

International Waterfowl and Wetland Research Bureau

WOODCOCK AND SNIPE RESEARCH GROUP

Newsletter No 18

December 1992

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EDITORIAL

This Newsletter number eighteen of the Woodcock and Snipe Research Group (WSRG) shall inform about research going on and on schedule, preliminary results, short notes and literature of interest.

RESEARCH

Fortunately the studies conducted by Graham Hiron within the frame of the International Woodcock Project (1985-1988) are carried on in both of the British study areas (Cornwell and Whitwell Wood) by Andrew Hoodless from The Game Conservancy, U.K. (see Bibliography of this issue).

The French colleagues of the Office National de la Chasse, especially Yves Ferrand and Francois Gossmann, have continued their activities in ringing woodcocks in the Moscow region, Russia, in 1992. This led to a fruitful and friendly cooperation with the Russian colleagues who are coordinated by Vladimir Kuzyakin of the Academy of Sciences, Moscow. Thanks to the political changes in Eastern Europe he was able to visit France and work with the colleagues of ONC.

Efforts to ring wintering woodcocks in France have again led to considerable numbers in the season 1991/92. Due to the relatively high rate of recoveries these activities provide statistically valid data, not only on migration, but also on population dynamics and the impact of hunting.

Woodcocks on the Balkan peninsula enjoy increasing scientific interest thanks to the initiatives of the Natural History Museum in Belgrade (see this issue).

Woodcock wing sampling is carried on in several European countries, mainly Britain, Denmark, France and Italy. These studies are coordinated and evaluated by John Harradine (B.A.S.C., Marford Mill, UK), coordinator of Duck Wing Research within the Hunting Research Group of IWRB.

Similarly wings of harvested snipes (*Gallinago gallinago*, *G. media* and *Lymnocyptes minimus*) are surveyed by Michel Devort (Club International des Chasseurs de Bécassines, Paris). Having started in France in 1986 he has extended his activities to other European coun-

tries and recently even to Africa, Asia, North and South America (including *G. delicata*, *G. paragaiae* and *G. magellicana*).

Wing sampling is an important tool of research, especially in such inconspicuous and secretively living birds as snipes and woodcock.

Fortunately, increasing attention is paid to the three European snipe species. Efforts are intensified by Andrew Hoodless to get more precise data on the numbers of the Common snipe breeding and wintering in Britain. Supported by WWF Sweden Michael Brinch Pedersen is investigating the status of the little known Jack snipe in the Baltic states and in Sweden (see this issue), while Andres Kuresoo further includes the Great snipe in his survey projects in Estonia and neighbouring countries.

Meetings

In order to get acquainted with all these activities and preliminary results members of the WSRG involved in research met for the Fourth Woodcock and Snipe Workshop, April 7-9, 1992. It was hosted by the European Wildlife Research Institute (EWI) at University of Saarbrücken and sponsored by the Working Group Westpaleartic Flyway of the CIC-Migratory Bird Commission, the German Delegation of CIC and the German Hunters Association (DJV).

23 participants from ten countries attended the workshop, including two from Eastern Europe (A. Kuresoo and V. Kuzyakin). So, for the first time direct information was provided to a WSRG workshop from the main breeding range of woodcock and snipes. 16 papers presented or submitted by colleagues not having been able to attend informed about several aspects of woodcock and snipe biology, especially migration phenology based on ringing and wing sampling, breeding biology, population dynamics, impact of hunting and monitoring. Taking advantage of this gathering of experts the coordinator organized a round table discussion on wise use of woodcock and snipe populations as well as one on priorities of future research at the end of the workshop.

The papers will be published in Proceedings within the series of IWRB Special Publications, hopefully before the end of 1993.

Most of the participants attended the meeting of the IWRB Wing Study Group coordinated by John Harradine immediately following the workshop. Papers presented there will be published in separate Proceedings within the same series.

An excursion and especially the wine tasting ceremony in the evening, organized and moderated by Prof. Paul Müller, University Saarbrücken, was gratefully appreciated by all participants.

The coordinator joined the XXXV Executive Board Meeting of IWRB in Florida (USA), 13-21 November 1992, to represent WSRG and report on its activities.

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NATIONAL NOTES

AUSTRIA

Some observations on Woodcock migration in Austria and Western Hungary, 1991.

Philipp Meran

Spring migration: In spite of the late winter with coldspells and partial snow cover first woodcocks arrived as early as March 2-4 in Western Hungary, namely Mecsek mountains and around Lake Balaton. Some samples taken proved these birds were light-weighted and meagre.

In Eastern Austria (Steiermark) first migrants arrived early too (10 March). The same holds for birds breeding in the mountains; from April 10 they kept waiting close to the borderline of the snow until their breeding areas opened up. In the lowlands (Burgenland) several waves of migrants have been observed, but altogether spring migration was over rather soon in 1991.

The following birds bagged during evening flights in spring 1991 were analyzed:

Date	Location	Sex	Age	Weight (gr.)	Bill length (mm)
Austria (Burgenland)					
17.3.	Zagersdorf	♀	juv.	292	71
19.3.	Zagersdorf	♂	juv.	308	64
22.3.	Klingenbach	♂	juv.	275	67
Hungary					
22.3.	Marcali	♂	ad.	375	84
22.3.	Marcali	♀	ad.	345	73
26.3.	Keszthely	♂	ad.	395	81
26.3.	Keszthely	♂	juv.	362	78
27.3.	Keszthely	♂	juv.	310	68
27.3.	Keszthely	♂	ad.	315	70
27.3.	Keszthely	♂	ad.	325	66
28.3.	Keszthely	♂	ad.	330	73
28.3.	Keszthely	♂	juv.	310	67
29.3.	Balatonkeresztur	♀	ad.	330	73

Fall migration: There are indications of good reproductive success in the mountaineous areas (i.e. Hochschwab region). First migrants arrived at Rosenkogel around October 7; however they did not stay long, presumably because of the drought conditions. In spite of the frost woodcocks were observed all through November. On 28 November ten birds were observed feeding at daylight on a meadow at 800 m above sea level. During evening flights three observations have been made of three birds chasing each other.

The following birds were bagged in Austria during evening flights in fall 1990:

<u>Date</u>	<u>Location</u>	<u>Sex</u>	<u>Age</u>	<u>Weight (gr.)</u>	<u>Bill length (mm)</u>
14.10.	Reinischkogel	♀	ad.	289	73
27.10.	Gasselsdorf	♂	ad.	371	71
28.10.	Rosenkogel	♀	ad.	390	78
4.11.	Gasselsdorf	♂	juv.	340	69
8.11.	Gleichenberg	♂	juv.	332	70
18.11.	Gleichenberg	♂	ad.	405	76

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BALKAN

Balkan section for research and conservation of the woodcock (Scolopax rusticola).

Thanks to the initiatives of Slobodan Puzović and Dusan Drljaca of the Natural History Museum in Belgrade, Yugoslavia, studies on woodcock in several parts of the Balkan region were organized and coordinated since 1988. An internal bulletin "Scolopax" (brief English summary) informs about research projects and preliminary results and at the same time works as a contact medium for the more than hundred collaborators in this region. Two issues of Scolopax have appeared by now, providing insight into breeding populations as well as migration phenology of woodcock on the Balkan peninsula. Some results are summarized in two papers submitted for the Proceedings of the Fourth Woodcock and Snipe Workshop.

HK.

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BALTIC STATES

Breeding status of the Jack Snipe in South Baltic; a preliminary study in Lithuania.

Project No. 326 (suppl. 1992) of WWF Sweden

M. Brinch Pedersen

PREFACE

The population of Jack snipes *Lymnocyptes minimus* in Southern Sweden (max. 120 pairs) is isolated 500-1.000 km outside the main breeding range, and may be a relic of a more south-western distribution in continental Europe during the 1800'es and early 1900'es. In other parts of the Baltic region, breeding has only been documented from Biebrza Marshes in Northeast Poland in the recent decades.

The South Swedish population may be linked to populations south of The Baltic Sea, and in order to reinforce future efforts to preserve the Jack snipe in Southern Sweden, it is fundamental to highlight breeding status south of The Baltic Sea and possible relations between population in the region.

In 1992 the WWF approved that a part of the budget given to project No. 326 could be transferred into a preliminary study in Lithuania. The study was carried out with the objective to verify if Jack snipes are present during the main breeding season, and furtherly to stimulate future studies and conservation efforts. The programme consisted of three parts:

- Invitation to a Lithuanian biologist to join field work and practice methods in South Sweden,
- performance of a preliminary survey of displaying Jack snipes in Lithuania,
- a brief translation of relevant Lithuanian literature.

The study were performed with enthusiastic participation of Algimantas Macikunas, Kaunas Zoological Museum, Lithuania. Many practical problems ahead of the project were solved with invaluable help from Dr. Saulius Svazas, University of Vilnius, and ambassador Dan Nielsen, The Danish Embassy in Lithuania. Magdaleme Remisiewicz kindly translated from "Ptaki Polski".

