

International Waterfowl Research Bureau

WOODCOCK AND SNIPE RESEARCH GROUP

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EDITORIAL

This Newsletter number nine of the "Woodcock and Snipe Research Group" will summarize the activities of 1983.

Meetings

At the 29th Executive Board Meeting of the International Waterfowl Research Bureau (IWRB) from May 8 to 15 at La Rabida (Spain) I gave a report on the groups activities as well as an outline of future research. The proposal of a further woodcock project, which was planned during the Second Woodcock and Snipe Workshop, 1982, was appreciated by the Board and discussed with several national representatives. Financing this study is still a problem, though IWRB-Headquarters is trying hard to find a way. The outline of this research program is presented in this issue.

I further asked the Board to get Dr. Graham Hirons as a joint coordinator for field research, which was agreed. Graham will hopefully conduct the study mentioned above, and also coordinate the field work running in some countries.

During the 16th International Congress of Game Biologists at High Tatras, CSSR, September 25 - October 1 we tried to contact woodcock and snipe experts of the East Block countries, to get more information from the main breeding areas of these species.

Publications

The proceedings of the Second Woodcock and Snipe Workshop have been published this year. The abstracts are presented in this issue to inform WSRG-members about recent research activities. The proceedings may be ordered at Verlag Dieter Hoffmann, Mainz (FRG).

Other publications concerning woodcock and snipes are listed in the Bibliography of this issue.

Acknowledgements

We are very grateful to the Ministry of Agriculture of the province Rheinland-Pfalz, FRG, for a grant to cover all the costs for coordinating the WSRG, especially those for translations, postage etc.

We also want to express our thanks to Dieter Hoffmann editors, Mainz, who again copied this Newsletter and took over the costs.

Herby Kalchreuter
December 1983

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Second European Woodcock and Snipe Workshop

As mentioned in Newsletter No. 8 this workshop was held from March 29 till April 1, 1982, at Fordingbridge (UK). Now the proceedings are available. They present the most recent stage of knowledge on woodcock and snipe. In order to inform WSRG-members about the research activities of the group the abstracts of the papers presented at the workshop are given on the following pages.

The proceedings are available from
Verlag Dieter Hoffmann
65 Mainz 41, FRG,
at a price of £ 5.00 (DM 19.80).

The Diet and Behaviour of Eurasian Woodcock Wintering
in Cornwall

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Abstract: In the winters of 1977-78 and 1978-79 the diet and behaviour of wintering woodcock were studied on the Lizard Peninsula in west Cornwall, South-west England. Stomach contents of 64 shot birds were examined and five woodcock marked with radio transmitters. Birds exhibited high site fidelity during winter, flying out to feed at pasture fields at dusk and returning to diurnal roosts at dawn. Earthworms and secondly dipteran larvae were the main food items. Pasture fields differed in their attractiveness to woodcock, most likely as a consequence of earthworm occurrence. There was no evidence of territoriality at feeding grounds. Frozen ground disrupted the basic pattern of behaviour.

Wintering Site Fidelity of Woodcock in Ireland

John Wilson
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Abstract: During four winter periods 420 Woodcocks (*Scolopax rusticola*) were caught and ringed at several places in Ireland to provide insight in movements of wintering woodcocks. 72 retrapped birds exhibited a high site fidelity within the wintering period and from winter to winter. Three radio-equipped birds observed over one late winter period exhibited a regular pattern of diurnal and nocturnal dwelling, which was slightly altered by climatic changes.

Influence of Temperature on the Migration Pattern of Woodcock Wintering in France

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Abstract: A total of more than 20.000 woodcock (*Scolopax rusticola*) shot during winters of the last five years in many regions of France were analysed to find out migration patterns. Independent from sex and age there was a gradient of increasing weight from West to East during migration and within the wintering quaters. This gradient was little influenced by fat deposits but rather by body size. Its close correlation with mean temperatures suggests

that weight/body size is one main factor to determine migration and wintering distribution by thermo-regulation according to Bergmann's rule. Differences of thermic insulation of the plumage due to the stage of moulting may also play a role under this aspect, since juveniles with the lowest moulting stage seem to migrate to the most temperate wintering areas. These findings suggest that morphological differences, which had lead to discern several species or subspecies of woodcock by ancient authors, are just morphological extremes of one European woodcock population geographically selected by the climates of the wintering area.

A Report concerning the Reproductive Organs of Woodcock in the Month of February

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Abstract: An investigation to measure Woodcock's (*Scolopax rusticola*) February reproductive activity was undertaken between 1972 and 1977. 1000 Woodcock were shot in February, they were sexed, aged and their gonads measured and extracted. Breeding activity was determined by (1) multiplying the length and breadth of the testes, thus giving a breeding index, (2) sectioning the testes and allocating spermatogenesis stages per section and (3) measuring the size of largest ova of the ovaries.

Females showed no activity and only four of the males were fully active showing bunches of active spermatozoa. At the end of February there was an increase in the number of birds with higher stages of spermatogenesis. Birds during this month were not considered reproductively active.

A Five-year Study of the Breeding Behaviour and Biology
of the Woodcock in England - A First Report

Graham Hirons
The Game Conservancy
Fordingbridge, Hampshire
United Kingdom

Abstract: The breeding biology and behaviour of the woodcock (*Scolopax rusticola*) were studied at Wytham Woods near Oxford (1977) and, by use of radio-telemetry, at Whitwell (1978-81), a 171 ha mainly deciduous wood in north-east Derbyshire.

Contrary to expectation male woodcock did not maintain exclusive territories. Instead males display solitarily over extensive areas (often over 100 ha) until attracted down by a receptive female. The male then remains constantly with the female until the clutch is laid, probably to ensure that he alone copulates with her, before resuming display (roding) flights. Males differed significantly in their activity to locate and mate with females (from 0 to at least 4 per season among the males studied). The most successful males were those that displayed for longest, but if these were removed other males increased the amount of time they spent roding. Most first-year males did not display or take part in breeding.

