International Waterfowl and Wetland Research Bureau

WOODCOCK AND SNIPE RESEARCH GROUP

Newsletter No 16 December 1990

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EDITORIAL

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

Research

Two years ago the International Woodcock Project supervised by Graham Hirons came to an end and most of the results are published now. Fortunately Hirons' work can be carried on now at least in the two British study areas (Cornwell and Whitewell Wood) by Andrew Hoodless, a young biologist employed at The Game Conservancy, U.K.

As obvious from this issue (page 4 and 36) the French colleagues have again increased their activities in several fields of woodcock research. Their efforts have led to an unprecedented number of woodcock ringed during the season 1989/90. Due to the relatively high rate of recoveries these activities may provide statistically valid numbers of data, not only on migration, but also on population dynamics and the impact of hunting.

Thanks to the political change between east and west we finally got some contact to colleagues working in the USSR, the main vast breeding range of the European woodcock. As indicated on page 56 there are considerable research activities in several parts of Russia, mainly due to the interest in hunting roding birds in spring.

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 the Duck Wing research Group of IWRB. Wings of the Common Snipe have been collected in Denmark and France since some years, and this issue presents the results of a comprehensive analysis of French Snipe wings (page 19).

Generally, more attention will be paid to the three snipe species in the future. Apart from relevant activities in Italy and France a joint project of The Game Conservancy and the WSRG will be conducted in Britain by Andrew Hoodless, and generously sponsored by Harry Wells. One of the main goal of this study is to demonstrate the true status of the three snipe species, indicators of intact wetlands. In a first step all available research and information will be collected and analyzed.

Meetings

In August 1990 the Academy of Sciences, Moscow, had invited three commissions of CIC to hold a symposium on sound wildlife management in Irkutsk, Sibiria. The coordinator, chairing the CIC Migratory Bird Commission took the opportunity to get in closer contact to Russian woodcock researchers. A car-ride at night through the extensive forests around Lake Baikal provided some ideas of woodcock abundance in this area (a total of 65 birds was flushed from puddles on five kilometers of forest road).

From 29 October to 2 November 1990 the Eigth American Woodcock Symposium took place in Lafayette, Indiana (see page 51). It was organized by the Office of Migratory Bird Management of the US Fish & Wildlife Service, and mainly sponsored by the Ruffed Grouse society. The coordinator participated, also on behalf of the Migratory Bird Commission of CIC. Though primarily devoted to the American Woodcock (Scolopax minor) the program also comprised one paper and three poster presentations on the European species representing the results of French research projects.

The inquiry of Newsletter No. 15, page 2 concerning our next Woodcock and Snipe Workshop revealed a majority of opinions for holding it in 1992 in Germany. There were two more invitations, one from Italy, submitted by Silvio Spano and the other from Jugoslavia (though not before 1993) submitted by Slobodan Puzovič. We appreciate these invitations and might refer to them for future arrangements.

So the Fourth Workshop - a joint meeting of IWRB and CIC - will be held in April 1992, hosted by the European Wildlife Research Institute (EWI), University of Saarbrücken, Germany. It will mainly depend on the number of participants whether it will take place at EWI Higher Blackforest (surrounded by good woodcock habitat) or at EWI Saarbrücken. In order to prepare the meeting we kindly want to ask possible participants to complete the attached preliminary application form and return it to the coordinator not later than October 31, 1991.

Personalia

In 1990 for the first time the European Wildlife Prize, initiated by Prof. Paul Müller in cooperation with Institute of Biogeography, University of Saarbrücken, EWI, and the Hunters Organization "Silberner Bruch" was issued. With great satisfaction I can announce this prize 1990 was given to Dr. Graham Hirons in appreciation of his extensive field studies on woodcock. In his laudatio during the ceremony on May 12 Prof. Müller stressed the importance of long-term studies by full-time dedication of a biologist and application of modern techniques such as radio-telemetry. In this case these ten years efforts have provided a much better understanding of the biology of a secretively living game bird full of mysteries in the past, but still much discussed nowadays. He further appreciated the pragmatic cooperation of the non-hunter Hirons with the hunters he had to deal with.