1.0 LITHUANIA 1992

1.1 Methods

Due to a contemporary lack (existence ?) of detailed maps of Lithuania, the 1992-survey was based on local experience and interpretation of maps available. A total of 19 sites around the country were visited in the period pr. June - pr. July: only 9 sites had the characteristics of possible breeding habitat (sphagnum/carex-dominated wetlands (Tab. 1), while another 10 sites had to be excluded.

Visits were performed between 22.00 - 00.00 hours when Jack snipe display activity peaks. The number of territories were counted with reference to the occurrence of Common snipes.

Table 1 - The results of a preliminary survey of displaying Jack snipes *Lymnocyptes minimus* (with reference to Common snipe *Gallinago gallinago*) in Lithuania, pr. June - pr. July 1992 (conducted by Algimantas Macikunas).

District	Site	Size	Visits		No. of territories	
			No.	Period	Jack snipe	Common snipe
Lazdijai	Marsh in Paliepis Forest	3 ha	1	5. June	0	2
Lazdijai	Marsh in Paliepis Forest	2 ha	1	6. June	0	0
Lazdijai	Marsh near Lake Pakevis	5 ha	1	7. June	0	0
Kaunas	Marsh near Kaunas Lake	15 ha	1	11. June	0	0
Kelme	Lake Pakevis	6 ha	1	16. June	1 ⁾⁾	3
Radviliskis	Pravirsulis Reserve	10 ha	1	17. June	0	0
Kaisiadorys	Didysis Raistas	8 ha	1	20. June	1	4
-	-	-	1	28. June	0	2
-	-	-	1	8. July	0	0
Kaunas	Marsh in Dubrava Forest	4 ha	1	21. June	0	2
Alytus	Zuvintas Reserve (SE)	50 ha	1	24. June	0	0
Alytus	Zuvintas Reserve (E)	30 ha	1	25. June	0	0

⁾⁾ One bird flushed

1.1 RESULTS

A single Jack snipe-territory was found in 1992 (Tab. 1). At Didydis Raistas, a small carex/sphagnum-dominated marsh in Southeast Lithuania, a male displayed almost every 10. minutes on 20. June. In the end of June the wetland dried out and territorial display ceased. Activity among Common snipes decreased simultaneously. In the Northern Lithuania another Jack snipe was flushed on 16. June (Tab. 1).

In Southern Sweden territorial display from mid-May and onwards may be interpreted as breeding (PEDERSEN, M.B. 1992: Distribution, population size and ecology of the Jack snipe in Southern Sweden. - project report. - 4pp.). Therefore, it's likely that the observation from Didydis Raistas represents a breeding attempt.

In general breeding conditions were reported to be unfavorable in Lithuania in 1992 due to extreme high temperatures. Many marshes dried out early in the season and caused a significant decrease in abundance and activity among e.g. Common snipes. Simultaneously, a significant decrease in population size and early cease of aerial display activity among Jack snipes were observed in South Sweden.

The results of the preliminary survey indicates the existence of a Jack snipe population in Lithuania. The survey coincided with unfavorable breeding conditions, and therefore the results can't reflect the true breeding status.

2.0 SOUTH BALTIC IN GENEREL (a review)

Southern boundary of range in Europe uncertain (CRAMP, S. & SIMMONS, K.E.L. 1983:BWP (Vol. 3) - oxford). *"The sporadic and in some respects doubtful breeding in the Netherlands, northern Germany, northern Poland and southern Sweden may be regarded as relics from a former stage of the post-glacial period. Breeding cases in these regions are scarcely to be expected again, for virtually all the potential breeding places have been cultivated"* (TUCK, L.M. 1972: The Snipes. - Canadian Wildlife Service, Monograph Series No. 5, Ottawa).

ESTONIA: Decreasing and extremely rare; No nests found in recent years (CRAMP, S. & SIMMONS, K.E.L. 1983:BWP (Vol. 3) - oxford). Decreasing during the last decades; Now rare (KURESOO, R. et al. 1992: Estland. - Vår Fågelvärld (2):6-13, in Swedish).

LATVIA: Common breeding bird in the beginning of the 19'th century; Then decreasing. No concrete data about nesting in the 20'th century. No records reported during a country-wide breeding bird inventory between 1980-1989. No systematic searches performed, so breeding can't be excluded (MARIS STRAZDS in litt.).

LITHUANIA: Breed rarely in the province of Kaunas in the 19'th century (MENZIER, M.A. 1900: Birds fowled in European Russia and Caucasus (Vol. 1). - Moscow, 342pp., in russia). Presumed only migratory. No data documents breeding, few observations of displaying birds (KONTRIMAVICIUS, V. (Redkol.) 1990: Lietuvos Fauna (Vol. 1) - Mokslas, Vilnius, 366pp.).

RSFSR - KALININGRAD : No information.

POLAND: Bred sporadically during the 19'th century; Now extreme rare (CRAMP & SIMMONS l.c.; GRO-MADZKA, J. et al. 1985: Breeding waders in Poland. - Wader Study Group Bulletin (43):29-33). Several observations of displaying birds from North-east Poland reported during the 20'th century. In 1977 two nests and 18 (!) displaying birds were found at Biebrza Marshes in the middle of May (TOMIALOJL, L. 1990: Ptaki Polski - Rozmieszczenie i Liczebność. - Warszawa, 461pp.).

3.0 CONCLUSIONS

During the 19'th century the Jack snipe seems to have bred more commonly south of The Baltic Sea than in the 20'th century. References available strongly intimates gaps in the knowledge of present breeding status. General agreement about the Jack snipe being extremely rare or already extinct in some countries seems to reflect conjectures rather than documentation. The results from Lithuania - obviously a traditional weak "link" in the South Baltic distribution, shows that birds were present in suitable habitats during the main breeding season.

Hence, it's reasonable to conclude, that the Jack snipe may be over-looked and under-estimated in the Baltic countries, suggesting the existence of a South Baltic population.



. Världsnaturfonden WWF, Sweden

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November 1992

BRITAIN and IRELAND

Historical data on the British woodcock population

Before the last century woodcock (*Scolopax rusticola*) only bred very occasionally in Britain and Ireland. After about 1830 the breeding population increased rapidly and colonized suitable habitats all over the Britain and Ireland. Robert J. Knowles has submitted an article of T.J. Monk, published 1871, that provides insight into the situation more than 120 years ago, and might therefor be of interest for recent researchers. Obviously not before The Wild Birds Protection Act of 1872 the woodcock enjoyed protection from 15th March until the 1st August (Knowles, pers. comm.) and nevertheless had expanded so rapidly.

The following article by T. J. Monk was published in *The Field*, February 25th, 1871, p. 140-141.

H.K.

PRESERVATION OF THE WOODCOCK IN EAST SUSSEX

It is a curious fact, but nevertheless true that many persons entertain the idea that those woodcocks which remain to breed in this country are either weak or wounded birds, who are unwilling to attempt the fatigues consequent upon migration, and which their natural instinct tells them they cannot perform. With this idea however I cannot at all agree, and for this reason: if a woodcocks nest was only an occasional occurrence we might indeed suppose that the birds remained behind to breed, because as stated above they had not the strength to join the main body of migrants; and the natural conclusion would be that the fact of the birds thus remaining proved them to be weak or wounded, forming thereby the exception to the well known law of migration. Such however is not the case; the number of woodcocks that remain to breed in this country is much larger than even many naturalists would suppose, if at least the eastern division of the county of Sussex is any criterion of the other counties of England with regard to woodcocks breeding, the number of nests throughout the kingdom must indeed be considerable. It is true that in this part of Sussex the nature of the country in many places is well suited to the breeding of this particular bird; at the same time, I have certainly been astonished to find, from inquiry and personal observation, in addition to communications from many landowners and game preservers, that the yearly number of nests is much larger than could be imagined; and this is more striking as I am well aware as I have not exhausted this division of the county, in connection with the preservation and breeding of the woodcock, by reason of the short space of time in which my project was conceived previous to the 1st February, and the want of knowing the various owners and occupiers of coverts. Many more instances of the breeding of woodcocks would doubtless have cropped up had time permitted a thorough investigation; as it is I think I can prove by the many localities in which these birds have nested, and the following authentic information I have received respecting them, that not only do woodcocks breed in considerable numbers in East Sussex, and have done so for some years past, but if never shot at after the 1st February, and the coverts kept as quiet and undisturbed as possible during the breeding season, we might have great reasons to hope for a still further increase of young birds, and a proportionate addition of long bills

to the game book, and which contrary to many long bills, we should take pleasure in account of, and paying (our respects to, whenever placed upon our table and presented to our notice) with commendable despatch and a prompt settlement. In giving an account of the different localities in which the woodcocks breed, I have taken seven districts of East Sussex, comprising twenty-one parishes; and in all these parishes woodcock have nested, and are nesting in more or less numbers every year. Taking the districts therefore in alphabetical order I will commence with the

BATTLE DISTRICT.