Females breed in their first-year. 47% of nests studied in Whitwell were lost to predators; lost clutches or broods were rapidly replaced. 63% of adult males were re-trapped at the same locality in subsequent seasons but females were less site faithful and in 4 out of 5 recorded instances changed breeding woods following an unsuccessful breeding attempt (maximum movement 9.6 km).

The female alone incubates and cares for the chicks which fly at 19-20 days. Broods break-up ca. 35 days after hatching.

Early in the breeding season, woodcock flew out to pasture fields at dusk to feed, returning at dawn to spend most of the day roosting in cover. As the breeding season progresses the birds switch to feeding during the day and roosting at night, either in open or cleared woodland, or on arable fields. The distribution of woodcock in woodland from April onwards corresponded closely with the abundance of earthworms.

A Behavioural Hypothesis derived from 5-year's Observations of Roding Woodcock

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Abstract: In order to study the phenomenon of roding from a quantitative and qualitative aspect we recorded the roding flights of woodcock at dusk over a clearing in the Forest of Compiègne (Oise - France) during five consecutive years (1977-1981). Additional information was gained by radio-tracking and by an individually recognizable bird.

Considerable fluctuations appear especially in intra-seasonal pentadair mean values of the number of contacts and in the numbers and dates of roding peaks from year to year. On the contrary, some stability characterizes annual means of contacts, of duration and consequently of

apparent intensity of roding, with the exception of the year 1979 in which a decrease of the number of contacts lead to a significant decrease of roding intensity. Towards mid-April the latter reveal remarkably similar mean values from year to year during a period, called "representative period" (from about April 8 to 15).

A more detailed analysis shows that this period creates a hinge in the roding season: resident adults, which may be responsible for the biggest part of matings in March, are available first, then, after this period, they compete with an important contingent of first year males, which may constitute a wandering or standby population and may be the main reason of the increase of contacts after April 15th.

Towards a realistic Simulation Model for Woodcock Populations

G. Richard Potts and Graham J.M. Hirons
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Abstract: This study is an attempt to quantify population behaviour of the Woodcock (*Scolopax rusticola*) by computer modelling. Thus several model parameters, such as mortality factors, survival rates, population densities at different stages of the life cycle were approached using available data. Though more research is required, there is evidence for density dependent mortality in the survival of adult woodcock, as proven in several other gamebirds. With this assumption a computer simulation model of population dynamics was applied for calculation of maximum sustainable yield (MSY) as well as of the effects of shooting bans during cold winters on woodcock populations.

A Study on Harvesting Roding Woodcock in Spring

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Abstract: From 1962 to 1981 three studies were conducted in FRG to analyze woodcock (*Scolopax rusticola*) bagged when roding during spring and summer. This way of harvesting is very selective for males. If hunting is concentrated on typically roding birds, males are obtained exclusively. One study revealed quick replacement of removed birds. Possible impacts of this kind of harvesting on the population are discussed.

The Woodcock Production Survey in Great Britain

John Harradine

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Abstract: The Woodcock Production Survey has been running since 1975 primarily to determine the proportion of immature birds and their geographical distribution in the British wintering population of woodcock (*Scolopax rusticola* L.). Through a sample of wings obtained from the hunters' annual bag the proportion of immature birds has

been used to indicate the woodcock's breeding success the previous summer.

Many factors, including breeding success, migratory patterns, differential age and sex related behaviour, hunter selectivity and wintering ground conditions, influence the composition of the woodcock population and the representativeness of the wings collected from it each season. Despite these potential biases the British age ratio appears to correlate well with the Danish ratio, which is believed to reflect the variations in breeding success of the Scandinavian and western Russian birds, many of which subsequently winter in Britain.

Regional variations in the age ratio have been marked, with little consistency except for a normally high ratio in southwest England and a low ratio in Northern Ireland/Republic of Ireland. The two appear to be related and to be influenced by such factors as age of the birds, wintering behaviour, shooting pressures and habitat characteristics.

It is concluded that the survey should continue in order to provide information about woodcock not readily obtainable by other means and to provide a stimulus for further research. Furthermore the survey should be developed in Britain and integrated more closely with other European surveys throughout the woodcock's wintering range.

Wing Collection of Woodcock in Denmark

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Abstract: Since 1970 the Game Biology Station has collec-

ted Woodcock-wings except in the years 1972-1974. The information has been used to analyse different aspects of the Woodcock. The calculation of age ratio provided insight into its relation to time and region, variations in age ratio from year to year, relation between reproduction and climatic conditions and the relation between size of reproduction and size of bag. Moulting studies also were conducted. The temporal distribution of the age ratio gave evidence of migration patterns for the whole country and/or regions, its variations from year to year, the influence of climatic conditions on migration. It allowed an analysis of hunting activities in relation to opening and closing of the hunting season.

Some Results of a Five Years Study on Woodcock in Italy

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Abstract: During a five years study a total of 3.503 woodcock (*Scolopax rusticola*) wings were collected by hunters of all parts of Italy and their age determined. They revealed a rather high overall juv./ad.-ratio of 2.4, which was even higher in the southern parts of the country, while adults tend to winter in northern parts and higher altitudes. Some data point to a more or less balanced sex ratio in fall. The overall bag in Italy is estimated as about one million woodcock per year. A distribution map of brood records in Italy is attached. Since 1976 research on woodcock was intensified in Italy, mainly initiated by the Woodcock and Snipe Research Group of the International Waterfowl Research Group Bureau. Some of the results can be summarized in the following.

