counts of roosting waders at Münster sewage farm, NW Germany, trends of migration timing and roosting numbers of five *Tringa* species are estimated. The following indexes were calculated: first and last dates of migration (days of 5% and 95% percentiles), median (50% percentiles), duration of main migration period (days between 17% and 84% percentiles) and mean number of individuals during the main migration period.

Two species, Spotted Redshank *Tringa erythropus* and Wood Sandpiper *T. glareola,* show significantly earlier spring migration and later autumn migration. Greenshank *T. nebularia* shows only slight changes in first date of spring and last date of autumn migration. Possible reasons for the observed shifts (local habitat quality, composition of roosting population, roosting duration, changes in migration timing due to climate change) are discussed. Green Sandpiper *T. ochropus* has advanced its autumn migration median by 8 days. Reasons remain unclear, but possible influences of range expansion, advanced breeding and changes in structure of the roosting population are discussed. The Redshank *T. totanus* has postponed its autumn median by 29 days, but correlation analysis reveals the impact of the loss of the local breeding population as a major factor.

The mean number roosting has declined dramatically in all five species. This decline is much more obvious in autumn than in spring. This might be partly due to changes in habitat quality at Münster sewage farm. In 1975, the input of hypertrophic sewage stopped and was replaced by treated water from a modern sewage plant. Therefore, the nutrient load of the ponds and in consequence prey availability has declined significantly.

Migration of Little Stint *Calidris minuta* at Eilat, Israel

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4,900 Little Stints were caught, ringed and measured at Eilat, Israel during 1984–2000. Autumn migration peaked in September but migrants were trapped until December. Spring migration peaked in April. Small numbers of Little Stints also overwinter at Eilat. In general, sex ratio was male biased (*c.* 60% of birds sexed based on biometrics), but females dominated among the birds that started the autumn migration earliest, in August, and among the overwintering birds. Despite their unique mating-system, Little Stint may thus fit the general pattern of females being first to leave the breeding grounds. Body mass varied greatly, with 90% of birds weighing between 19 and 29 g. Birds prepared for a long-distance flight and having fat stores exceeding 30% of their lean mass occurred mostly during August–October. In contrast, the percentage of individuals apparently emaciated after a long non-stop flight (body mass below 19 g) was greatest during the return migration in March–May. This suggests that at

least a proportion of Little Stints are crossing the arid areas of northeast Africa in a single non-stop flight. The body masses of individuals overwintering at Eilat remained low but stable. Retraps indicate that Eilat is an important staging site for Little Stints.

Population trend of the Slender-billed Curlew *Numenius tenuirostris* 1850–2000

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The population trend of the critically endangered Slender-billed Curlew is analysed for the first time on the basis of museum specimens (1850–1974) and field observations from the BirdLife International database (1970–2000). Trends calculated on different regional scales all show a consistently negative trend that has become steeper in recent decades. Reduced reproduction is identified as an important factor in addition to increased hunting mortality. Periods of low reproduction coincided with prolonged periods of drought in Central Siberia where the presumed breeding areas are situated. These results suggest that drought-related factors in or close to the breeding grounds, such as habitat loss, lower habitat quality and possibly predation, all contributed to the decline. We conclude that it is nearly impossible to obtain a population size estimate of this rare and ultra-dispersed species. Despite that, it becomes increasingly clear that the Slender-billed Curlew is now very close to extinction.

Waders on a sandy coast: risky foraging in a changeable environment

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Why do the majority of waders ignore the sandy beaches of the Caspian Sea despite having there an abundant and unlimited food resource (amphipods thrown by waves)? In order to answer this question, the dynamics of wader migration, microhabitat distribution and foraging behaviour of different species, and the dynamics of food abundance have been examined.

During the peak of autumn migration of waders in August, only the Sanderling *Calidris alba* is numerous on the sandy beaches whereas other species congregate on mudflats of the sea bays or lakes in adjacent arid grassland areas. Only at the end of the migration period in October do a few species become relatively numerous on the sandy beaches. These are Dunlin *Calidris alpina*, Curlew Sandpiper *Calidris ferruginea*, Redshank *Tringa totanus* and Grey Plover *Pluvialis squatarola*. During spring migration, only Terek Sandpiper *Xenus cinerea* and Sanderling congregate in significant numbers on sandy beaches in May.

Big amphipods are scarce on the sandy beaches in August, but their abundance peaks during October. Chironomids, being the staple food for waders on the mudflats, are most abundant during August. Thus, on sandy coasts prey abundance is not synchronized with the passage of waders, but on mudflats it is. There are two zones of high prey densities on sandy beaches: 1) the edges of falling waves with visually detectable amphipods and 2) the middle of the wave pouring line with amphipods hiding in the moist and smooth sand. Only when there is moderate surf is it favourable for waders to forage on sandy beaches. Too few amphipods are available to the birds when it is calm. When surf advances across a beach, it impedes both visual detection of prey and tactile detection by single probing as used by the majority of wader species. Multiple probes while advancing, as used by Sanderling and Terek Sandpiper, allow these species to use tactile foraging successfully on moist moving sand and on wet dense sand. The density of amphipods was the only factor that explained the microhabitat distribution of these species. Foraging becomes less profitable for the other species under the unstable circumstances of sandy beaches due to various ecological and behavioural constraints.

Preen waxes in shorebirds: what functions do they serve?