ASHBURNHAM- In this parish many woodcocks nest regularly every year. The Earl of Ashburnham has furnished me with the following valuable information. He says: " I have during more than thirty years neither shot nor allowed others to shot woodcocks out of season; but I have not strictly abstained after the 1st February; as you suggest for I am of opinion that the proper time for the shooting to cease depends not upon the calendar, but upon the weather. In a mild season I would not shoot after the first week of February; but if frost and snow should continue to the end of the month, I apprehend that would be early enough to refrain from shooting. I may add, to show that this forbearance was enough, that my keepers in one year knew of seventeen nests, and the year following saw more, though the number was not so precisely known , owing, if I remember right, to a change of keepers. I myself saw in the pleasure grounds, and near the house, two of these birds sitting on their nest at the same time, and within one hundred yards of each other."

BATTLE.- Nests have been found in many places in this parish.

BRIGHTLING.- From Mr. W. Yates of **Rosehill** and other game preservers, I have received information that woodcocks breed in this parish.

CATFIELD.- Woodcocks have several times been noted as breeding here.

DALLINGTON seems remarkable as a breeding place, which I shall notice in conjunction with the parish of **Heathfield**.

CUCKFIELD DISTRICT.

ARDINGLY.- I have heard of several nests being found in this parish at various times.

BALCOMBE.- Mr J.A. Hankey of **Balcombe-place** informs me "that woodcocks not unfrequently nest here". I have heard also other instances of their nesting in this parish.

CRAWLEY.- Nests have often been found, but lately their occurrence is not so frequent as in former years.

SLAUGHAN.- Mr R. Loder of "**High Beeches** writes me," " that he has often seen young woodcocks in his forest; but for want of protection in the country around him they are not as numerous as formerly." This, I regret to say, coincides with the account from **Crawley**.

EAST GRINSTEAD DISTRICT.

EAST GRINSTEAD.- Woodcocks have been known to breed in this parish.

HARTFIELD.- Nests are still occasionally to be found here.

WORTH.- I have every reason to believe that a goodly number of nests might be found in this parish, embracing as it does **Worth Forest** and part of **Tilgate Forest**, if more care was taken of the parent birds. Sir C.M. Lampson, Bart., writes me "that woodcocks often breed at this place (**Rowfant**) , and that about ten years since he succeeded in rearing a tame woodcock, which was hatched under a bantam, the woodcock's nest having been disturbed when taking up pheasants' eggs in the month of May." This is a most interesting fact and worthy of notice also from the late nesting of the bird.

LEWES DISTRICT.

CHAILEY.- Several nests at different times have been found in this parish.

NEWICK.- Mr J.C. Sclater of **Newick Park** sends me the following intimation: "Woodcocks have bred here for many years past in the **Old Park Wood** a young one, just able to fly was picked up by a woman and brought to my gardener last summer (1870), and I have known of nests here on several occasions. Last year we killed twelve woodcocks in the **Old Park Wood** in one day, and there is little doubt they were bred here." Other instances are not wanting of nests havng been found in this neighbourhood.

MAYFIELD DISTRICT.

HEATHFIELD.- This parish was a few years ago singularly favoured in the number of nests found there. Major E.B. Curteis of Leasam, Rye sends me the following valuable information. He writes, " I think you will like to be informed that when I hired Heathfield Park I preserved very strictly and never allowed woodcocks to be shot at flight time, or when the keepers were out rabbit shooting. I had in one wood four nests, and there were others in a wood of Lord Ashburnham's adjoining mine; I had full-grown young woodcocks on the table in the first week of July. The nests were all on high dry banks, some distance from water, and the keepers thoroughly believed the old birds carried the young ones to the feeding ground. I took some trouble to ascertain this fact, but never saw it. They lay their eggs very early in the year; in February they become very lousy, and really are unfit for the table. I firmly believe in 1843 there were a score (20) of nests in Heathfield and Dallington, and find from my gamebook of that year, 1843 and 1844, that I killed to my own gun at Heathfield 84 birds." This information speaks for itself and should prove a strong incentive to preservation.

MAYFIELD AND ROTHERFIELD.- In both of these parishes I hear of nests being found on different occasions.

WALDRON.- On the Posingworth estate and other places woodcocks' nests are still occasionally found.

WADHURST DISTRICT.

FRANT.- is indeed rich as a breeding place of the woodcock. Bayham Abbey the seat of the Marquis of Camden, has already been alluded to in my first letter as a spot where these birds breed every year, and that as many as a dozen nests have been found in a single season. At Eridge Castle also, in the extensive and beautiful coverts of the Earl of Abergavenny, the woodcock finds a safe retreat and a congenial home. His lordship sends me the following interesting and valuable facts. He says "woodcocks have been for many years in the habit of breeding in the Eridge coverts. As a rule they have two nests in the season, the first in March, the second in July, the number of eggs in each varying from three to five. It is a common occurrence for the keepers to see the old birds carrying the young ones sustained by its claws and beak, and carrying them off with hawk-like rapidity and perfect ease. The largest number killed in one season at Eridge was eighty-four. Again at Shernfold Park, the Hon. Percy Ashburnham informs me that "woodcocks breed every year.

TUNBRIDGE WELLS.- A most remarkable case respecting the breeding of the woodcock occurred in the garden of the Sussex Hotel at this place; a nest being found in a shrubbery at the back of the hotel for many years in succession, this interesting fact was witnessed by my friend, Mr W. Beard of Lewes, on more than one occasion, and during a visit to the hotel the landlord showed him a young woodcock lying drowned in a small tank of water at some little distance from the nest, and expressed his surprise at the bird being found there, it being too young to have got into the tank by itself, and every care had been taken that the nest and occupants should be unmolested, the remaining young ones being still in the nest uninjured. I suggested to Mr Beard what had never occurred to him or the landlord, that the parent bird carried the young one there, mistaking the tank for a natural feeding ground, and that either the water was too deep for the nestling bird to be fished out again, or that being disturbed the parent bird was obliged to leave its young charge which subsequently drowned. I know of no instance so corroborative of the theory that the parent birds carry their young than this.

I have now rendered some account of these seven districts and their respective parishes. Sufficient has been said and adduced to prove that, with preservation the woodcock might breed in still greater numbers in a county so congenial to the habits of the bird. I firmly believe that from one hundred and fifty to two hundred nests might be found in East Sussex in most years. It has already been shown how large a number of nests some favourite parishes will produce. There are many places I have not touched upon for want of information respecting them. I will only say that there still remain to this division of the county five parishes- Brighton, Eastbourne, Hailsham, Hastings, Rye; and of these the last three might, I am certain, furnish many examples of the nesting of the woodcock. But we have already found many nests. We have found out that the woodcock breeds twice in the year, March and July. this is the opinion of the Marquis of

Abergavenny, Major Curteis and others; whereas Lord Ashburnham thinks they migrate about midsummer. Many Scotch proprietors to whom I have spoken on the subject advance the first theory and that the bird leaves our coverts in September. This coincides with my own ideas on the subject. It may be urged that it is of little use in preserving a bird which forsakes the coverts in which it was bred, and that too almost before the shooting season has fairly begun, if at any rate, before we think much about killing woodcocks. Yet though we find they leave us and migrate, we know not where, for we have learnt but little of the migration, not only of the woodcock but of all migratory birds; still they return, to the place of their birth, which has been proved by marked birds having been killed in the same coverts where they were caught; and instances have been given in this letter that where many birds have bred, many were also killed in the same season, so that it is fair to suppose a local race by strict preservation, might at length be established. Surely, then it is worth a trial for a season or two; should it fail, we shall have failed in a good cause: should it succeed, we will have the pleasure of knowing that East Sussex has commenced a start that will be followed by Great Britain.

I take this opportunity of publicly thanking all those noblemen and preservers who have responded to my call, and who have in so many instances kindly and courteously furnished me with much information regarding the woodcock. I shall further esteem it a favour if any facts concerning the nesting of this bird in East Sussex during the ensuing year be forwarded to me; and I trust not only the woodcock, but all other gamebirds -- let us say all our British birds -- will receive due protection during the breeding season.

T.J.MONK

FRANCE

UTILISATION AGROTECHNIQUE DES LOMBRICIENS EN SOLS HYDROMORPHES
: Intérêt pour la qualité des habitats non forestier de la Bécasse des bois (*Scolopax rusticola*
L.)

par Ph. GRANVAL

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Cédex, France

Dans l'ouest de la France, en hivernage, la Bécasse utilise la nuit les prairies paturées riches en lombriciens (GRANVAL, 1988). Or ces milieux disparaissent au profit des milieux cultivés où les biomasses lombriciennes sont faibles consécutivement à l'action géodrilicide de certains pesticides et au travail du sol. Cette mutation de l'agriculture entraîne un risque de diminution des capacités d'accueil des habitats ouverts favorables à la bécasse. Toutefois, les expériences conduites au domaine du vieux pin (INRA, Orne) montrent que l'on peut concilier une agriculture productive et des biomasses lombriciennes importantes utilisables par la bécasse.