Recent Trends in Woodcock Bags in Britain

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Abstract: In Britain the hunting bag is estimated by the National Game Census, a scheme initiated by the Game Conservancy and involving owners of shoots and estates interested to report their annual bag. Extrapolation of these data reveal an increasing British woodcock (*Scolopax rusticola*) bag since 1964, which is now estimated as around 200.000 birds. Most woodcock in Britain are shot on pheasant shoots, and since the latter have been increased by hand-reared birds the higher woodcock bag may partly be due to just more days spent pheasant shooting. The geographical variation in the bag reflects the movements of migrating and wintering birds rather than the breeding distribution of British woodcock.

Hunting Bags and Population of Woodcock in Europe

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Abstract: Because of its secretive way of life the size of woodcock (*Scolopax rusticola*) populations can hardly be estimated by direct observation. However, since this species is hunted throughout its range the number harvested combined with the proportion shot derived by ring recovery data may provide some insight. Recent bag estimates range around 3.7 million birds a year, ring recovery

ry data suggest regional variation of hunting mortality between 10% and 25%, which leads to estimate the European autumn population as between 14.8 and 37 million birds.

Changes in the Migration Pattern of the Common Snipe

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Abstract: Ringing recoveries of the Common Snipe (*Gallinago gallinago*) were examined. Snipe migration occurs in clearly defined phases: they move quickly from breeding grounds to moulting grounds, stay there for many weeks to complete their moult, and move on quickly to their winter quarters. Snipes are traditional in their ways, and return to the same locations in successive years. Thus, snipes stopping over in The Netherlands will not visit Denmark, and vice versa. Trends in the numbers of snipes ringed, shot, or otherwise recovered, show that snipes have changed their migration pattern over the last decades. They seem to have shifted their main moulting grounds from the Continent (particularly The Netherlands) towards Britain. As a result, the British winter population has also increased. Loss of suitable moulting grounds in The Netherlands is mainly attributed to agricultural developments and drainage. Apart from those population shifts there seems to be no decline in the total European population so far.

Analysis of the Hunting bag of Snipe in Denmark

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Abstract: This paper summarizes the results of hunting bag statistics, special questionnaires and wing sampling concerning the three Snipe species *Gallinago gallinago*, *Gallinago media*, and *Lymnocyptes minimus* in Denmark. The results provide insight into abundance and migration pattern.

Proposal for further woodcock research

Background and aims

Now the woodcock's basic biology is understood, the major research effort should be to develop an effective management programme that will ensure a continuing abundance of woodcock for the enjoyment of hunter and non-hunter alike. However, much additional research is needed to reach this goal and so during the Second European Woodcock and Snipe Workshop it was proposed that a new study should be initiated with the following aims:

1. To acquire a detailed understanding of woodcock habitat relationships in the breeding season. The distribution of earthworms and the extent to which this is affected by soil and cover relationships will probably be of primary importance in this respect.
The data collected will enable the potential impact on woodcock populations of changing forestry and agricultural practices to be predicted.
2. To develop a method of censusing the resident woodcock population based on the activity of roding males, since woodcock are only conspicuous when roding. Counts of roding males could provide a measure of the relative abundance of woodcock in different areas and in the same locality from year to year.
3. To further explore the woodcock's breeding biology, in particular the main causes and magnitude of nest, egg and chick losses, including the effects of weather. This will allow estimates of productivity, which together with data on population dynamics and densities could enable the tolerable hunting pressure for resident stocks to be forecast.
4. To determine the mortality factors other than hunting.
5. To evaluate collections of wings of woodcock shot by hunters as a method for determining trends in the productivity of woodcock populations.

Wing collections provide the only extensive pointer to the age structure of the overwintering woodcock population and the level of breeding success in the previous breeding season. However, the data have not yet been collated and analysed on a range wide (rather than national) basis.

Methods

1. Habitat research.

Woodcock will be radio-tracked in two contrasting areas:

- i) Whitwell Wood, a 171 ha mainly broad-leaved woodland surrounded by farmland in Derbyshire, England.
- ii) Higher Black Forest, Federal Republic of Germany, a large, boreal type needle tree woodland

These two habitat types are probably representative of the majority of woodcock breeding habitat in Europe.

The activity of radio-tagged woodcock will be monitored remotely through the 24-hours by the use of a "Rustrak" automatic recorder to determine feeding periods. Feeding sites will be identified from locating radio-tagged birds by triangulation, and the vegetation structure, soil properties and earthworm densities associated with these sites compared with those for plots chosen at random.

Long-term records of shooting bags are available for several areas of Britain. Trends in these will be related to known changes in agricultural and forestry practices over the same time period in order to test some of the predictions resulting from the intensive radio tracking studies.

2. Population Research.

At Whitwell roding male woodcock will be equipped with transmitters, the pulse rate of which slows down when the bird flies (a miniature bead-thermistor under the wing reacts to the decrease in temperature when the bird takes off) enabling the length of the dusk and dawn roding flights

of individuals to be determined. The behaviour of individuals will then be related to seasonal trends in the total counts of roding birds.

Radio-tracking of breeding females will enable data to be collected on nest and chick losses, predation rates on incubating females, relaying rates after breeding failure, and the number of broods reared per female per season. To determine the food of chicks faecal samples will be collected from broods accompanied by radio tagged females.

Before the effects of habitat change or management on woodcock populations can be assessed, the characteristics of good woodcock habitat must be identified, and a census method developed. The results of this study should provide solutions to these problems and allow the likely effects of different long-term land-use practices on woodcock habitat and populations to be predicted. In addition, the population data collected should enable the construction of a realistic computer simulation model of woodcock population behaviour which will permit a better understanding of woodcock population dynamics, in particular the role of compensatory mechanisms. The study also has general applicability - woodcock feed primarily on earthworms and can be regarded as key indicators of productive ecosystems over good soils.