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Birds produce fatty substances from their preen gland – a small gland on the rump – that are preened into the plumage to offer protection against getting soaked and feather wear. The composition of preen wax secretions, complex mixtures of hundreds of different waxes, differs between taxa and species of birds. Migratory shorebird species have been found to show pronounced seasonal changes in wax composition. At the moment of departure to and arrival on the High Arctic breeding grounds, the usual monoester waxes drastically change to the more complex diesters that are maintained throughout the breeding season.

Diesters have higher molecular weights, and thus higher melting points, than monoesters. Especially under cold arctic circumstances, diester waxes are more difficult to preen into the plumage. Natural selection is expected to select against such a shift in preen wax composition. Because diester waxes are only produced during the breeding season and the seasonal changes are found in many migratory shorebird species, we suggest that the secretion of diester waxes is a sexually selected trait. We expect that only high-quality individuals in good physiological condition can produce the special diesters. If diester waxes reflect (ultraviolet) light differently than monoester waxes, they could act as a visual signal.

Other possibilities are that diesters serve as specialised anti-parasitic compounds that protect feathers against featherlice or mites, or that different environments demand different feather protection against wind or UV-radiation.

We will discuss several hypotheses concerning the functions of, and changes in, preen wax-composition in different shorebird species.

Primary moult of waders revisited; patterns of variation in the primary moult of individual feathers

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The dates of commence and the duration of moult for each of the 10 primaries of six populations of migratory waders are estimated: Turnstones in Scotland and in southern Africa, Sanderling and Knots in southern Africa, and Grey Plovers on the Wash, E England, and in southern Africa. The overall duration of moult of northern populations of Turnstones and Grey Plovers was similar. However, these Turnstones moulted their inner primaries almost simultaneously and their outer primaries more slowly, while Grey Plovers moulted the inner primaries slowly and their outer primaries rapidly. The two species are using contrasting strategies in their attempts to complete primary moult before the onset of harsh winter weather. The Grey Plover strategy is less successful than the Turnstones, because about 20–30% of Grey Plovers suspend moult in late autumn, and complete it in spring, while Turnstones hardly ever suspend moult. There is also considerable variation in the patterns of moult for the four southern populations considered. Grey Plovers expand the period of moult to take advantage of the long, warm summers. In contrast, the duration of moult for Knots and Sanderlings in southern Africa was little longer than that typical of northern populations fitting moult into the period between arrival on southwards migration and the beginning of winter.

Moult strategies of holarctic-breeding waders in tropical NW Australia

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We report preliminary results of moult studies carried out during expeditions to the vicinity of Broome in tropical NW Australia, an area that supports a peak population of around 750,000 waders. Expeditions have focussed on the main periods of arrival and departure of Holarctic migrants: September–October and March–April. Therefore the moult data are mainly limited to these periods. Further expeditions to fill gaps in the moult record are planned. Although over 30 wader species are caught regularly, the major part of the dataset relates to eight: Greater Sandplover *Charadrius leschenaultii*, Great Knot *Calidris tenuirostris*, Red Knot *C. canutus*, Red-necked Stint *C. ruficollis*, Curlew Sandpiper *C. ferruginea*, Bar-tailed Godwit *Limosa lapponica*, Terek Sandpiper *Xenus cinereus* and Grey-tailed Tattler *Heteroscelus brevipes*.

In all of the main study species, the young remain in Australia during their second northern hemisphere summer, not returning to the Arctic until they are nearly two years old. During January–June of the year following their arrival, many replace 3–5 outer primaries ("the R-moult"), but some replace no primaries whereas others replace all of them. It is suggested that primaries are replaced because, being weak juvenile feathers, they quickly deteriorate in the harsh tropical environment. Therefore replacement ensures that flying efficiency is maintained. This may be particularly important in NW Australia where there are sizeable populations of avian predators. What is less clear is the reason why the immatures fall into three distinct categories: those that replace all primaries, those that replace only the outer 3–5 and those that replace none. Possibly those that replace none are the least fit. They may be loaded with parasites or poor feeders that lack the energy resources to replace primaries. As a result they may suffer a significant loss of flying efficiency when their primaries become worn. Replacing the outer 3–5 primaries would appear to be the least costly option for retaining flying efficiency.

In July–August, immatures, now a year old, commence a conventional primary moult, starting with the innermost ("the 5-moult"). Adults do not arrive and start their annual primary moult until later. In most species, however, the 5-moult of immatures is slower than that of the adults. As a result, there is little difference between their moult scores by late October. Both adults and immatures complete their 5-moult during January. Thereafter they are generally indistinguishable, both having virtually new plumage. Towards the end of their 5-moult, some immatures of six of the study species start a new phase of primary moult ("the 6-moult"). Possibly this is necessary to replace the inner primaries which are then about six months old.

In Curlew Sandpiper and Greater Sandplover, the 5-moult of adults and immatures is virtually simultaneous. No Curlew Sandpipers have been found with 6-moult. This suggests that, as their 5-moult is as late as the adults, they have no need to replace their inner primaries. In contrast, 6-moult has been recorded in several immature Greater Sandplovers and the reason for this apparent inconsistency is not clear.

Western Sandpipers during the non-breeding season: spatial segregation on a hemispheric scale

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The Western Sandpiper *Calidris mauri* is a migratory shorebird that breeds in Alaska and overwinters on the Pacific and Atlantic coast of the Americas. Based on 19 data sets (British Columbia to Ecuador on the American west coast and South Carolina to Venezuela on the east) the differential distribution of age and sex classes of Western Sandpipers during the non-breeding season has been documented.