Depuis 25 ans, LAISSUS puis LECONTE étudient l'amélioration de la production prairiale sur les sols acides, hydromorphes et peu profond du domaine (80 ha). La création de fossés de ceinture, l'apport de fertilisants (100N, 50P, 100K) et d'amendements calcaires et la gestion rationnelle du pâturage ont permis de doubler en vingt ans la production végétale et de nourrir 2,3 vaches à l'hectare. Les biomasses lombriciennes ont été multipliées par 2.55, elles s'élèvent maintenant à 2300 KG/Ha. Des recensements nocturnes au phare (GOSSMAN et al. 1988) ont permis de constater l'utilisation diurne et nocturne de ce site (80 ha) par de nombreux prédateurs de vers de terre. Les bécasses utilisent régulièrement ce site la nuit.

La rénovation des prairies dégradées et le semis du maïs se réalisent sans labour. A l'automne, les prairies dégradées sont désherber (Glyphosate ou aminotriazole) et pendant l'hiver l'abondante litière morte est consommée par les lombriciens . A la fin de l'hiver, ces derniers ont entièrement consommés la litière et ont réalisés un travail du sol . Le lit de semence de la culture prairiale ou du maïs est obtenu avec un outil de type herse rotative ou rotavator. Les rendements observés avec cette nouvelle technique sont comparables aux méthodes traditionnelles faisant appel au labour. Cette nouvelle technique sans labour est plus économique (LAISSUS, 1985 ; GRANVAL et al. sous presse) et permet de favoriser les lombriciens en milieu prairial et aussi dans les terrains cultivés. Les prédateurs de lombriciens dont la bécasse peuvent se nourrir plus facilement car la végétation est très rase dans les prairies paturées ou en cours de disparition dans les parcelles destinées à un nouveau semis.

GRANVAL, Ph. 1988 Approche écologique de la gestion de l'espace rural : des besoins de la bécasse des bois (*Scolopax rusticola* L.) à la qualité des milieux.. Thèse doct. Nouveau régime, Université Rennes I, 1-186.

GRANVAL, Ph., M.B. BOUCHE et D. LECONTE, en prep. Agricultural use of earthworms : polyculture-breeding system on hydromorphic soils. 4th. Int. Symp. on Earthworm Ecology, 11-15 June, 1990, Avignon.

LAISSUS, R., 1985 - Resemis des prairies permanentes sans labour préalable, après emploi de désherbants totaux à l'automne, favorisant l'action des lombrics pendant l'hiver, sur la structure du sol. C.R. Acad. agric. de France, 71, 3, 229-240.

Summary

Agrotechniques and quality of woodcock habitats.

Contrary to some agricultural practices detrimental to woodcock wintering habitats acid soils can be improved by application of fertilizers. In one case fertilization (100N, 50P, 100K) during 20 years has increased earthworm densities by more than 2.5 times to a level of 2300 kg lumbricids per ha. This has increased the nutritional value for woodcocks considerably. Agricultural areas are mainly used at night by wintering woodcocks.

APPROCHE ECOLOGIQUE DE LA GESTION DE L'ESPACE RURAL : DES BESOINS DE LA BECASSE (*SCOLOPAX RUSTICOLA L.*) A LA QUALITE DES MILIEUX (RESUME DE THESE)

par
Philippe GRANVAL

La Bécasse des bois (*Scolopax rusticola L.*) est un oiseau migrateur, son aire de répartition (reproduction, hivernage) s'étend depuis les côtes atlantiques jusqu'au Japon, des pays scandinaves, à l'Afrique du Nord et à l'Asie du sud. La France constitue une zone privilégiée d'hivernage et de nidification (1321000 +/- 2,6% individus tués en France, FADAT, 1989). D'octobre à mars, la Bécasse utilise un habitat forestier le jour et les milieux ouverts la nuit.

Confrontés initialement à une contradiction entre la forte présomption de la consommation de lombriciens (moeurs crépusculaires et morphologie du bec) et les résultats de l'étude des contenus stomacaux de la bécasse révélant la quasi absence de restes de ces proies, nous avons repris la méthode d'étude et classé les facteurs de variation de ce régime, puis établi la distribution spatiale des activités trophiques de l'oiseau, enfin sur la base de celle-ci quantifié la disponibilité en lombriciens du milieu (zone utilisée et non utilisée de l'habitat).

I. ETUDE DU REGIME ALIMENTAIRE DE LA BECASSE (FIGURE 1)

1.1. Méthode

La quantification des lombriciens dans les contenus stomacaux de leurs prédateurs repose sur le dénombrement des soies, seules fractions résistantes à la digestion avec les cuticules de gésier. Les soies ayant une fonction locomotrice d'accrochage sont présentes sur tout le corps, pour la très grande majorité des espèces en Europe au nombre de huit soies par segment. Pour obtenir la biomasse ou le nombre de lombriciens consommés, il faut définir un nombre moyen de segments d'un individu représentatif d'un peuplement lombricien banal. BOUCHE et GARDNER (1984) donnent 130 segments/individu de 575 mg pphc (poids tube digestif plein, humide, calculé) et 4,42 mg par segment. Un tel calcul donne une valeur à environ 30% près pour les nombres. En l'absence de connaissances suffisantes sur les choix alimentaires de la Bécasse, la biomasse pphc est estimée à 0,6 mg par soie observée et un individu pour 966 soies (BOUCHE et al. 1984). L'identification des espèces à partir des soies n'est pas présentement possible (GRANVAL, 1984). J'ai prélevé 69 contenus stomacaux dès la mort des bécasses afin de quantifier l'importance de la digestion post-mortem et la possibilité d'identifier les espèces lombriciennes.

le régime alimentaire diurne de la Bécasse des bois (*Scolopax rusticola L.*) a été étudié à partir de l'analyse de 315 contenus stomacaux prélevés 3 à 4 heures après leur mort et 69 contenus stomacaux prélevés dès la mort des oiseaux.

1.2. Résultats

1.2.1. Intérêts du prélèvement instantané du contenu stomacal (CS)

Le prélèvement du contenu stomacal dès la mort des oiseaux multiplie par trois la fréquence des lombriciens identifiables macroscopiquement (X2 HS). Neuf espèces lombriciennes des quatre catégories écologiques ont ainsi été identifiées (GRANVAL, 1988). Il a été dénombré 1193 segments de lombriciens intacts pour une masse de 3419 mg, soit une biomasse de 2,9 mg/segment, ce résultat vient donner un intervalle à l'estimation proposée par BOUCHE et al. 1984. Aucune espèce n'a pu être déterminée dans les 315 contenus stomacaux récoltés tardivement. La présence de proies labiles (temps de digestion inférieure à 1 heure) dans le contenu stomacal indique

l'oiseau est en activité alimentaire. Cette technique m'a permis d'étudier la répartition des bécasses dans la forêt de Fréau et de distinguer trois sites : 1 sites non utilisés par les bécasses 2 sites de repos 3 sites d'alimentation.

1.2.2. Composition du régime alimentaire

Les lombriciens constituent la base de l'alimentation : fréquence d'occurrence 98,6% , fréquence relative 52,5% et 87,7 % de l'énergie apportée. L'étude de quelques contenus stomacaux prélevés la nuit donne des résultats similaires. La fréquence d'occurrence et la fréquence relative donnent une image biaisée du régime alimentaire. Des facteurs correctifs sont proposés pour tenir compte de la digestion différentielle et des biomasses différentes des proies.

1.2.3. Influence de l'échantillonnage sur la stabilité des résultats

L'analyse factorielle des correspondances (A.F.C.) a souligné l'importance du lieu de prélèvement du contenu stomacal dans la composition du régime alimentaire. L'échantillonnage a été réorienté suite aux A.F.C. réalisées sur les 150 premiers contenus stomacaux analysés : augmentation du nombre de contenus stomacaux par lieux en équilibrant les modalités sexe et âge. En séparant la matrice des données (384 contenus stomacaux) en deux sous matrices j'ai pu ainsi vérifier en comparant les 3 A.F.C. que la taille de l'échantillon était suffisamment grande ($n > 190$ CS) pour obtenir la stabilité des résultats dans l'étude des facteurs de variation du régime alimentaire. Les Myriapodes et les larves d'Elatéridés sont caractéristiques des contenus stomacaux de la bordure méditerranéenne tandis que les Diptères (larves) et les Dermaptères (Forficules) caractérisent les contenus stomacaux de l'ouest de la France (1er axe de l'A.F.C.). La saison de prélèvement du contenu stomacal est le deuxième facteur de variation de la composition du régime alimentaire (2ème axe de l'A.F.C.). En hiver, les bécasses consomment moins d'Iules et de larves d'insectes plus rares à cette saison. Le sexe de l'oiseau est le troisième facteur de variation de l'alimentation (3ème axe de l'A.F.C.) dans certaines conditions (topographies accidentées des forêts, L'étude locale du régime alimentaire a permis de montrer l'importance des fonds de vallées dans l'alimentation des bécasses (femelles essentiellement) en forêt de Fréau (Finistère) Cause ou effet de cette répartition spatiale différente des mâles et des femelles suivant la topographie, les femelles consomment plus de vers de terre, de larves d'insectes et de Myriapodes que les mâles. Nous avons peut être là un des raisons du départ plus précoce en migration des femelles, leur nourriture principale n'est plus accessible lors de l'arrivée des premiers froids hivernaux.