Performance

This study is planned as a joint project of UK (University of Southampton) and FRG (Fachgebiet Wild- und Jagdökologie der BFANL) and should be conducted by Graham Hiron, who has a several years experience in this field of research. The study is planned for two to five years, according to financial feasibilities.

H.K.

NATIONAL NOTES

AUSTRIA

Philipp Meran

On the phenology of Woodcock Migration in Eastern Austria
1982.

Spring Migration: As in the previous years there was a pronounced migration, though it started a bit later, 11 - 13 March in Burgenland, probably due to the deeply frozen soil during the previous cold spell. Migration peaked during 19 - 23 March in Lower Austria, and 28 March - 7 April in the rest of Austria. In the lowlands woodcock stayed till end of April in considerable numbers. Near Strem 120 to 170 roding woodcock observations were made from 11 March to 15 April over a 250 ha roding area.

Of 22 woodcock shot, 17 were males (shot during roding) and 5 females.

Fall Migration: This was the longest period with the most numerous influx I can remember. Starting in mid-September in the lowlands, woodcock were still seen in mid-January. A first peak was assumed around 7./8. October, when up to 12 woodcock were seen daily near Graz. The main influx arrived after mid-November, thus very late, and the birds stayed all through December in areas of Burgenland and southern Steiermark, where usually no woodcock are observed in fall.

This extraordinary migration pattern might have been caused by the very mild fall and winter weather. Until 9 January 1983 the soil was not frozen at all. (These observations point to reduced migration routes, which stresses the assumptions of Wadsack and Máriássy on p. 31 and 34 - eds.).

The following table gives the data of 13 woodcock shot (12 of them on the evening flight) in fall 1982/83 in Eastern Austria.

date	location	sex	time	weight (gr.)	bill length (mm)
10.10.	Kremser/Stachel	♂	17.55	370	6.7
11.10.	Kosenkogl/Mendl	♀	17.51	310	6.8
11.10.	Kosenkogl/Mendl	♂	17.59	308	7.1
14.10.	Reinischkogel	♀	17.37	390	7.4
23.10.	Kremser/Stachel	♂	17.20	405	6.9
26.10.	Rosenk. Kalth.	♀	17.15	302	6.1
28.10.	Stainz Wind.gr.	♀	17.15	345	6.6
29.10.	Neurath	♂	17.08	295	6.1
6.11.	Neurath, Winnel	♂	17.01	309	6.5
11.11.	Grambach, Grieb	♂	16.57	340	6.7
18.11.	Gleichenberg, Kogl	♀	16.48	330	7.0
8.12.	Gleichenberg, Rem.	♀	16.38	415	8.0
7. 1.	Neudau, Hackerbg.	♂	17.10	295	5.4

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BELGIUM

Hunting season on woodcock

By massive initiatives of some protectionist groups any hunting of woodcock had been banned in the Flandrian part of Belgium under Minister M. Galle. This was then so far the only area in the woodcocks Eurasian and North American range, where it was completely protected.

In the meanwhile the government has changed, and Minister P. Akkermans listened to the arguments of the Hunting Council and especially of the Belgian ornithologist Count Lippens, which were based on the results of recent research. He set again a hunting season from 15 November to 31 December.

(After: De Nederlandse Jager 1983/17: 486)

H.K.

BRITAIN and IRELAND

John Harradine

The Woodcock Production Survey 1981/82.

Introduction

At the Woodcock and Snipe Research Group's Second Workshop meeting in March/April 1982 it was agreed that the Woodcock Production Survey has a role to play in monitoring the age composition of our wintering woodcock population, particularly as little other research into the species is now being conducted in the United Kingdom.

This "watching brief" on the breeding fortunes and distribution of immature woodcock comprises the particular relevance of the survey today (and explains the somewhat technical presentation of results!). Apart from the B.A.S.C.'s and Game Conservancy's programmes which monitor the kill of woodcock, there is no further information regularly being collected about the species in this important part of its wintering range. This fact alone makes the contribution of the survey to our understanding of the migratory woodcock sufficient reason for its continuation. Furthermore, it provides us with the opportunity to maintain a necessary dialogue with sportsmen and conservationists in both the U.K. and all the other countries in its international range.

This report, the seventh of the series since the survey began in 1975/76, contains the results of the wing collection for the 1981/82 season, when the dominant feature was the prolonged severe weather beginning early in December 1981. It affected most parts of the U.K. over a period of some six weeks, although the areas traditionally important for woodcock, the western and south-western extremities, were less affected than most other counties. Not only did the weather influence the numbers, movements and distribution of the birds but also resulted in voluntary and statu-

tory bans on shooting during late December and mid-January, 1982, which, in turn, reduced the numbers of wings received for the survey.

Results

Numbers of wings received: A total of 2189 wings were received from the United Kingdom for the 1981/82 season, with an additional 82 being received from the Channel Islands. This was the second largest sample of the survey (2,700 in 1980/81 and 2034 in 1978/79) but the pattern of receipts was different from previous years. Virtually all regions returned substantially fewer wings than the previous season but this overall shortfall was partly masked by a very valuable sample of 688 wing analyses received from Northern Ireland and some of the northernmost counties of the Irish Republic.

The number of contributors was half that of the previous season, 92 compared with 179, although, as before, this number reflects only those contributors actually despatching wings to Marford Mill: an unknown additional number of sportsmen also supplied their wings for the survey.

Age ratios: The overall ratio of immature: adult woodcock, derived from all wings received for the U.K., was 1.1 : 1. This is significantly lower (which, in statistical parlance, implies a real difference) than the 1.4 : 1 recorded for 1980/81 but similar to the six-year average of 1.2 : 1. Between the regions into the U.K. is divided for comparative purposes there was little difference in the respective age-ratios except for the south-west region, where the ratio was about double that elsewhere.