With increasing distance from the breeding grounds, females become more abundant relative to males. The distribution of juveniles describes a U-shape. Two factors that could influence the differential distributions are discussed:

1. Differences in life-history traits between adults and juveniles and between males and females might contribute to the observed distribution, including different moulting strategies and differential benefits of gaining experience in the first summer.
2. Densities of invertebrates living in the upper intertidal layer are predicted to be lower in the south compared to the north due to intense competition by crabs. Conse-

quently, females, which have a longer bill than males, would be better suited to feed at southern latitudes than males, as birds are forced to probe deeper.

Radio-tagged Pacific Golden-Plovers: the Hawaii–Alaska link, spring destinations and breeding season survival

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To learn more about mid-Pacific migration, we radio-tagged 20 Pacific Golden-Plovers *Pluvialis fulva* in spring 1996, 40 in spring 1999, and 21 in spring 2001 on their wintering territories in Hawaii. The birds departed in late April, and 22 were relocated in Alaska (through aerial monitoring by colleagues) either on breeding grounds or en route to them. Nine individuals were in or near the Nushagak River lowlands in southwestern Alaska. This region contains nesting grounds (discovered in 1994) seemingly disjunct from the main breeding range in western Alaska. On the primary western range, we found 4 radio-tagged individuals near the northern edge of the Seward Peninsula, and 3 on the Yukon–Kuskokwim Delta. Stopovers were detected at the Copper River Delta and on the Alaska Peninsula. Our results, along with other recent records, suggest that: 1) Pacific Golden-Plovers wintering in Hawaii nest throughout the breeding range in Alaska, 2) the breeding range is continuous from the Nushagak lowlands westward to the Yukon Delta region, and 3) the species' overall breeding distribution in Alaska differs significantly from AOU Checklist boundaries. The temporary attachment of transmitters (they are shed during summer moulting) had no apparent effect on the spring-to-fall survival of the 1996 and 1999 sample groups. Birds that had carried transmitters returned to their winter territories in Hawaii at a rate nearly identical (85%) to banded plovers not radio-tagged (87%). We have no data as yet on returns of the 2001 birds. High rates of survival continued during fall-to-spring wintering seasons. A key feature associated with success on urban wintering grounds in Hawaii is the remarkable ability of Pacific Golden-Plovers to coexist with humans. This adaptable tundra plover often establishes territories in backyards, roosts on rooftops and sometimes accepts handouts of food, including french fries at McDonalds!

Foraging behaviour of Golden Plover chicks: habitat use and time budgets

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The behaviour of chicks of American golden plovers (*Pluvialis dominica*) during their growth period was studied on the sub-arctic tundra near Churchill, Canada. A total of 9 plover families were followed in order to assess how the time budgets of the chicks are influenced by environmental temperatures and how the chicks adjust their behaviour to unfavourable weather conditions. In addition, we gathered information on the movements of the families, their habitat use and their general activity pattern. Nests were located in dry habitats with short lichen vegetation. After hatching, families generally remained in the territory, moving not more than 500 m away from the nest site. Adults attended the chicks alternately, one parent foraging at some distance while the other brooded the chicks and kept watch. Chicks did not forage at night. On warm days (>20°C) time spent on foraging was as high as 80% of the active day, increasing rapidly to 100% as the chicks grew older. On colder days (<10°C), foraging time was only 20–30% in very young chicks, increasing gradually to 80% in chicks 15 days old. The length of the brooding bouts of the chicks was 12 min on average, independent of the age of the chick or of weather conditions. Instead, the length of the foraging bouts increased with age. Under cold weather conditions, the foraging strategy of the chicks changed. Foraging bout lengths were shortened considerably, which led to a decrease in overall foraging time, but the frequency of bouts increased. Although the body temperature of the chicks was lower under colder environmental conditions, body temperature at the end of a foraging bout never fell below 35.5°C, which is high for a precocial chick. This and other results suggest that in Churchill, golden plover chicks are not limited in their foraging behaviour by ambient conditions and they can collect sufficient amounts of food in the short periods of foraging that are available to them to sustain normal growth. By minimizing foraging bout length and maximising being brooded by the parent, chicks may increase their digestive efficiency and also save energy that would otherwise be expended on thermoregulation and locomotion.

Migratory shorebirds in Paraguay: advances towards the development of a conservation strategy

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Although the distribution and abundance of Nearctic migrant shorebirds along the coasts of South America is relatively well known, few studies have looked at shorebird populations in the interior of South America. The fundamentally distinct austral migration system has received even less attention, either as a major global migration system or as a regional conservation issue. Consequently, in 2000, *Guyra Paraguay* initiated a migratory bird program supported by the National Fish and Wildlife Foundation, with the ultimate goal of developing a strategy for the conservation of both Nearctic and austral migrants in Paraguay. Here we provide a summary of the results to date, including monitoring programs at two sites: the Bahía de Asunción, Central department, and the Laguna Salada complex in Presidente Hayes department.

A total of 22 Nearctic migrant shorebirds have been recorded in Paraguay, two for the first time during recent fieldwork: *Arenaria interpres* and *Calidris alpina*. Of these, 20 were recorded during the period 2000–2001, the only exceptions being the possibly extinct *Numenius borealis*, and *Phalaropus fulicaria*, the latter known from just one historical record. Eight species were recorded for the first time in specific geographic regions of the country, and 14 were

found to be more abundant than previously documented. In addition, the phenomenon of "oversummering" was documented for the first time in Paraguay for a total of 8 species. The Bahía de Asunción and the Laguna Salada complex were found to be of regional importance (supporting >1% of the global population) for three Nearctic migrant shorebirds.