II. DISPONIBILITES EN LOMBRICIENS DANS LES HABITATS DIURNES ET NOCTURNES UTILISES OU NON PAR LA BECASSE (FIGURE 2)

Etant donné l'importance du milieu fréquenté sur le régime alimentaire, j'ai quantifié les disponibilités en lombriciens (proie principale) dans les milieux diurnes et nocturnes fréquentés ou non par la Bécasse afin de mieux comprendre les regroupements nocturnes des bécasses sur les milieux prairiaux.

2.1. Méthode

Les lombriciens ont été quantifié par la méthode étho-physique de BOUCHE et ALIAGA, 1986 (arrosage au formol, puis bêcheage et lavage-tamassage d'échantillon de sols prélevés sur 20 cm de profondeur). Les lombriciens ont été échantillonné en forêt de Fréau dans les trois types de sites (cf II.1).

Des comptages au phare sur au moins deux années ont permis de distinguer les milieux régulièrement fréquentés ($n=27$ prélèvements de 0.5 m²) composés à 80% de prairies permanentes pâturées des milieux non fréquentés ($n=27$ prélèvements de 0.5 m²) composés de terres labourées depuis au moins 10 ans.

2.2. Résultats

2.2.1. Habitat diurne : milieux forestiers.

Les trois types de sites forestiers ont des biomasses distinctes : 1- les fonds de vallées qui sont des sites d'alimentation où la biomasse lombricienne est très accessible en raison de l'humidité quasi permanente (380 kg/ha +ou-100) 2- les plateaux et les flancs de coteaux, utilisés comme site de repos, très pauvres en lombriciens (16 kg/ha +ou-15) 3- les sites non fréquentés par la bécasse, (109kg/ha +ou-150)

2.2.2. Habitat nocturne : milieux ouverts.

Les milieux fréquentés la nuit par la bécasse, composés à 80% de prairies permanentes pâturées sont six fois plus riches en lombriciens (1403kg/ha +ou-797) que les milieux cultivés non fréquentés (230 kg/ha +ou-355). Si l'on considère maintenant ces acquis d'une part, et le comportement de la bécasse d'autre part, l'habitat de la bécasse ne doit pas uniquement s'envisager sous l'aspect forestier. En forêts bretonnes, les faibles biomasses observées d'une part et déduites des types d'humus d'autre part expliquent que les bécasses quittent au crépuscule les milieux forestiers

La présence de prairies pâturées et le climat doux et humide favorisant l'accessibilité des lombriciens sont les facteurs explicatifs des fortes densités de bécasses observées dans l'ouest de la France.

III. PREDATION DES LOMBRICIENS PAR LES VERTEBRES TERRESTRES

Constatant la nuit sur les prairies à bécasses, le regroupement de bécassines sp., vanneaux huppés, blaireaux, ... et la sous estimation des lombriciens dans l'alimentation de la bécasse (20% initialement, 88% observé après amélioration de la méthode), j'ai dressé à partir de la bibliographie l'inventaire des vertébrés terrestres prédateurs de lombriciens (= géodrilophages) afin : 1- apprécier la valeur des données disponibles en tenant compte des résultats méthodologiques obtenus à partir de la bécasse 2- d'examiner l'influence de la richesse lombricienne des parcelles sur leur fréquentation par les géodrilophages 3- d'approfondir l'approche systémique de la gestion de l'espace ..

3.1. Méthode

Cette analyse bibliographique a été limitée aux espèces présentes en France sauf pour les oiseaux où cette étude est étendue à l'ensemble de l'ouest paléarctique. La fréquence d'occurrence (Foc), seul mode de présentation commun à l'ensemble des études de régime alimentaire, permet d'établir 3 classes d'importance des lombriciens pour leurs géodrilophages : Foc > 50 % proie principale, 10 % < Foc < 50 % proie régulière, Foc < 10 %. On a distingué les études de régime alimentaire qui ont utilisé une des techniques adéquates pour identifier la présence des lombriciens (soies, cuticule des gésiers de lombriciens, ... GRANVAL, 1990) des autres études.

3.2. Résultats

3.2.1. Nombre de géodrilophages et qualité de l'information

186 géodrilophages vertébrés terrestres ont été recensés (tableau 1) : un vertébré sur trois consomme des lombriciens. Cela multiplie par cinq le nombre de géodrilophages précédemment connus (MACDONALD 1983) La fréquence d'occurrence des lombriciens a été estimée objectivement pour seulement 20 espèces d'oiseaux et 17 espèces de mammifères.

Tableau 1 : Nombre de géodrilophages chez les oiseaux et les mammifères

	OISEAUX		MAMMIFERES	
	Nombre de géodrilophages	Nombre d'espèces ayant au moins une étude objective	Nombre de géodrilophages	Nombre d'espèces ayant au moins une étude objective
Prédateurs principaux Foc > 50 %	12	8	5	4
Prédateurs réguliers 10 % < Foc < 50 %	32	12	6	3
Prédateurs occasionnels Foc < 10 %	84	0	12	10
TOTAL	128	20	23	17

On dispose de très peu d'informations pour les groupes d'espèces ou espèces suivants : les passereaux, les rapaces nocturnes, les petits mammifères et le Sanglier (*Sus scrofa*) A la lumière des résultats obtenus chez la Bécasse, j'ai prédit une forte consommation de lombriciens (30 < Foc < 60%) pour le sanglier (travaux en cours) Chez les oiseaux, les groupes des laridés, limicoles, turdidés et corvidés sont des géodrilophages réguliers. 7% et 29% du petit gibier tué en France sont respectivement des géodrilophages principaux et réguliers. Le Blaireau (*Meles meles*), le Hérisson (*Erinaceus europaeus*), la Taupe (*Talpa europaea*) sont des géodrilophages représentatifs des mammifères. Les lombriciens concentrant les métaux lourds, les PCB,...peuvent entraîner soit une mortalité des géodrilophages les plus sensibles, soit un danger pour la santé des consommateurs de gibiers (Bécasses contenant jusqu'à 5000 Bq/kg lors de l'accident de Tchernobyl et toujours contaminée en 1990).

3.2.2. Influence de la richesse en lombriciens sur leur utilisation par les géodrilophages

MACDONALD (1977, 1980), KRUK et PARISH (1981) ont montré respectivement pour le renard et le blaireau que ces géodrilophages recherchaient les parcelles les plus riches en lombriciens. La dispersion des parcelles riches en lombriciens détermine la taille et la configuration des territoires du blaireau. De nombreux travaux américains ont montré une corrélation positive entre les biomasses lombriciennes et le choix de l'habitat diurne et nocturne de la Bécasse américaine (*Scolopax minor*). Etant donné ces résultats, j'ai cherché à tester si plusieurs géodrilophages spécialisés ou réguliers pouvaient utiliser simultanément des parcelles riches en lombriciens. Sur le domaine expérimental INRA du Vieux pin (Orne) ayant des sols hydromorphes et de faible profondeur, l'amélioration des prairies par apport de fertilisants, sursemis et maîtrise du pâturage ont permis un doublement de la production fourragère et une biomasse lombricienne de 2,37 t/ha (+ou- 0,7, n= 72 prélèvements de 0.5 m²) des comptages diurnes et nocturnes ont montré la fréquentation régulière du domaine par les bécasses, les grives mauvis et litorne, et les sangliers (GRANVAL et al. 1990). *Un des moyens s'offrant à l'aménageur dans la recherche d'un nouvel équilibre "faune-flore" consiste à améliorer les territoires, en particulier les prairies. L'augmentation de la production végétale destinée aux herbivores obtenue par enrichissement de ces milieux prairiaux bénéficient aux lombriciens et donc à leurs prédateurs.*

Ces différents travaux m'ont conduit à présenter un schéma conceptuel des conditions nécessaires à la prédation des vers de terre (Figure 3). J'ai réorienté mes travaux de recherches, d'une part pour préciser l'influence des pratiques agricoles et forestières sur la biomasse lombricienne et son accessibilité et d'autre part, pour étudier l'intérêt de la gestion des peuplements lombriciens dans les sols cultivés et les sols forestiers dépourvus de lombriciens agronomiquement efficaces. En effet, la raréfaction et/ou la moindre accessibilité des peuplements lombriciens entraîne une diminution des potentialités trophiques des milieux et des taux de reproduction des géodrilophages spécialisés. Ainsi, RABE et al. (1985) ont pu corréliser les années à faibles taux de reproduction de cet oiseau à des conditions défavorables à l'activité des lombriciens.