It should be noted that the sample from the Channel Islands revealed a ratio of 3.8 : 1, a particularly high ratio but one consistent with previous high ratios from that area. These results are summarised in Table 1.

Table 1. Proportion of immature: adult woodcock shot in different regions of the United Kingdom during 1981/82.

Region	Age ratio (Immature: 1 adult)	% Immature	Number of wings	Number of contribu- tors
Scotland	1.1	52.3	111	12
England North	0.9	46.9	98	10
East	1.0	50.0	132	13
Midlands/South	0.8	45.1	71	13
South-west	1.8	64.7	665	11
Wales	1.0	50.0	223	19
N.Ireland/Republic of Ireland	0.8	43.8	889	12
United Kingdom	1.1	51.8	2189	90
Other contributions:				
Channel Islands	3.8	79.3	82	2

Discussion

It should be clear that the number of wings received in any one season bears little relationship to the size of the woodcock population or even to the bag of woodcock taken from it. The weather inevitable is a major factor, influencing not just the numbers of birds in the country, depending on conditions on the continent, and whether they frequent their usual haunts or appear in unfamiliar areas as well, but also the opportunity for sportsmen to shoot them.

Opportunities for shooting woodcock clearly were reduced during last season, as reflected in the smaller number of

contributors and the smaller samples from most regions. At the same time, however, new interest in the survey was generated in Northern Ireland which resulted in a substantial and most welcome increase in the information obtained from that part of the U.K.

The overall age ratio, 1.1 : 1, suggests that the 1981 breeding season had been about average for the woodcock throughout its breeding range, and less successful than the 1980 season. On the other hand the effects of the last winter's weather on both the numbers of immature birds arriving in this country and on their subsequent vulnerability to both the hard conditions and the shooting are unknown. Since, however, a fairly close relationship has been found between the U.K. ratios and those in Denmark over the past six seasons, which are derived from birds many of which are migrating on route to the U.K., it is worth comparing the two ratios for the 1981/82 season.

The Danish wing collection for 1981/82 indicated a near average breeding season the previous summer, supporting, therefore, the interpretation of the U.K. results for the same season. This agreement between the two surveys strengthens the relationship referred to above, since it now applies over seven seasons. This, in turn, increases the confidence we can have in our own survey results in this country.

During the 1981/82 winter it was widely observed how woodcock movements were related to the weather. In face of harsh conditions birds commonly moved out of their usual haunts and tended to end up in the less badly affected western and south-western counties, sometimes in unusually large numbers. It is normal for the south-west region to return a higher age ratio than elsewhere in the country. This is due, it would seem, partly to the adult birds tending to cross the sea to winter in Ireland, leaving a higher proportion of immature birds in Cornwall and Devon,

and partly to the woodcock shooting in these counties tending to produce an elevated proportion of immature birds in that population from season to season. It is interesting to note that, despite the general westerly movement of woodcock in face of the winter's weather further east and north, the age ratio of the south-western bag was close to its six-year average. This suggests no great difference in response between immature and adult birds. A similar picture is obtained from the Northern Ireland/Republic of Ireland ratio, which also was close to speculate outside the limitations of the data these patterns could indicate that whatever weather-induced mortality did affect our wintering birds (and some reports were received of birds obviously stressed by the conditions) and whatever weather-induced local migrations were undertaken, the two broad age-groups responded in similar fashion.

Whilst the south-west region typically returns a high ratio of immature to adult birds, the Channel Islands also do so but to an even greater degree. Despite the sample being relatively small, its consistency over several years strongly suggests a preponderance of immature woodcock on Guernsey. To what extent shooting practice exaggerates the apparent age ratio of the wintering population is not known but even if it does have an influence the results also indicate at least a habitat factor favouring immature birds. It would be interesting to discover the age ratio of woodcock bagged on the Cherbourg peninsular and Brittany coast, to see whether any difference between the age groups exists between the mainland and island populations.

Studies of woodcock in countries like Denmark and France have shown different migratory pattern between immature and adult birds in normal winters. These have been revealed by the wing collections where precise dates are given for each wing collected, so that a detailed picture can be built up through the season. Such an analysis will be undertaken for our U.K. wings in the future, given that the accurate dating

of wings, as asked for, is forthcoming. It should be possible then to see whether or not the immature birds migrate with the adults in this country.

The only other way this season's data can be looked at for changes taking place through the season are the receipts by wings by month and the monthly age ratios. These are given in Table 2.

Table 2. Proportion of wings received and of immature woodcock for each month of the 1981/82 season.

	% of total wing receipts	% Immature
October	1.3	35.3
November	22.9	58.4
December	34.2	52.8
January	41.6	57.6

There are no great differences between these monthly patterns and those broadly established for previous years except that the age-ratio in January was a little higher than normal so that there was decline in the ratio through the season as has been found previously. The significance of this is difficult to assess as inevitably there are several factors which could have contributed to it, including the effects of the winter's weather.

Conclusion

The dominant picture produced by the 1981/82 wing collection is one of little difference from previous years. This might be surprising in view of the prolonged and often severe weather conditions experienced that winter, and of the effects they clearly had on the movements of many birds and the health of others. On the other hand the wing survey, in its current form, can really reveal only the age composition of the woodcock shot each season with some in-

dications of the geographical distribution of the immature birds. This is continued to do well and, with a more detailed analysis of the dates of collection in the future, a further insight into this fascinating bird's behaviour should be possible.

Acknowledgements

Our grateful thanks are due to all contributors for supporting this survey, through both their wings and their additional information about the birds seen and the effects of the winter's weather.

We are particularly grateful to Colin McKelvie for his help from Northern Ireland. Finally, thanks are again to Jackie Fanthorpe and Barbara Hutchison for their help in managing this survey.

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Progress report on studies of breeding Common Snipe on Lowland Water Meadows in England.