Of the 16 species of Neotropical shorebirds reported to be austral migrants, five have been documented in Paraguay, though a further 4 have been reported to occur. Although all five species have been considered as resident, at least one, *Himantopus melanurus*, may show local, if not regional movements, as would also appear to be the case for *Charadrius collaris*. Regionally important concentrations of these two species were found at four sites.

Clearly, there is much still to be learnt regarding the status and distribution of migratory shorebirds in Paraguay. However, results to date suggest that Paraguay may hold many sites of regional importance for migratory shorebirds, and that an extensive network of reserves will be required to protect them. Key questions remaining to be answered include the importance of the Paraguay River as a migration corridor, the population size of Neotropical shorebird species and the relative importance of sites during the pre-breeding and post-breeding migration periods.

Abundance and richness of palearctic waders in South Africa (1992–1999) – a preliminary review using data from the Coordinated Waterbird Counts (CWAC)

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The abundance and richness of wintering Palearctic waders are described for six coastal localities in South Africa from 1992–1999. Data were obtained from the Coordinated Waterbird Counts (CWAC), a programme initiated in 1992 and aimed at monitoring waterbird populations and identifying threats to wetlands and waterbirds in South Africa. Mean species richness was greatest for Langebaan Lagoon (15.6 ± 0.9), Swartkops Estuary (15.1 ± 0.8) and Richards Bay (14.1 ± 3.0), while the mean total count for waders was greatest at Langebaan Lagoon (25,333 ± 3963). The Berg River Estuary (6,544 ± 2026) was the only other site supporting more than 5,000 individuals. Summary count statistics are presented for eleven species (Curlew Sandpiper, Grey Plover, Whimbrel, Ruff, Greenshank, Little Stint, Knot, Terek Sandpiper, Sanderling, Ringed Plover and Turnstone) and trends depicted for five species (Curlew Sandpiper, Whimbrel, Grey Plover, Terek Sandpiper and Turnstone). The significance of the Swartkops and Berg River estuaries as important wader localities in South Africa is emphasised, and the need for their formal protection highlighted.

Review of ring recoveries of waterbirds in southern Africa

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Recoveries of southern African waterbirds were analysed and published in 1999. Volunteers checked 11,656 records of 101 species against original ringing and recovery information, where still available. The format of the publication allows a text for each species with at least one recovery. Texts vary in length according to the amount of available information. A map showing ringing and recovery points joined with a straight line is given if there is movement of interest. A table summarises the ten most interesting and representative recoveries for each species. Potential projects, e.g. colour ringing, or data analysis, are mentioned where relevant. This review summarises some new data on waterbird movements and longevity. The greatest elapsed time for the White Pelican *Pelecanus onocrotalus* is 26 years. Cattle Egrets *Bubulcus ibis* disperse to central Africa in winter. As White Stork *Ciconia ciconia* recoveries represent mainly birds ringed in Europe, the review suggested placing satellite transmitters on young birds fledged in the Western Cape – this was done in December 2000. Few flamingos have been ringed, yet the greatest elapsed time for a Lesser Flamingo *Phoeniconaias minor* is 22 years. Many duck species are nomadic due to irregular rainfall over much of southern Africa. The Comb Duck *Sarkidiornis melanotos* is the most mobile, with recoveries as far as Chad and Sudan. A Turnstone *Arenaria interpres* resighted in Namibia had been ringed in Canada, suggesting a more complex migration pattern than previously thought. The Little Stint *Calidris minuta* data best demonstrate the movement of a wader through the interior of Africa, with controls in Zimbabwe, the Democratic Republic of Congo and Kenya. A loop migration is suggested for the Sanderling *Calidris alba*: south along the east coast of Africa and north along the west coast. Recoveries from France, Britain and Iceland suggest migration to Greenland. A colour-ringing project to study local movements and survival in Hartlaub's Gull *Larus hartlaubii* was launched in 1999. A comprehensive analysis of Common Tern *Sterna hirundo* recoveries is needed. Bird-ringing in southern Africa has been continuous for over fifty years, and has generated a great quantity of data valuable for waterbird conservation. Many waterbird species are migrants through Africa to Eurasia, and thus there is a need to establish greater links throughout Africa. AFRING, run on a similar basis to EURING, was proposed as long ago as 1969. The idea was revived at the 2nd International Conference on Wetlands and Development held in 1998 in Dakar, Senegal. The recommendations from this meeting listed the development of an intra-Africa ringing co-ordination scheme ("AFRING") as a very high priority. SAFRING has the infra-structure but

needs the funds to support the posts needed. SAFRING is investigating the establishment of a trust fund that would eventually be able to support such a venture.

Wader and waterfowl counts at the Banc d'Arguin, Mauritania, in January 2000 and 2001

Cor Smit, on behalf of the WIWO–Alterra Banc d'Arguin teams in 2000 and 2001

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Due to its isolated location and difficult accessibility, relatively few counts of wintering waders and other waterbirds have been carried out on the Banc d'Arguin, the most important wintering area for waders in terms of numbers along the East Atlantic flyway. Because of it remote location and well-protected status as a National Park no real threats were expected to negatively affect the wader numbers in the area. Results of counts carried out by Gowthorpe *et al.* (1996), indicating a sharp decrease in numbers, therefore came as a surprise. Since then, Zwarts *et al.* (1998) visited the area in January 1997. They confirmed a decline for some species, but not as strongly as suggested by Gowthorpe. Results from counts in January 2000 and 2001 point in the same direction. Numbers for individual species show large fluctuations from year to year, but only a few show a more or less permanent decline or increase. The results of the two recent censuses will be discussed in the light of the problems observers face when trying to count in this difficult area.