3.2.3. Influence des pratiques agricoles sur les biomasses lombriciennes

Les biomasses lombriciennes observées varient suivant les régions agricoles. Une enquête auprès des agriculteurs a permis de classer les parcelles échantillonnées en quatre grands types d'agriculture: 1- céréaliculture (38 kg/ha +ou-50), 2- polyculture- élevage (700 kg/ha+ou-409)3- élevage sur prairies permanentes peu fertilisée et pâturage libre (900 kg/ha +ou-527) 4- élevage sur prairies permanentes fertilisée et pâturage tournant (2200 kg/ha +ou-645). L'influence du pâturage et de l'apport de fertilisants a été testé en comparant deux parcelles ayant reçu des itinéraires techniques annuel identiques pendant 15 ans indique un doublement de la biomasse lombricienne (1940 Kg/ha+ou- 680) de la parcelle pâturée et recevant 50N 80P 80K de plus que la parcelle fauchée. Les apports de fertilisants et le pâturage favorisent les peuplements lombriciens. Le pâturage favorise l'accessibilité de cette biomasse en maintenant une végétation rase (GRANVAL et al. en prep.)

Summary

Ecological aspects of the management of rural areas: requirements of the woodcock to soil quality (Abstract of an unpublished thesis, 200 pp, including list of cited literature)

Three objectives have been followed up:

- Methodological studies to quantify consumption of earthworms (lumbricids) from stomach contents of woodcock.
- Studies on nutritional resources at certain spots of permanent grassland most frequented by woodcocks and other predators on earthworms.
- Are there management concepts in agriculture and forestry taking into account the biological value of earthworms for the conservation of soils and thus combining favourable agricultural productivity with the nutritional requirements of earthworm predators?

By a new method food habitats of the woodcock was studied based on 384 stomach contents of birds collected in southern and western France. Earthworms are the principal food item. Having been present in 98.6% of the samples, they comprised 52.5% of the prey species taken and provided 87.7% of the energy to the birds. Woodcocks dwell in forests during the day and use grasslands at night. Places frequented by woodcocks were up to six times as rich in earthworms than others. Search of literature has revealed a number of 186 species preying on earthworms (mammals, birds, reptiles, amphibians). Studies on a farm area revealed a close correlation between earthworm density and vegetative production.

NORTH AFRICA

Some notes on the woodcock season 1991/92 in Morocco

J.A. Wadsack

Climatic conditions of this season differed considerably from earlier ones. After high precipitation at the end of September/beginning October there was hardly any rain until mid-February. Thus woodcocks were only able to feed along the sandy coastline southwest of Tanger, where they were found in higher numbers than usual.

Arrival was delayed by about one month compared with previous years. The first woodcock was observed at 8 December in the Mamora forest, while the majority did not arrive before the second half of December.

Return migration started as early as mid-February, two weeks earlier than usual.

During nine outings (average 4.1 hours) with two to three hunters an average of 5.8 (different) woodcocks were flushed (last season: 3.5). The weight of 23 birds bagged (6 ad, 17 juv) varied from 245 to 400 gr. (average 316 gr.).

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NORTH AMERICA

Eigth Woodcock Symposium (30.10.-2.11. 1990, Lafayette, Indiana, USA)

A summary of this important symposium and some abstracts of the papers presented by the American colleagues were published in WSRG Newsletter No. 16 (1990), p. 51-56.

Contrary to the intentions of the organizers to publish the results quickly proceedings have not yet been distributed. Therefor Philippe Granval wants to provide some more information by his following article including abstracts of the papers presented by the three French participants.

COMPTE-RENDU DU 8^{ème} COLLOQUE SUR LA BECASSE AMERICAINE (*Scolopax minor*) ET EUROPEENNE (*Scolopax rusticola*)

I. Programme du Colloque

Programme détaillé :

Mardi 30 octobre : Les différentes communications ont été consacrées à: - des réflexions critiques sur le plan d'aménagement de la bécasse américaine (5 communications)
- la reproduction : biologie de la reproduction et activité (6 communications)
- la migration d'automne et aux méthodes d'étude de la bécasse américaine (7communications).

Mercredi 31 octobre : Six communications ont été consacrées à l'étude du comportement de la bécasse américaine en hivernage et à la qualité de ses habitats diurnes

Après-midi : Sortie sur le terrain. Visite de la réserve de faune de Winamac et de quelques habitats forestiers favorables à la bécasse

Jeudi 1 novembre : Trois études critiques sur les connaissances de l'écologie et l'aménagement des habitats de reproduction et d'hivernage ont été présentées.

Deux communications ont évoqué les opportunités de création d'habitat pour la bécasse sur les terres abandonnées par l'agriculture.

Vendredi 2 novembre : Sortie sur le terrain. Essais d'implantation de couverts forestiers intégrés à l'agriculture.

Ce colloque a été très bien organisé . Les intervenants et le public étaient composés de scientifiques, d'aménageurs, de chasseurs de bécasses, des représentants de l'administration forestière et de la Ruffed Grouse Society (association de chasseurs finançant des aménagements pour la bécasse).

II. Les nouveaux résultats

On a pu constater une relance des recherches sur la bécasse américaine ces dernières années après ralentissement des travaux au début des années 1980 La disparition de la forêt dans de nombreux états est considérée comme responsable de la baisse de la population bécassière.

Les travaux portent essentiellement sur les habitats forestiers (reproduction et hivernage). Les taillis d'espèces feuillues (aulne, acacia) sont d'excellents habitats d'hivernage. La libération de surfaces agricoles permet aux chercheurs américains de tester des techniques de reboisement. La plantation de jeunes feuillus, avec l'utilisation

d'herbicides pour éviter la concurrence des adventices, apparaît efficace. Cette plantation sans travail du sol paraît moins nocive pour la faune du sol. La plantation de taillis à courte révolution à des fins énergétiques nous est apparue comme une opportunité non seulement pour la bécasse américaine, mais aussi pour d'autres espèces gibiers, faisans, lapins, lièvres, chevreuils... Ces plantations dégagent un revenu à moyen terme (biomasse énergétique) et une production cynégétique annuelle. De plus, les essences feuillues choisies produisent des litières facilement très dégradables par les vers de terre. Des humus de type mull sont observés sous ses taillis.

Le suivi des habitats forestiers par télédétection proposé par Richard Couture et al. est une technique prometteuse. Cette technique étendue à l'ensemble des territoires d'hivernage et de reproduction permettrait de suivre les modifications globales des habitats.

L'étude des peuplements lombriciens apparaît trop rudimentaire. L'équipe d'Owen a indiqué que la méthode formol devrait être utilisée plus souvent. Nous ajouterons que cette méthode doit être suivie d'un prélèvement à la bêche pour extraire les espèces qui ne répondent pas au formol. Les mêmes auteurs ont recommandé d'étudier de façon plus systématique les lombriciens car ils étaient une source de nourriture pour de nombreuses espèces de vertébrés et ils avaient des rôles très importants dans le fonctionnement des sols. L'impact des différentes pratiques forestières sur les biomasses lombriciennes devraient être mieux cernées.

Nous avons également échangé nos points de vue avec les collègues canadiens (Richard Couture et Pierre Dupuis). Les techniques de quantification des peuplements lombriciens ont été présentées. Ensuite, nous avons abordé l'intérêt et le pourquoi de la gestion des peuplements lombriciens dans les sols agricoles et forestiers. Le développement du semis direct de certains états canadiens et américains favorise les lombriciens et constitue une opportunité pour l'amélioration de la qualité des habitats nocturnes des bécasses américaines en hivernage.

Le suivi des tableaux de chasse et des densités de bécasse en hivernage n'est pas réalisé sur l'ensemble des états. Les biologistes américains ne sont pas en mesure de juger l'influence de la mortalité par la chasse sur les populations. La méthode de dénombrement des mâles chanteurs rencontre des difficultés d'application à l'ensemble de l'aire de reproduction et est très critiquée mais aucune proposition de nouvelles méthodes n'a été faite. La méthode proposée par Yves Ferrand pour la bécasse européenne est une opportunité pour le suivi des mâles de bécasse américaine moyennant les adaptations dues au comportement différent de l'espèce américaine.

Des contacts ont été pris avec Greg Sepik (organisateur et directeur de la principale équipe de recherches travaillant à plein temps) et Brian Miller (organisateur et agronome) pour montrer d'une part l'importance des différents biais digestifs sur la disparition des lombriciens (un court résumé a été rédigé à la demande de Miller) et d'autre part, l'intérêt

de la gestion des lombriciens pour le forestier (accroître la productivité forestière et la fertilité biologique des sols) et le gestionnaire de la faune sauvage (les lombriciens étant consommés par 200 vertébrés terrestres). A la demande des deux organisateurs, un texte a été rédigé.

Nous avons eu des discussions fructueuses avec les biologistes américains et canadiens .Il est nécessaire de confronter les aspects méthodologiques d'étude des deux oiseaux pour accroître la qualité des résultats obtenus .Les contacts développés permettront à l'avenir un échange plus rapide des informations.