Unfortunately, Graham Hirons was not able to attend the prize-giving himself, due to a serious car accident he was involved end of January 1990. Still not completely recovered yet Hirons has resumed his new occupation at RSPB (UK), but cannot spend time in the moment into woodcock research. I want to take this opportunity to express sincere thanks to Graham Hirons for all his dedication to research and for his help as Joint Coordinator of WSRG. He fully agreed with our proposal to nominate Andrew Hoodless as Assistant Coordinator, taking over part of his obligations.

Publications

Proceedings of the Second and Third Woodcock and Snipe Workshop (1982 and 1986) are still available from IWRB headquarters (Slimbridge, Glos., GL2 7BX, England). Other publications concerning woodcock and snipes are reviewed in the Bibliography of this issue.

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NATIONAL NOTES

AUSTRIA

Some observations on Woodcock migration in Austria and Western Hungary, 1989.

Philipp Meran

Generally, in 1989 much less woodcock were observed than in the previous year, in spring (59 contacts during 38 outings) as well as in fall (38 contacts during 33 outings). This is also obvious from bag statistics of the Austrian province Steiermark: 1300 woodcock were taken in 1988 but only 550 in 1989. The low numbers of observations are most likely a consequence of weather conditions. The winter 1988/89 was unusually mild with only little snow cover even in lower altitudes of the Alps. Obviously spring migrating birds passed the mountaineous habitats and were not forced to evade into the lowlands as usual. Some birds obviously stayed all winter in the Balaton area, Hungary.
Fall migration was also poor in Steiermark, possibly again due to weather conditions, since October was unusually dry and warm there. Most of migration was over early, just before the cold spell of mid-November.

The following birds bagged during evening flights were analyzed.

Date	Location	Sex	Age	Weight (gr.)	
1. Spring					
Austria					
18.3.	Siegendorf	♀	ad	350	
20.3.	Siegendorf	♂	juv	295	
20.3.	Klingenbach	♂	ad	355	
22.3.	Klingenbach	♂	juv	287	
Hungary					
23.3.	Sarvaj	♂	ad	315	
27.3.	Balatonkeresztur	♂	juv	320	
27.3.	Balatonkeresztur	♂	ad	310	pairflights
27.3.	Balatonkeresztur	♀	juv	380	pairflights
29.3.	Balatonkeresztur	♂	ad	355	
31.3.	Balatonkeresztur	♂	juv	297	
2. Fall (Austria)					
7.10.	Kremser	♂	juv	301	
8.10.	Schneiderbauer	♀	ad	330	
22.10.	Ungerfeld/Reinischkgl.	♂	juv	325	pairflights
22.10.	Ungerfeld/Reinischkgl.	♀	ad	395	pairflights
12.11.	Kremser	♂	?	395	
14.11.	Gasselsdorf	♀	ad	419	

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FRANCE

Rapport Baguage - Saison 1989-1990.

Office National de la Chasse - C.N.E.R.A. Avifauna Migratrice

Summary

The O.N.C. woodcock ringing project is at work for seven years now, with constantly increasing success. In 1989/90 almost 700 birds were ringed in 25 departments of France, the majority being caught along the Atlantic coast, and mainly during November and December. Almost all woodcock were caught at night by means of a lamp.

72 direct recoveries (mainly from birds shot) were obtained, and 62 from earlier years, during this season. 10 birds were recovered from foreign contries, 1 from Hungary (March) and 1 from Portugal (December). Overall direct recovery rate was 10.8%, the time lapse between ringing and recovery being 23.7 days on average. Since four years O.N.C. has conducted ringing schemes in the breeding areas of the woodcock, mainly in Scandinavia (see page 36 of this issue).

HK

INTRODUCTION

Cette septième saison de baguage en collaboration étroite avec les Services Techniques des Fédérations Départementales des Chasseurs et la Garderie de l'Office National de la Chasse montre que le travail de tous a maintenant un rythme régulier.

Ce rapport expose les principaux résultats obtenus au cours de cette saison 1989-90.

1 - Méthodes et lieux de captures

1-1 Méthodes

Près de 95% des captures ont été réalisées en utilisant la méthode de nuit au phare.