Using population trend analyses to debug the wader database

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In 1997, a major restructuring of the international wader database was initiated. After four years of hard labour and much blood, sweat and tears, the restructuring process is more or less finished. Regrettably, a nice structure is not a sufficient condition for a well-functioning database, but only a necessary condition. Much remains to be desired with regard to the quality of the data contained in the wader database. The best way to detect errors in the database is to actually use it. In this talk, we present the results of population trend analyses of selected wader species. We will use the statistical package TRIM (TRends & Indices for Monitoring data) to analyse the trend in the entire European population of the following selected "debugging" species: Oystercatcher, Knot, Bar-tailed Godwit, Grey Plover, Dunlin, Redshank, Avocet and Curlew. An important covariate we will include in the analysis is winter severity, as the distribution of wintering waders in Europe is markedly different in cold winters compared to mild winters. The analysis may show interesting trends, but also expose missing data, major or minor errors and inconsistencies. We aim for an interactive presentation with the emphasis on identifying possible explanations for interesting trends or the most likely sources of error for trends that are obviously wrong. If errors are identified, we then hope to engage in a discussion on the most profitable course of action to remedy the situation. We believe that everybody benefits from a properly functioning international wader database.

Predicting how the overwinter mortality rate and body condition of shorebirds will be affected by a change in their feeding environment: a role for behaviour-based individuals models

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Much of the vast amount of research done on shorebirds (waders and wildfowl) over the last 30 years has been motivated by a desire to predict the effect on the birds of a wide variety of human-related activities that could affect the feeding conditions they experience on their wintering and staging areas. The activities include disturbance, hunting, shellfishing, bait-digging, shellfish culture, climate change, sea-level rise and land-claim (for extending harbours or building marinas, for example). These activities may affect the ability of the birds to survive the winter and to store enough fuel to migrate to the breeding areas in spring because they change the birds' feeding environment. The feeding environment comprises: (i) the area and/or quality of the feeding grounds, (ii) the amount of time per 24 hours that they can be used for feeding by the birds, or (iii) the amount of energy expended by the birds when they are on the feeding grounds.

A behaviour-based model of individual Oystercatchers *Haematopus ostralegus* has been developed that uses much of the research done on this species to predict how the proportion of birds starving over the winter, and the body condition of those surviving until spring migration, would be affected by these activities, either singly or in combination. The model is essentially a time and energy budget for individuals, but the individuals respond to changes in their feeding environment using well-established behavioural decision rules. The model birds are therefore believed to respond to a change in their environment as real birds would. The main model predictions for oystercatchers have now been successfully tested in estuaries other than the Exe estuary, where the model was first developed.

This paper shows how recent advances are enabling the model to be applied to a wide range of shorebird species, both waders and wildfowl. The talk argues that this can be done for many species very much more rapidly than is often believed. One reason for this is that so much of the basic "generic" data on the foraging behaviour and energetics of the birds are available from previous research. The other reason is that most (and sometimes all) of the site-specific data on the food supply have already been obtained during a recent environmental impact assessment (EIA). If the site-specific data are not available, they can usually be obtained well within the time-span of a typical EIA, and often within a few months.

The talk shows how these models predict (i) the extra number of birds (if any) that would starve were a particular change in their feeding environment to be brought about by

some human-related activity, and (ii) the extra number that would fail to accumulate enough reserves to fuel their return to the breeding grounds. The talk also shows how the model outputs for the winter mortality rate can be used to predict the long-term effects of the changed feeding environment on population size. These advances are now enabling behaviour-based individuals models to be used to guide the management of several estuaries in Europe for a wide range of shorebird species, and not just for Oystercatchers.

The coming and going of waders in Taimyr: snapshots from the 2001 season.

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Although the migration strategies of waders have been studied extensively and worldwide, relatively few data on migration timing and body condition are available for the periods of arrival and departure from the arctic breeding grounds. We used tape-lures and plastic decoys to attract actively migrating waders to clap-nets (1.5 × 10 m) at Medusa Bay in western Taimyr, and caught 80 birds during the spring arrival period and 290 during departure. Although 9 species were trapped, Little Stints, Curlew Sandpipers and Dunlin predominated. Observations during catching and standardised 1-hour morning counts revealed interspecific differences in arrival date. Early-arriving species (Ruddy Turnstone, Dunlin, Curlew Sandpiper, Pacific Golden Plover) also started nesting earlier than late-arriving species (Little Stint, Pectoral Sandpiper, Red-Phalarope), but showed a longer delay between the peak of migration and the median laying date. Most birds arrived on the breeding grounds with some fat reserves still present.

Departing adult Little Stints and Curlew Sandpiper females were caught until the first week of August; only male Dunlins departed later, after having nearly completed their primary moult. Juveniles migrated from the first days of August onwards. Adult Dunlins and Curlew Sandpipers generally departed with low body masses, although some of the Little Stints were quite heavy. All juveniles migrated with low body mass. It seems that these species mostly leave the Taimyr in relatively short flights, fattening up only further south/west along the migration route.