III. Résumés des communications présentées

31. IMPORTANCE OF MEADOWS IN THE WEST OF FRANCE FOR WINTERING WOODCOCK *Scolopax rusticola*

by Ph. GRANVAL and M.B. BOUCHE

Lumbricidae, which represent 87.7 % of the energy ingested by woodcock, were sampled in forested and agricultural areas in western France. Lumbricidae were collected at diurnal and nocturnal sites used by woodcock by wetting the soil with formaldehyde and digging to a depth of 20 cm. The biomass of Lumbricidae at forested sites used by woodcock averaged 38 kg/ha (SD = 30 kg/ha, n = 36) and was made-up of 9 different species. Permanent meadows and temporary meadows > 2-years-old, which represents 80 % of the nocturnal habitat of woodcock, contained more species (n = 21) and greater biomass (x = 1450 Kg/ha, SD = 800 kg/ha, n = 33) of Lumbricidae than cultivated areas (11 species, x biomass = 230 kg/ha, SD = 355 kg/ha) that were not used by woodcock. The high densities of woodcock observed in western France in the winter are linked to the mild, wet climate that favors Lumbricidae activity. High densities of Lumbricidae in meadows account for the high use of these areas as nocturnal feeding sites by woodcock.

32. IMPORTANCE OF FOREST SOIL IMPROVEMENT BY EARTHWORM BIOSTIMULATION FOR THE MANAGEMENT OF WOODCOCK HABITATS

by Ph. GRANVAL and B. MUYS

Woodcocks, mainly feeding with earthworms, seek preferentially forest habitats with high earthworm densities for nutrition and reproduction. These habitats are rare as a consequence of acidification processes which are partly due to human interference. Starting with a brief review on earthworm functions, earthworm ecological demands are confronted with those of different tree species. Finally, a concept of controlled earthworm biostimulation in forest soils is proposed.

33. ESTIMATION OF WOODCOCK *Scolopax rusticola*. SURVIVAL FROM THE AGE-RATIO OF HUNTING BAGS AT WINTERING SITES

by Ch. FADAT

The analysis of the spatial-temporal distribution of woodcock in their diurnal wintering habitats suggests that woodcock are territorial during this period. Diurnal sites are small and occupied by 1 individual and are usually used for the entire winter unless unfavorable weather conditions cause prey abundance to decline. Ringing has shown that woodcocks are also faithful to nocturnal sites. This implies that the duration of wintering range occupation by a woodcock is defined by its own survival. Consequently, an estimate of survival of woodcock can be obtained by estimating the mean length of time birds spend on their wintering grounds. Survival estimates can be obtained from recovery rates of banded birds or from the mean age of woodcock taken by hunters. The mean age is directly proportional to the percentage of young (age-ratio) taken by hunters. Woodcock survival is low in hunted areas in France (70 % juveniles). The potential for variation in survival rates is wide and necessitates the need for annual monitoring.

34. METHOD OF INDIVIDUAL RECOGNITION OF RODING WOODCOCK *Scolopax rusticola* AND ITS APPLICATION TO CENSUS ANALYSIS

by Y. FERRAND

Without a method of individual recognition, the quantitative and qualitative census analysis of roding woodcock is a problem. Faced with the problem of multiple counts in a census, I attempted to distinguish individual males using acoustic methods that did not require capture of the birds. Recordings were made of 8 males at times and locations that assured that no individual was recorded more than once. The duration of the roding call (time between 2 notes) was recorded on tape and on sonograms. Seven variables were measured and discriminant analysis indicated that 3 triplets of variables allowed a correct classification of 89.7 % of the individual birds. Yet, sonographic analysis of the roding calls of a bird equipped with a radio transmitter over 1.5 months showed some fluctuations in the variables.

This technique of individual recognition of roding woodcock was used to analyze a series of 25 daily recordings. Of the 229 calls that were recorded, 140 (61 %) calls could be measured and indicated that 10 different males were present. Some of the males were more likely to occupy a greater part of the roding period. Other males displayed in a sporadic manner. There was a positive correlation ($r^2 = 0.74$, $F = 65.35$) between the number of different individuals roding at an observation point and the number of recorded contacts. Thus, the number of recorded contacts is a valid index of relative abundance.

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RUSSIA

On the methodology of estimating woodcock (*Sclopax rusti-*
cola) densities based on roding flights

N. G. Chelintsev has submitted a manuscript dealing with the possibilities to obtain an idea of the number of woodcock males from the intensity of their roding flights. The highly technical paper with sophisticated mathematical formulas might certainly be of interest to specialists working in this field. They might either get copies of this paper from the coordinator (HK) or contact the author directly:

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SWEDEN

Distribution, population size and ecology of the Jack Snipe in Southern Sweden.

Report 1992 on project No. 326 of WWF Sweden

M. Brinch Pedersen

PREFACE

This Study aims to highlight distribution, population size and ecology of the Jack Snipe *Lymnocyptes minimus* in the Province Smaaland, Southern Sweden, in order to produce a conservation strategy to secure the prospective existence of this vulnerable population. The project is a joint-venture between institutions and researchers in Sweden and Denmark, sponsored by the Swedish section of the World Wide Fund for nature (WWF).

In 1990 spatial distribution and population size were identified during a survey of displaying Jack Snipes, conducted at 125 marshes within approximately 9.000 km² of the Smaaland landscape (cf. PEDERSEN, M.B. 1990: Project Dvärgbeckasin. - Vår Fågelvärld (8):485-487; in Swedish).

The years 1991-1992 are considered as a prefatory stage, where the main tasks are to verify the breeding of the Jack Snipe in Southern Sweden, and to develop methods to find nests. Furtherly, the field workers have to get experienced to work on the hard accessible quagmires. From 1993 studies on ecology and reproductive strategy are planned to be initiated on selected sites.

In this report some preliminary results and a status on activities accomplished in 1992, during the third year of the study, are given.

1.0 THE SEASON IN GENERAL

Like in 1990 and 1991 the previous winter was unusually mild, almost lacking snowfalls and cold spells. Due to heavy rain falls in early spring high water levels were reached in April. From early May the weather changed and daily high temperatures combined with absence of rain resulted in dramatic changes in water levels and many wetlands dried out. An over-all decrease in population size, combined with a general impression of early cease of display and snipes being almost absent in the beginning of July, may reflect a low reproductive success.

2.0 POPULATION STUDIES

2.1 Methods

In order to study population trend and dispersion pattern a sample design, including 22 sites holding 54 % of the estimated population (N = max. 120 pairs), was made in 1990. Territories of displaying males are mapped and counted during the twilight hours in two periods (1. period: 25. April - 5. May; 2. period: 20.- 30. June).

In 1992 counts were performed by Torgny Berntsson, Hans Boberg, Ola Bondesson, Anders Engström, Bengt-Erik Eriksson, Jonas Hedin, Mats Henriksson, Björn Hoffberg, Gunnar Jakobsson, Hans Joelson, Bror Johansson, Mats Johansson, Bo Karlsson, Carolina Kraft, Staffan Morander, Jens Morin, Lars Möller, Sven G. Nilsson, Göran Palm, Ingmar Persson, Mikael Persson, Willy Strömblad, Fredrik Svensson, Nils-Arne Thunell, Krister Wahlström and Åke Widgren (Sweden). Thanks to all !

2.2 Preliminary results

Population size: The 1992 season showed the lowest number of displaying Jack Snipes in Southern Sweden since 1990 (Tab. 1). Between 1991 and 1992 the number of territories decreased significantly in 1. period (Wilcoxon Signed Ranks test; $P < 0,005$). The decrease equaled approximately 50%, but an even stronger decrease was reported from the 2. period. Dispersion pattern: A few more sites were "empty" than usual, and sites traditionally holding numerous territories were less exploited (KRON 22, 68,74). It is notable that frequent counts at KRON 68 - one of the sites with most pairs, showed a total absence of territories from mid-May and onwards.

3.0 BIOLOGICAL STUDIES

3.1 Methods

Nest-searching is performed by "search-image" in selected habitats; the vegetation is "swept" systematically with cane-sticks, while searching for nests or trying to raise incubating birds. Incubation-stage is determined by a modified water-test, and hatching-success is determined by searching for shell fragments in the lining of the nest.

In 1992 nest-searching was accomplished for 153 search-hours (Tab. 2) on KRON 22 - Lake Lillsjön (109 1/4 hours) and KRON 68 - Lake Horssjön (43 3/4 hours). Field work was conducted by Timme Nyegaard, Michael Brinch Pedersen (Denmark), Ola Bondesson, Bror Johansson, Hans Joelson, Fredrik Svensson, Krister Wahlström (Sweden) and Algimantas Macikunas (Lithuania).

3.2 Preliminary results

A total of 11 breeding attempts (Tab. 2) by four different wader-species (Tab. 3) were recorded at KRON 22 and KRON 68 in 1992, including the first two nests of the Jack Snipe. All nests were found in the outer and intermediate-zone of the wetlands (for description of sub-habitats, cf. PEDERSEN, M.B.: Project report 1991).