Results of the first year of this study were described in WSRG Newsletter 8: 8 - 9. In 1983 rope-dragging was used to locate nests and chicks on a further five study areas in Cambridgeshire and Sommerset in order to relate population

density and breeding success to environmental variables. Measurements of the efficiency of rope-dragging in finding incubated nests have been refined and showed that about 65% of nests were found per drag in short vegetation, but that efficiency declined with increasing median vegetation height to be about 20% in vegetation 50 cm tall. These findings were incorporated in a maximum-likelihood estimation procedure for estimating nest density from rope-drag data.

Considered with results from 1982 the past season's data show that the length and timing of snipe breeding seasons can be very variable between years and between areas within years. In 1983 an extensive area of grassland which held 40-90 pairs/km² of nesting snipe in 1982 was flooded from April to mid June. Nesting normally starts in mid April. Some pairs attempted to breed on neighbouring arable land but were unsuccessful. When floodwater receded the grassland was rapidly invaded by snipe which nested at a density of 40 pairs/km² with most eggs being laid in the first week of July. With such a late start no renesting occurred after nest loss but predation was very infrequent. At other sites egg-laying started in April but the duration of the laying period was variable, ending from mid June to mid July. Sites with poor drainage, where soil remained damp and soft well into the summer, tended to have more protracted breeding than sites which dried out rapidly. At sites with late nesting, birds were still incubating in early August and began primary moult before chicks hatched. On average 3-4 times as many nests were laid at a site than were present at any one time suggesting repeated relaying. Incorporating this assumption, the average number young hatched per pair in a breeding season was 4.0. Chick survival and growth appear to be related to the biomass density of soil macroinvertebrates which are their

food. A striking demonstration of this occurred on the area which was extensively flooded in 1983. Biomass densities of invertebrates were low after the flood compared to results for the same area in 1982. Numbers of lumbricid worms were greatly reduced, perhaps because of the poor soil oxygenation during the summer flood. On this area the mean chick weight gain rate was 3.2 g/day in 1983 compared with 4.1 g/day in 1982. Chick survival was reduced and movements of broods were greater.

Four incubating snipe were trapped on the nest and 2.5 g radio transmitters attached to their backs with cyanoacrylate glue. Transmitters remained in place for about 3 weeks and tracking showed that home ranges of incubating birds were small- most fed within 150-200m of the nest and often walked from the nest to the feeding site. Areas of soft, low-lying ground were preferred. After hatching birds tended to take their chicks to the area they had used for feeding during incubation. Further work of this kind is planned for 1984.

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Pál Máriássy

Woodcock carrying its young

Although the long intriguing question "does the woodcock carry its young?" has been settled and scientists as well as shooting men in the countries, where this elusive bird

breeds, have come to the conclusion that the answer is YES, now and then observations of this carrying act reach the press. Many persons in different countries have observed this phenomenon, but few are those who have seen it several times.

Now a shooting-man has reported in the English weekly SHOOTING TIMES and Country Magazine, he has observed it himself no less than 11 times. This person also noted, that in some of the cases the youngs were already quite developed, so that after having been dropped by their mother they flew off themselves.

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FRANCE

Jaques Carrier

Some notes on the woodcock in Aquitaine (SW-France).

Traditionally, the new moon in November or December brings in many woodcocks to Aquitaine. Less so the quarter moon. In general, the movements of woodcock wintering in Aquitaine are unpredictable, depending on local meteorological conditions. This holds especially for smaller, lighter (young?) woodcock. The heavier ones seem to be more sedentary.

Broadly speaking in a mild winter, with a prevailing west wind the birds winter inland. But a cold spell of 8-10 days brings them to the Atlantic coast - often to the dunes themselves, where the temperature is warmer by 6° to 8° (gulf stream). The woodcock never spend any prolonged period along the

shore and quickly return inland to the oak copses or the tall pines, with an understorey of oak scrub.

Earthworms seem to be the basic diet even in winter. In the Causse the woodcock hunt under flat stones for small red worms and beetles. They also eat juniper berries, which give the flesh a delicious flavour. In the Haute-Garonne/Aude - relatively dry areas - they still find successfully little worms, and various berries.

In Aquitaine earthworms are available, also many insects, and dry berries. But even in areas where earthworms are not available, as long as they can get insects, berries, grain etc. they will not necessarily desert the region. 40 years of hunting and studying woodcock on the same areas, lead me to conclude that the species is very eclectic in its choice of winter cover, but very adaptable as to food. The west winds obviously do not worry the woodcock as long as they are living in sheltered conditions, because this wind does not bring the hard weather. From the start of January the wintering woodcock seem to resist as much as they can the effects of cold conditions, to be ready to start their return journey northwards. They will remain on the edge of the cold area. Although they often make mistakes and migrate in unfavourable conditions, they seem able to seek out little sheltered corners en route, where they wait safely until the weather improves.

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MONGOLIAN PEOPLES REPUBLIC

Herby Kalchreuter

Fall observation of a Woodcock

During a drive hunt for deer on 15.9.83 at Dzamar, west of

Ulan Bator, Mongolia, a woodcock was flushed from a small woodland in the Steppe country. The bird was not known by the native people accompanying us, and probably was on migration.

Since not much ornithological field work was done so far in Mongolia, this single observation may be of some value.

NORTH AFRICA

Joachim A. Wadsack

Some notes on the Woodcock season 1982/83 in Morocco.

The first woodcock was shot on November 7 at Zaer, but not before 12-16 November larger numbers had arrived. A second influx was noticed on December 19.

Altogether rather few woodcocks had arrived in the last winter. Even on drive hunts for wild boars they were flushed only occasionally. This might have been due to the season's precipitation below the average and, may be more important to the mild winter in Europe, that did not enforce long migrations.