Annual Conference – Abstracts of posters

Apart from the posters described below, there were also exhibits by the Dutch Society for the Preservation of the Wadden Sea, the National Forest Service and the National Park Lauwersmeer. These dealt with the preservation and nature management of the Dutch Wadden Sea and the Lauwersmeer area.

The International Birding & Research Centre in Eilat

Reuven Yosef

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An informative poster about the IBRCE for researchers to obtain information about our work.

The very strong decrease of Golden Plovers as autumn migrants in the IJsseldelta

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The IJsseldelta is one of the major ornithological areas of the Netherlands and includes 5 Important Bird Areas (IBAs). These IBAs are the shallow eutrophic lakes Drontermeer, Vossemeer/Ketelmeer and Zwarte Meer and the rivers IJssel and Zwarte Water.

Adjoining these IBAs, there are extensive grassland-polders (212 km^2) on clay- (75%) and peat-soils (25%). These polders are internationally important for wintering White-fronted Geese and Bewick's Swans. During migration, the polders are important stop-over-sites for Whimbrel, Snipe, Lapwing and Golden Plover.

During 1975–79, 10,600–24,900 Golden Plovers (average 14,900) were counted. The average and maximum (1977) densities were respectively 44 and 104 individuals per km^2. There were no counts between 1980 and 1989. During 1990–1999, 5 autumn counts were made. These showed, average numbers had dropped from 14,900 in the 1970s to 2,580 and the maxima from 24,900 to 5,320. Thus, in 18 years the average number of Golden Plovers had declined by 83%.

What is the reason for this dramatic decrease? Loss of habitat cannot be the main reason because less than 5% was lost to development. Therefore reduced habitat quality must be the reason. The biomass in the soil (mainly earthworms) probably increased between the seventies and the nineties, because of the increased use of manure.

Between the 1970s and the 1990s, drainage lowered the water table in the polders from 10 cm to 30 cm below the surface. Because earthworms live close to the groundwater level, they dug in deeper and became more difficult to catch for short-billed species such as Golden Plover. Therefore the biomass increased but it was no longer within reach.

This study was published in early 1999 with the conclusion that huge numbers will only be counted in (very) wet autumns, when it is difficult for the polder-boards to achieve the desired level of drainage. In such autumns, earthworms creep to the surface and come into the reach of Golden Plovers and Lapwings. November 2000 was very wet and 6,600 birds were counted, the highest since 1979. The presence of 15,000–25,000 is probably an historic phenomenon unless

policy-makers decide to allow higher water levels in order to restore the ornithological importance of these polders for migrating waders. Monitoring of autumn numbers will be continued.

Autumn migration of Bar-tailed Godwit *Limosa lapponica* in Puck Bay, Poland

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Bar-tailed Godwits were most numerous in Puck Bay, Poland, at the end of July and in September. In August, numbers were very low. The largest flocks were seen on passage in a westerly direction, without stopping in the study area: 65 birds on 05.09.1991 and 63 on 07.08.1994, 55 adults on 26.06.1994 and 40 birds on 29.07.1996. Occasionally quite large foraging groups were seen, e.g. 67 on 23.07.1994.

The proportion of adult females increased during August and decreased in September. Changes of the mean bill-length in sequential 10-day periods (decades) confirmed this pattern. Birds caught in the second part of August (the decades starting on 19.08 and 29.08) had significantly longer bills than those from decades starting on 30.07 and 18.09 (ANOVA, $F_{5,119}=4.46$, $p<0.001$ and Neuman–Keulis test, $p<0.05$). The number of migrants in different seasons varied considerably. The highest numbers of Bar-tailed Godwits were observed every third year.

The activities of the Wadvogelwerkgroep of the Fryske Feriening foar Fjildbiology during the past 29 years

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The poster presents an overview of the activities of this working group of the F.F.F. The group is strongly involved with nature conservation and birdlife along the mainland coast of Fryslân. Activities include (1) monitoring non-breeding birds, (2) inventories of breeding populations and (3) inventories of migrations (tidal, day–night and season). Some of the results of our counting activities and the breeding inventories are shown.

Numbers of Oystercatchers and Redshanks along the coast during late summer and/or autumn have declined significantly. Staging Grey Plovers have not increased since the late 1980s. However, staging Dunlins have increased from low numbers in the early 1980s. Golden Plovers have also occurred in larger flocks during the past 15 years compared with numbers before 1987. The post-breeding numbers of Avocet increased during the 1990s though the local breeding population showed a major decline from 2,800 breeding pairs in 1991 to 1,400 in 2000. Other colonial breeders have also declined as have breeding Oystercatchers. In contrast, breeding Redshanks and Ringed Plovers have increased. Various factors are responsible for these changes. They are not discussed in the poster, but a comparative approach of the various counting sites shows that the changes can be related to differences in management or in clay deposition rates.

The Frisian Wadden Sea coast also appears to be important for Whimbrels during spring migration, at least on a national scale. At the moment, it is the only site of significance for this species in The Netherlands. The site contains between 7,000–10,000 roosting Whimbrels at night in early May. By day, they often feed on the grasslands in the NE and N part of the Province of Fryslân.

The Wadvogelwerkgroep FFF also participates in decision-making processes relating to landscape planning near the coast or in the Wadden Sea itself. In the past, this has mainly concerned (1) the embankment of 4,000 hectares of mudflats, saltmarshes and summer polders, (2) the establishment of several wind turbine parks, (3) habitat restoration and (4) the implementation of the EC Bird Directive. However, such activities are not really our hobby. There is nothing better than nice birds, a lot of fresh air, saltmarshes, summer polders and mud!