Dans les Deux-Sèvres des captures ont été faites le matin à l'aide de matoles placées en lisière de forêt (BOUTIN J.M. et G. VAN LAERE, 1989).

Dans l'Hérault des filets verticaux tendus à la tombée de la nuit autour de points d'eau ont permis de nombreuses prises.

1-2 Lieux de capture (carte 1)

Le réseau de bagueurs par la méthode générale est sensiblement identique à celui de l'an passé. 25 départements ont participé aux opérations. Seuls 7 départements ne se trouvent pas sur la frange littorale de la Manche, de l'Atlantique et de la Méditerranée.

Les captures matinales ont eu lieu en Forêt de Chizé et celles à la passée du soir à Puechabon.

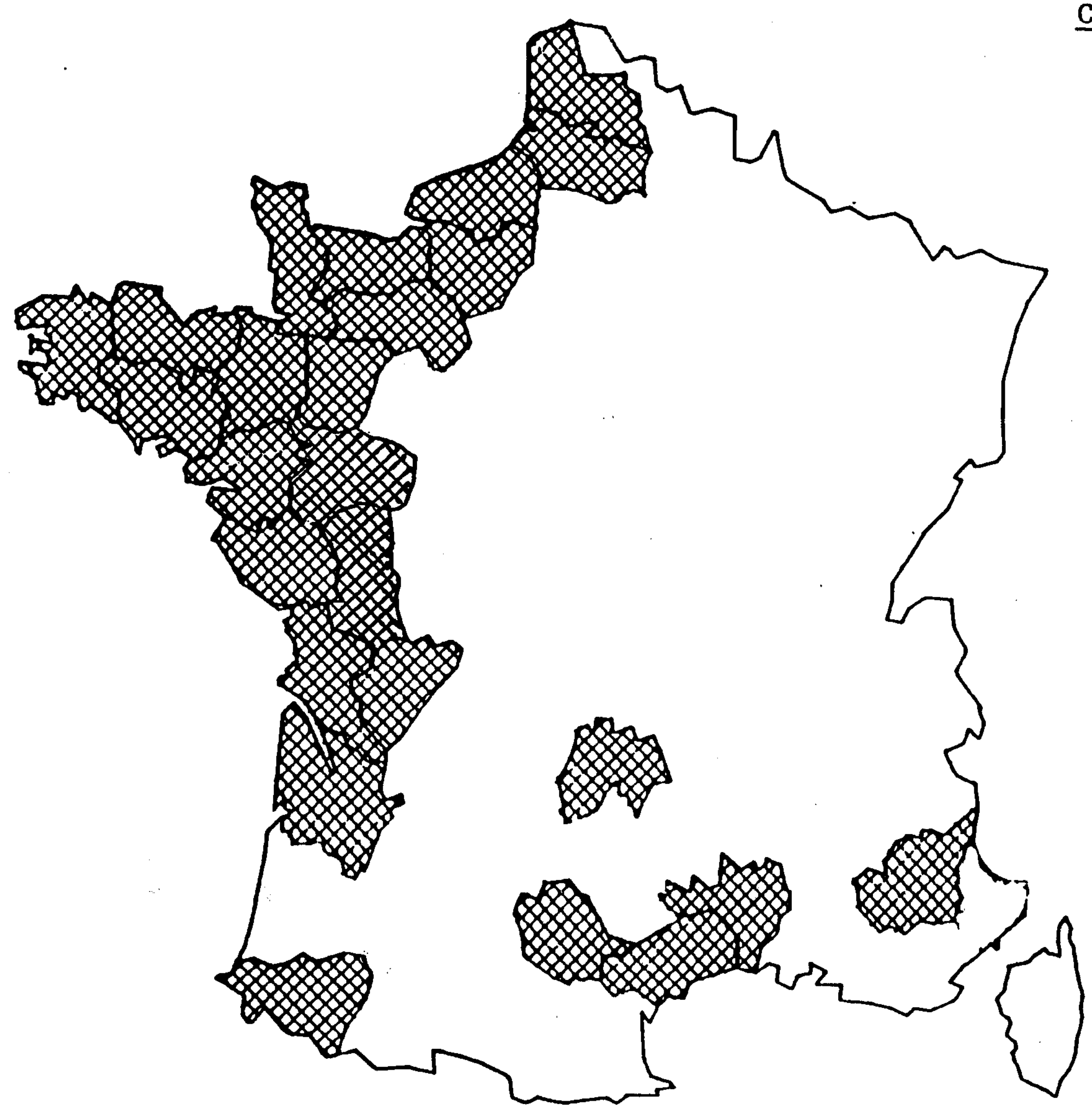
2 - Résultats

2-1 Bilan des captures (figure 1)

Cette saison 677 bécasses ont été baguées soit le meilleur résultat annuel réalisé jusqu'alors.