From 19 December to 27 February 27 different woodcock were flushed, and eight of them shot, of which four were young and four older. Their weight ranged from 290 to 340 grams.

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NORTH AMERICA

Gerald Alnay

Telemetric studies on migrating American woodcock
(*Philohela minor*)

The first study ever to use aircraft and trucks to track migratory flights of woodcock equipped with radio-monitoring devices is being conducted by scientists at Penn State. They're finding woodcock are a lot faster and stronger fliers than one might think. Birds were captured in September and October and equipped with battery-powered radio transmitters. Radio signals were then detected on separate channels for each bird.

The woodcock stayed close to food and cover until late October or early November. They then made evening flights ranging from one-half to five miles from their habitat in Huntingdon County, Pennsylvania. Some went back to their old haunts, but others stayed on at the new sites. By mid-November, the southbound migrations were well underway. Flights took place only at night, and the speed of travel averaged a surprising 22 to 28 mph. Distances covered per night ranged from seven to 92 miles! One woodcock was tracked 125 miles in two nights. The bird left Huntingdon County and flew 33 miles the first night. The next night he flew without stopping for two hours and 55 minutes, covering 92 miles before landing at a point near Front Royal, Virginia.

Flights started when overnight temperatures dropped below 32° F, lending credence to the theory that woodcock venture south when their main food supply - earthworms - is limited by frozen turf. Seven out of nine of the woodcock migrated on a rising barometer, which often came within a few hours of a cold front. Dr. Richard Coon, who headed the study, thinks the clear skies and northwest winds may have

prodded the timberdoodles on their way.

(From: Those amazing woodcock. Sports Afield, August 1983).

John Tautin

1982 Status of American Woodcock

Woodcock age-ratio data from the wing-collection survey showed that between 1980 and 1981 the recruitment index (ratio of immatures to adult females) increased 20.6 percent in the Eastern Region and decreased 17.6 percent in the Central Region. The recruitment index is decreasing significantly ($P < .05$) in the Central Region. Indices of hunting success (average daily and seasonal bags) increased 2.7 and 1.3 percent, respectively, in the Eastern Region between 1980 and 1981. In the Central Region they decreased 7.4 and 16.9 percent, respectively. Two significant long-term trends are evident in these indices: the average daily bag is decreasing ($P < .01$) in the Central Region, and the average seasonal bag is decreasing ($P < .001$) in the Eastern Region. Results of the singing ground survey indicated that the woodcock breeding population index (average number of singing males per route) decreased in both Regions between 1981 and 1982; the index was substantially lower - 20.3 percent - in the Eastern Region and was 6.7 percent lower in the Central Region. The change that occurred in the Eastern Region is most likely due to severe weather conditions in early April, 1982. Significant long-term trends are evident in the breeding population indices of both Regions. The index in the Eastern Region is decreasing ($P < .001$) at a mean rate of 2.8 percent while the index in the Central Region is increasing ($P < .01$) at a mean annual rate of 2.0 percent.

(From: Administrative Report, June 1982, Status of American Woodcock).

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SWEDEN

Pál Máriássy

Some observations on woodcock spring migration 1983.

After woodcock had been unusually common in a forest at the border of W-Germany, Belgium and Luxembourg even in January, probably because of the mild winter, the first arrivals were reported from Denmark on March 9 and 12 respectively. In Central Sweden the first woodcock was flushed on March 22, and the first one roding was observed near Stockholm on April 4, in spite of the remnants of considerable masses of snow at the latter place.

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Wing collection scheme to be started

During the XVIth International Congress of Game Biologists at the High Tatras, September 1983 we took the chance to contact colleagues of the Eastblock concerning woodcock research and management.

According to the explanations of Alexander Sorokov of the Okski Nature Reserve near Moscow wing collection is initi-

ated now. Most woodcock are obviously shot during roding in spring. The hunting seasons vary roughly with the degrees of latitude, due to the average time of arrival of woodcocks in different parts of USSR. In areas of high population density up to 10 males were shot within a half hour.

There is some hope for future cooperation and data exchange with the colleagues in the USSR.

H.K.

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262-266. (slovenian, no summary).

A search of literature (mainly hunting magazines) for brood records of the woodcock in northwestern Yugoslavia (Slovenia). Some fifteen nests or pulli occasionally seen were reported by hunters and naturalists. They date from 1912 to 1959, the majority being found in the earlier part of this century, mainly along the Austrian border. Several observations of woodcocks during summer suggest however this species might be a regular though not common breeder in the hilly and mountaneous regions at this southern border of its breeding range.

An observation of a woodcock carrying its young between her legs was made in June, 1919 at Krakov near Kostanjevica. H.K.

Amman, A. (1981): A Guide to capturing and banding American woodcock using pointing dogs. Publ. by The Ruffed Grouse Society, 30 pp.

Andy Amman, probably the world's most successful woodcock bander has summarized his experiences of many years in a very instructive brochure. He and his pointing dogs (to which he dedicated the booklet) have laid the fundamentals of a considerable part of the ring recoveries, without which our knowledge of the life history of this secretively living game bird would be much smaller. His clear instructions hopefully encourage successors in this valuable activities. They tell them not only how to band a woodcock, but also when to go out, how to find a brood, how to capture the hen and her chicks, or

how to get also the hen when she had escaped. Handling of the pointing dogs (mainly setters) are also described as well as precautions of the bander to prevent damage to the broods. H.K.

Anon. (1983): (Numbers of woodcock shot in Hungary, Algeria and Switzerland) La Mordorée 148: 79 (French, no summary).

Annual bag totals for Hungary (1936-1940 & 1960-1981), Algeria (1978-1980) and Switzerland (no year given, presumably 1982). Latest annual totals for each country are 1777, 23901 and 1219 birds respectively.

G.H.