3.2.1 Jack snipe

Incubation: Calculated to commence between 25.-30. May (hatching-dates 16.-20. June). Incubating birds were ringed (n=2; presumably females), birds and eggs (n=8; 2 clutches) weighed and measured (eggs: 26,45-27,85 x 37,45-41,10 mm; 12,25-13,75 g). Both territories were established between 20.-30. April. Frequent counts of territories on the breeding site showed the following temporal distribution: Med. Apr. (0), ult. Apr.-pr. June (2), med. June (1), ult. June (0), pr. July (1-2). In this case it is possible to conclude that the breeding population equaled the maximum number of territories. During laying-/incubation-periods the males displayed closely to the parts of the site where the nests were located. Activity pattern: Over-all male display activity commenced between 2050 - 2150 hours during 1. period (n=8 sites; median value = 10 min. after sunset), and at 2310 hours in 2. period (n=1). No displaying females were reported. A mating sequence, a female lifting from the ground, meeting the male in the air and then diving together, was observed on 14. may at the breeding site (KRON 22).

3.2.2 Other species:

Lapwing *Vanellus vanellus*: For all clutches (n=3) incubation started between 1.-10. may. Redshank *Tringa totanus*: For one clutch incubation started between 1.-10. May. Common Snipe *Gallinago gallinago*: Two distinct laying-periods observed: Between 5.-15. May (n=2) and in the end of May (n=2). One incubating bird (presumably female) ringed, bird and eggs (n=9; 3 clutches) weighed and measured (eggs: 25,85-28,03 x 35,15-41,10 mm; 11,75-14,75 g).

4.0 EVALUATION

4.1 Population studies

When comparing the number of territories found at Lake Lillsjön during 2. period (n=0; cf. Tab. 1) with temporal distribution of territories during the season and number of nests found (n=2; cf. Tab. 3), there is a obvious bias involved, since the results of the 2. count under-estimate the population size. Hence, it seems necessary to extract future estimates from counts performed earlier in the season.

4.2 Biological studies

The pre-study is finished successfully and methods to find nests and catch incubating birds seems sufficiently developed to launch studies on ecology and reproductive strategy from 1993. Methodological aspects: In the latter seasons it has seemed impossible to predict on which sites nest-searches would turn out most successfully. The results from 1992 indicates that fieldwork can be expected to be planned and performed with increased efficiency when based on the spatial distribution of territories in late May. Catching and ringing Jack snipes during incubation seems so far to have no limiting impact on hatching-success, since both clutches hatched.

Table 1 - The number of displaying Jack Snipes during 1. period (2. period in brackets) at 22 sites in the Province Smaaland, Southern Sweden. Abbreviations in the code refers to respective counties.

Code	Site	1990	1991	1992	1993	1994
HAL 03	Roten	1(0)	0(0)	0(0)	-	-
JÖN 05	Horssjömaden	2(1)	3(1)	2(0)	-	-
JÖN 06	Häradsösjön	3(4)	3(0)	2(1)	-	-
JÖN 15	Dumme Mosse	3(0)	2(0)	2(0)	-	-
KAL 05	Hällasjömålasjön	2(0)	1(0)	1(0)	-	-
KAL 06	Bockabosjön	0(-)	1(0)	1(0)	-	-
KRON 01	Mäxarpa Sjö	0(0)	1(0)	0(0)	-	-
KRON 02	Mellansjön	1(0)	2(0)	2(0)	-	-
KRON 03	Stenshultasjön	1(1)	1(0)	1(0)	-	-
KRON 12	Ryda Sjö	2(0)	2(0)	1(0)	-	-
KRON 19	Norra Gölsjön	1(0)	0(1)	-(-)	-	-
KRON 20	Rota Sjö	2(0)	2(0)	2(0)	-	-
KRON 22	Lillsjön	4(1)	5(0)	2(0)	-	-
KRON 47	Fängsjön	1(0)	1(0)	0(0)	-	-
KRON 57	Pjätterydssjön	1(0)	1(0)	0(0)	-	-
KRON 59	Fälhultssjön	1(-)	0(0)	0(-)	-	-
KRON 60	Steningen N	2(0)	2(-)	0(0)	-	-
KRON 66	Elen	0(-)	2(0)	0(0)	-	-
KRON 68	Horssjön	6(3)	8(3)	5(0)	-	-
KRON 74	Grettsjön	8(4)	8(-)	4(0)	-	-
KRON 76	Säntagylet	2(1)	0(-)	0(-)	-	-
KRON 77	Bökönasjön	1(0)	0(-)	1(0)	-	-
Total		44(15)	45(5)	24(1)	-	-

Table 2 - Primary data from nest searches, May-July 1992. A:Date; B:Site; C:Field hours (=hours x Workers); D:App. area covered (ha); E:Number of nests/clutches found.

A:	B:	C:	D:	E:
28/5	KRON 68	21 1/4	6	1
29/5	KRON 68	22 1/2	7	0
30/5	KRON 22	26 3/4	8	1
31/5	KRON 22	17	5	3
1/6	KRON 22	18	4	3
8/6	KRON 22	27 1/2	5	3
13/6	KRON 22	4	1	0
14/6	KRON 22	4	1	0
19/7	KRON 22	12	2	0
Total		153	39	11

Table 3 - Documented breedings, May-June 1992, shown as the number of nests found.

Site /Species	Results		Total
	Hatched	Predated	
Lake Horsjön:			
Gallinago gallinago	0	1	1
Lake Lillsjön:			
Vanellus vanellus	3	0	3
Tringa Totanus	1	1	1
Gallinago gallinago	0	3	3
Lymnocyptes minimus	2	0	2
Total	6	5	11

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Graafval, P. & Muys, B. (1992): Management of forest soils and earthworms to improve woodcock (*Scolopax* sp.) habitats: a literature survey. *Gibier Faune Sauvage* 9, 243-255.

The problem of acidification of forest soils is reviewed and the ecological demands of earthworms are compared with those of different tree species. Consideration is given to methods of restoring forest habitats for woodcocks, including the choice and mixture of tree species, corrective liming and fertilizing and earthworm introduction.

AH.

Hoglund, J., Kalas, J.A. & Fiske, P. (1992): The costs of secondary sexual characters in the lekking great snipe (*Gallinago media*). *Behavioural Ecology and Sociobiology* 30(5), 309-315.

AH.

Hoodless, A. (1992): Winter studies of woodcock and snipe. *The Game Conservancy Review* of 1991/23: 75-78.

Studies on several areas in Southwest England revealed a close relationship between woodcock density as estimated by night counts with spotlamps and hunting bags the next day on these areas. Annual variations in woodcock densities (and bags) are explained as a consequence of several factors, i.e. breeding success in Eastern Europe as indicated by young:old ratios and variations in winter severity. Woodcocks exhibited a high fidelity to sites rich in earthworms.

By similar methodology, including spot lamp counts and bag statistics the author intends to get more information on the number of snipes (*Gallinago gallinago*) wintering in Britain. Recently the total bag is estimated as about 25.000 birds. Intensified wing sampling will not only provide insight in migration phenology, especially age-specific migration patterns. During the last 30 years snipe have been stable in Wales, whereas they continuously declined in East Anglia. The difference is explained by severe habitat loss in the latter area.

HK.

Muller, H.E.J. & Konigstedt, D.G.W. (1990): Protective defaecation at the nest of snipe (*Gallinago gallinago*) and great snipe (*Gallinago media*). *Ecol. Birds* 12, 85-89.

AH.

Olinde, M.W. & Prickett, T.E. (1991): Gonadal characteristics of February-harvested woodcock in Louisiana. *Wild.Soc.Bull.* 19(4), 465-469.

Only 2.4% of female American woodcock (*Scolopax minor*) harvested in Louisiana during February exhibited an advanced reproductive stage by ovarian follicles of 5.0 mm or more. This figure is between the values of studies in other regions.

HK.

Olivier, G.N. (1992): L'eau, la conservation des zones humides d'Europe occidentale. Les aménagements, favorisant les étapes migratoires pour la becassine des marais et la becassine sourde. Rapport Technique de Club International des Chasseurs de Becassines (C.I.C.B.), 47 pp. (in French).

Brief summary on habitat requirements of *Gallinago gallinago* and *Lymnocyptes minimus* along their flyways, problems of conservation and suggestions for management of these habitats.

HK.

Sauer, J.R. & Bortner, J.B. (1991): Population trends from the American woodcock singing ground survey, 1970-88. *Journal Wildl. Management* 55(2), 300-312.

Population trend analysis of American woodcock (*Scolopax minor*) using data from singing ground surveys indicates population declines throughout the breeding range between 1970 and 1988. In the eastern United States and Canada this decline has been quite consistent throughout the period, but in the central portion of the continent the population increased during the 1970's and declined during the early 1980's. Habitat changes have been suggested as the most likely cause of declines in woodcock populations, while there was no direct relationship between survey results and mortality caused by hunting. Ringing analysis further revealed hunting mortality is not a major component of overall mortality.

HK.

Tappe, P.A., R.M. Whiting & R.R. George (1989): Singing-Ground surveys for woodcock in East Texas. Wildl. Soc. Bull. 17: 36-40.

Suggestions whether and how to include East Texas into Singing Ground Surveys on the American woodcock (*Scolopax minor*). Though this region is situated at the southern border of the breeding range, wintering and migrating birds exhibit courtship flights from mid-January to the beginning of March.

HK.