The activities of "*Avifauna Groningen*"

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An overview of the activities of Avifauna Groningen is given.

Is reproduction of Redshank *Tringa totanus* affected by salt marsh succession and structure?

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Earlier studies imply that the hatching success of Redshanks is affected by vegetation where breeding occurs in different salt marsh plant communities. However, a direct relationship between vegetation and Redshank reproduction had yet to be proved. Therefore, studies of hatching success of Redshanks breeding in the salt marshes of the Jadebusen, German Wadden Sea, and nest site vegetation (species composition, structure) were conducted during the breeding seasons of 2000 and 2001. Due to high predation, hatching probability of nests was very low in both years (0.08 and 0.10, respectively). However, hatching success varied considerably among nest sites in different succession stages of salt marsh vegetation as well as among sites characterised by varying vertical vegetation structure and "degree of nest concealment". Hatching probabilities of nests laid in vegetation dominated by Couch *Elymus repens* and Red Fescue *Festuca rubra litoralis* were found to be many times higher than that of nests located in Common Salt-marsh-grass *Puccinellia maritima*. At nest sites in comparatively high and dense vegetation, hatching probability of Redshank nests was twice as high as that achieved at sites in less dense vegetation. Moreover, concealed nests had a significantly higher survival probability than less concealed ones. Thus, Redshank reproduction in salt marshes is dependent on short-term (phenol-

ogy) as well as on long-term (succession) vegetation parameters, at least in habitats with high predation pressure. These results lead to questions on the mechanisms whereby breeding Redshanks are distributed on salt marshes and the contribution of such mechanisms to total reproductive output. Additionally, several suggestions for the improvement of Wadden Sea monitoring and conservation can be derived. For example, in relation to methods for monitoring the breeding success of coastal birds and the assessment of human impacts affecting salt marsh succession (e.g., salt marsh management, clay removal from marshes, sea-level rise, etc.).

Feeding on *Arenicola marina* tidal flats: Who? When? What?

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Evaluation of the importance of different benthos communities as potential food supply for shorebirds is essential for understanding both the feeding ecology of shorebirds and the effective protection of the Wadden Sea. Detailed analyses of spatial patterns of preferred shorebird feeding sites and therefore the value of different benthos communities, especially in the Wadden Sea area of Lower Saxony, Germany, are scarce. We therefore investigated the utilisation of *Arenicola marina* tidal flats by migrating shorebirds in the Lower Saxonian Wadden Sea during spring and autumn migration 1999. Results for Oystercatcher *Haematopus ostralegus* and Curlew *Numenius arquata* are presented. Besides Dunlin *Calidris alpina*, they were main predators among the shorebird species on *Arenicola* dominated mudflats. Densities of Oystercatchers reached their maximum during spring migration whereas Curlew densities were highest during autumn migration. Main prey organisms of both species were *Arenicola marina* and *Nereis diversicolor* (25–50% of all recorded prey organisms). For Oystercatcher, *Macoma balthica* and *Cerastoderma edule* (up to 38%) and for Curlew *Carcinus maenas* (approx. 16%) were also important. Analyses of prey spectra showed differences between spring and autumn for both species. Oystercatchers took comparatively more polychaete species in spring than in autumn and preyed on more bivalves in autumn. Curlew preferred polychaete species both in spring and autumn and also fed on crustacea species in autumn.

Is the distribution of waders in intertidal mudflats influenced by the presence of algae mats?

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Mass blooms of green macroalgae are common on intertidal flats all over the world. In recent years they have occurred regularly on the Mondego estuary, an estuarine system on the Atlantic coast of Portugal, which supports a large number of waders during migration and winter. Seasonal intertidal macroalgal blooms (mainly *Enteromorpha* spp.) have occurred on the intertidal mudflats during the last decade, due to an increase of nutrients in the estuary. The blooms occur mainly from late winter to early summer. We investigated relationships between the algae mats and the number of birds using them. If bird distribution is influenced by the presence of algae mats, the proportion of birds recorded on them will correlate with increasing area of mats.

From 1996 to 2000, at least one or two monthly surveys of the intertidal zone recorded the area of algae mats and the number and activity of waders on bare mudflats and on algae mats. As the intertidal area is divided into three mudflats, with different nutrient availability, more detailed analysis was also performed at this level.

The algae cover reached a maximum of 35.6 % of the total area during the study. For some species an association was found. For example, the proportion of use of algae mats by dunlins *Calidris alpina* was associated with the algae mats extension. This correlation was more pronounced during winter. There were significant differences in use between small and intermediate algae mats. The proportion of birds using algae mats increased to some extent with increasing algae cover.