Applegate, R. (1979): American Woodcock hatches from cracked egg. Bird Banding 50/1: 69.

Obviously the first record of a species of Scolopacidae having hatched of a cracked egg. The crack might have been caused by frost. H.K.

Bussy, C.(1983): (The results of the woodcock inquiry in Charente-Maritime, 1982-83). La Mordorée 148: 69-70 (French, no summary).

Information concerning 231 woodcock was supplied by 27 hunters. 83% and 67% of the bag were young birds and females respectively. G.H.

Celano, V.(1980): Il nuovo libro della Beccaccia (The new book of the woodcock). Firenze: Editoriale Olimpia. 191 pp. 9 color and 33 b&w. photographs. Price L. 8.000. (Italian).

A revised version of a book first written in 1973 in which the author re-creates from his diaries the plea-

tures of hunting woodcock accompanied by his setters. It is aimed mainly at the Italian hunter and instructs them in enthusiastic fashion on what they can see and hear. As one would expect, it is not overloaded with science and there are no maps, tables or graphs. Nevertheless, for Italian speakers it makes a good fireside read- after feeding the dogs! G.H.

Creutz, G.(1983): Die Wetterabhängigkeit des Zugablaufes bei der Waldschnepfe (*Scolopax rusticola*) in Mitteleuropa. Beiträge zur Vogelkunde, Jena 29/2: 107-117. (German, no English summary).

A study on woodcock migration in the GDR, based on 854 observations. They had been gained by questionnaires distributed to bird watchers and hunters from 1960 to 1979. Only few woodcock stay over winter in GDR, however with an increasing tendency in the 1970ies. Thus beginning and end of spring migration cannot be determined just by observations of roding birds. Its peak lays within the second half of March and the first half of April. In fall woodcock migrate through GDR in October/November. There are however considerable variations, but no clear correlations to weather conditions were found, except to temperature. The scattered data seem to indicate higher migration intensities in the 1970ies than in the 1960ies. H.K.

Dwyer, T.T., McAnley, D.G., & Derleth, E.L.(1983): Woodcock Singing-ground counts and habitat changes in the Northeastern United States. *J.Wildl.Management* 47: 772-779.

Aerial photography was used to study habitat changes in the Northeastern United States between the late 1960's and late 1970's. Habitat alterations were

then related to woodcock (*Scolopax minor*) singing-ground counts. The abundance of singing male woodcock was positively correlated with the amount of abandoned field and alder (*Alnus* sp.) and negatively correlated with the area of urbanised/industrial habitat. The amount of the latter increased significantly over the study period and was associated with the decrease in the singing male index. G.H.

Fragugliane, D.(1983): (The woodcock in the Canaries).
La Mordorée 148: 65-67. (French, no summary).

A repeat of the literature review on the status of the woodcock in the Canaries published in La Mordorée in 1974. G.H.

Kalden, G.(1978): Verbreitung der Waldschnepfe (*Scolopax rusticola*) im Kreisteil Frankenberg - Versuch einer Bestandserhebung. Vogelkundliche Hefte Edertal 4: 112-117 (German, no summary).

An attempt to assess the local woodcock population of a montaneous area of Hessen, FRG, by questionnaires distributed to hunters and foresters. Only roding birds were reported and migrants only not excluded. Most observations were made over clearings cultivated with beech and spruce, the majority at an altitude of 300 to 400 m NN. H.K.

Rabe, D.L., Prince, H.H., & Goodman, E.D.(1983): The effect of weather on bioenergetics of breeding American Woodcock. J.Wildl.Managment 47: 762-771.

Simulation modelling was used to investigate the impact of weather on the bioenergetics of American woodcock *Scolopax minor* in the breeding season. The results suggest that bioenergetic constraints are

responsible for the observed pattern of breeding. The arrival of woodcock on northern breeding grounds coincides closely with increased earthworm activity near the soil surface. Most clutches hatch in early May when earthworms are most available. This is probably why woodcock are single-brooded. There was a significant positive relationship between simulated earthworm densities in the brood-rearing period and the young to old ratio in the subsequent autumn suggesting that food availability may directly influence chick survival. G.H.

Sepik, G.F., R.B. Owen & M.W. Coulter (1981): A Landowner's Guide to Woodcock Management in the Northeast. Moosehorn Nat. Wildl. Refuge, U.S. Fish & Wildlife Service, Miscellaneous Rep. No. 253. 23 pp.

The growing interest of naturalists as well as of hunters in the American Woodcock has resulted in increasing research efforts during the last decades. They have aimed especially for habitat requirements of this species. This booklet provides not only a well written summary of the results, but also a distinct manual to the landowner. It enables him, to create and keep daytime covers, singing grounds and roosting places. Management examples are attached, of which the one or other might fit to his property and thus encourage him to really alter some of his landuse practices without much economic losses, but to the best of this fascinating game bird. H.K.

Sterbetz, I. (1982): Magyarországi Adatok az Erdei Sza- lonka (*Scolopax rusticola*) Nászrepülésének Fényvis- zonyairól (on the light conditions during roding of the woodcock in Hungary). Allattani Közlemények,

LXIX: 123-126. (Hungarian, German summary).

A study on the light intensities woodcock require for roding based on 64 data from 16 March to 20 April of 1979 and 1980. A comparison with the findings of Nemetschek in FRG revealed Hungarian woodcock rode during a much wider spectrum of light intensities. Discussion of possible causes. H.K.

Wilson, J.R.(1982): The Wintering of Shorebirds in Iceland. Wader Study Group Bull. 36: 16-19.

The paper records counts of shorebirds made in southwest Iceland in winters from 1973/74 to 1976/77. It includes three single observations, each of *Lymnocyptes minimus* (February) *Gallinago gallinago* (December) and *Scolopax rusticola* (December). H.K.