Wanted dead or alive: alternative wrack feeding strategies in Turnstones

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One of the biggest problems faced by shorebirds is the twice-daily inundation of their foraging habitat by the tide. Most birds respond to this by going to roost, but some individuals continue to feed over high water in supratidal habitats such as beaches and fields. Our work aimed to understand whether high water feeding is just an idiosyncractic response shown by a few individuals or a hitherto overlooked major component of the daily foraging cycle in shorebirds. Weekly time series data for shorebirds wintering on a stretch of rocky coastline in NE England indicated that the amount of high water feeding varied markedly between species but was particularly important for Turnstones *Arenaria interpres*. A mean of 54% of the population continued feeding over any given high tide. Possible physiological constraints leading to non-adaptive high water feeding in turnstones are discussed. Turnstones selected beach-cast wrack deposits for high water feeding. These are highly profitable food resources, but patchy and ephemeral, and incur elevated predation risk for foragers. Two hypotheses for high water feeding are distinguished: (a) the Topping-up hypothesis, where high water feeding occurs facultatively when low water food intake falls below that required for energy balance and (b) the Preference hypothesis, where high water feeding occurs electively because beach-cast wrack is highly profitable. Availability of beach-cast wrack did not predict the number of birds feeding over high water, although birds feeding over high water did select the most profitable foraging substrate. So, although birds tracked high water food resources closely, this was not driving the decision to feed over high water. Supporting the Topping-up hypothesis, variation in low water food availability appears to be driving high water feeding. Risk of predation is important in determining the distribution of forag-

ers, but individuals may vary in their opportunity to moderate this risk. This study uncovers a system whereby some individuals are forced into accepting increased predation risk as a result of variation in foraging efficiency, food availability, and access to feeding sites over the tidal cycle.

Disturbance of Curlew Sandpipers staging at Puck Bay, Gulf of Gdansk, Poland

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This poster shows data on disturbance rates in groups of feeding Curlew Sandpipers *Calidris ferruginea* at the Reda River estuary, Puck Bay, Poland (54°39'N, 18°30'E). Observations were made during the autumn migration of 1999 and 2000. Curlew Sandpipers were present between early July and the end of September. Birds were observed at two major staging sites. These were one kilometre apart and had very different habitats. The first was the Reda River estuary with many sandy islands and muddy lagoons. The second was an area of ash dumps from an electric power plant. Curlew Sandpipers preferred the ash dumps where they foraged in larger numbers and at higher densities. Among other reasons, foraging sites were chosen because of differences in safety from predators.

During both seasons all disturbances were recorded. The responses of the birds to disturbances were often rather subtle, but anxiety behaviour could be noted. On both sites, the cause of most disturbances could not be determined. In 1999, 287 disturbances were recorded. In 27.5% (N = 79), birds took to the air. In the following season, there were many more disturbances: 522. In 37.2% (N = 194), birds took to the air.

The breeding seasons of waders in the Western Cape, South Africa

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The Western Cape comprises some ideal habitat for waders from coastline with rocky and sandy shores to inland wetlands and dams. Nest record cards for waders breeding in this region, submitted over the past 50 years, were analysed and each nest allocated to month of egg-laying. Unlike the rest of South Africa, the Western Cape has a Mediterranean climate with most rain falling in the austral winter, June to August.

The African Black Oystercatcher *Haematopus moquini* is endemic to southern Africa and its nesting habits are typical of those of other members of the family Haematopodidae. Egg-laying was recorded between September and March, with most breeding taking place in the austral summer, November to February. The Pied Avocet *Recurvirostra avosetta* and the Black-winged Stilt *Himantopus himantopus*, are wetland dependent. Both are monogamous breeders with a strong tendency to breed colonially. Both species breed in any month; there is a peak in spring, from August to November.

The Ethiopian Snipe *Gallinago nigripennis* breeds in open marshy ground mainly during winter, from June to September. Females incubate without male assistance and leave the nest unattended when they feed. The two species of dikkops (thick-knees) found in South Africa are not endemic to this region. The range of the Spotted Dikkop *Burhinus capensis* extends beyond Africa into southern Arabia and the Water Dikkop *B. vermiculatus* is endemic to the Afrotropical Region. Their nesting habits are similar, differing mainly in their selection of habitat. They are nocturnal, terrestrial birds that are monogamous breeders and pairs nest solitarily. Nesting in both species starts in early spring (August), and extends over six months into summer.

Eleven species of plover breed in southern Africa, six of which breed in the Western Cape. They are monogamous breeders and, in most species, pairs nest solitarily. All species nest on the ground; the cryptic eggs are laid in a lined scrape. Five of the plover species (Chestut-banded *Charadrius pallidus*, White-fronted *Ch. marginatus*, Kittlitz's *Ch. pecuarius*, Three-banded *Ch. tricollaris* and Crowned *Vanellus coronatus*) have fairly similar breeding seasonality patterns, with peaks during late spring and summer, but egg-laying occurs regularly from July to March. Blacksmith Plovers *Vanellus armatus* are different, and breed during winter, with a peak between June and September, the coldest and wettest months in the Western Cape. April and May are the only months of the year in the Western Cape when egg-laying by waders is exceptional.

Egg predation and chick survival – two problems of breeding Lapwings

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Lapwing populations are declining in most W. European countries. In order to investigate possible reasons for these declines, we investigated factors influencing breeding success at a lowland site in Schleswig-Holstein (northern Germany). Here Lapwings were common in former years but have become quite scarce in recent decades. We focus on egg-loss and chick-survival data collected in 2001.

Studies were carried out on a 425 ha polder, the Meggerkoog. Population density averaged 1.0 pairs/10ha (48 territories). We found 52 clutches of which 94% were lost, 67% due to predation. Timing and location of nest losses in relation to the position of dens indicated that mammalian predators were responsible for most losses.

Altogether, 75 chicks hatched but no more than 20 fledged. Studies of habitat selection and a comparison of chick survival rates in four different habitats indicated that the high chick mortality is caused by a shortage of suitable rearing sites.

High nest losses and poor chick survival resulted in a low fledging success (0.4 fledglings/territory). The decline of the Lapwing can be stopped by reducing the rate of clutch losses and by improving the habitat for breeding and fledging of the chicks.