Le nombre d'oiseaux capturés de nuit est très proche de celui de l'an dernier. En revanche 17 oiseaux ont été pris aux matoles et 20 à la passée du soir. Ce dernier résultat est très encourageant pour le développement du baguage en milieu méditerranéen où l'efficacité du baguage de nuit reste limitée.

Carte 1 : Répartition géographique des départements ayant participé aux opérations de baguage en 1989-1990



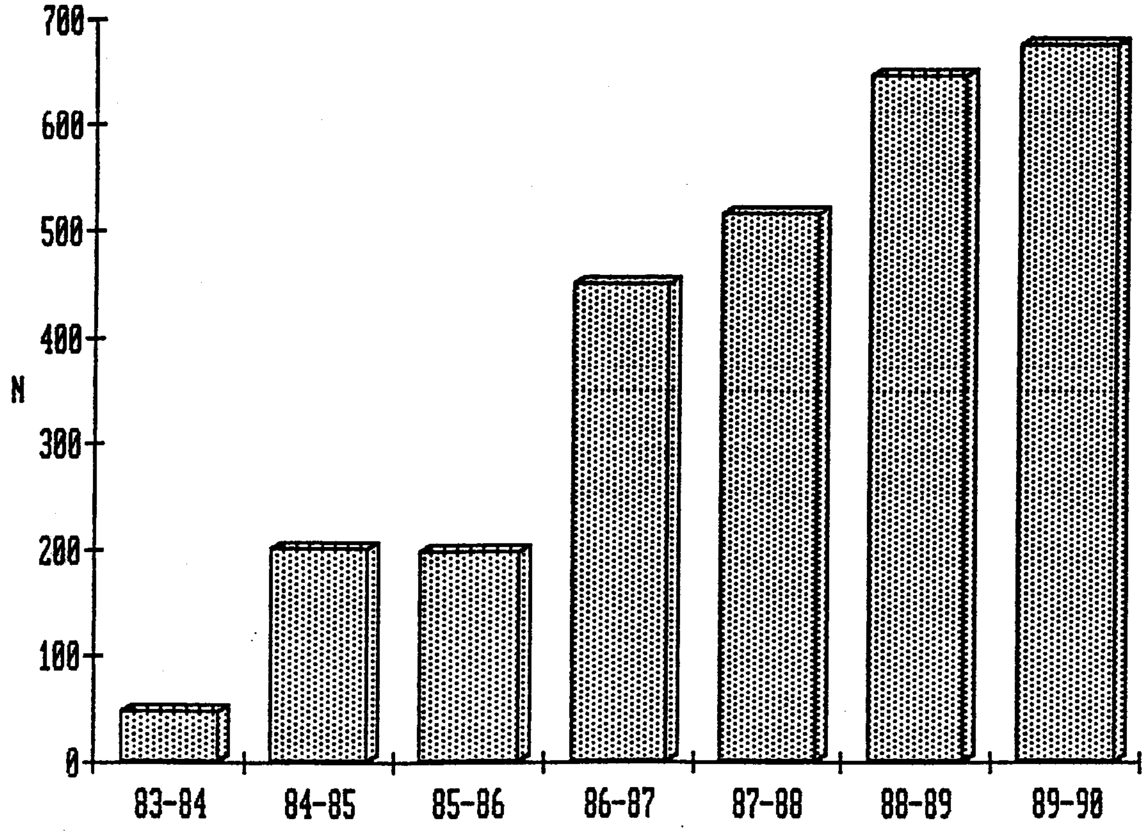


Figure 1 : Evolution inter annuelle du nombre de bécasses baguées

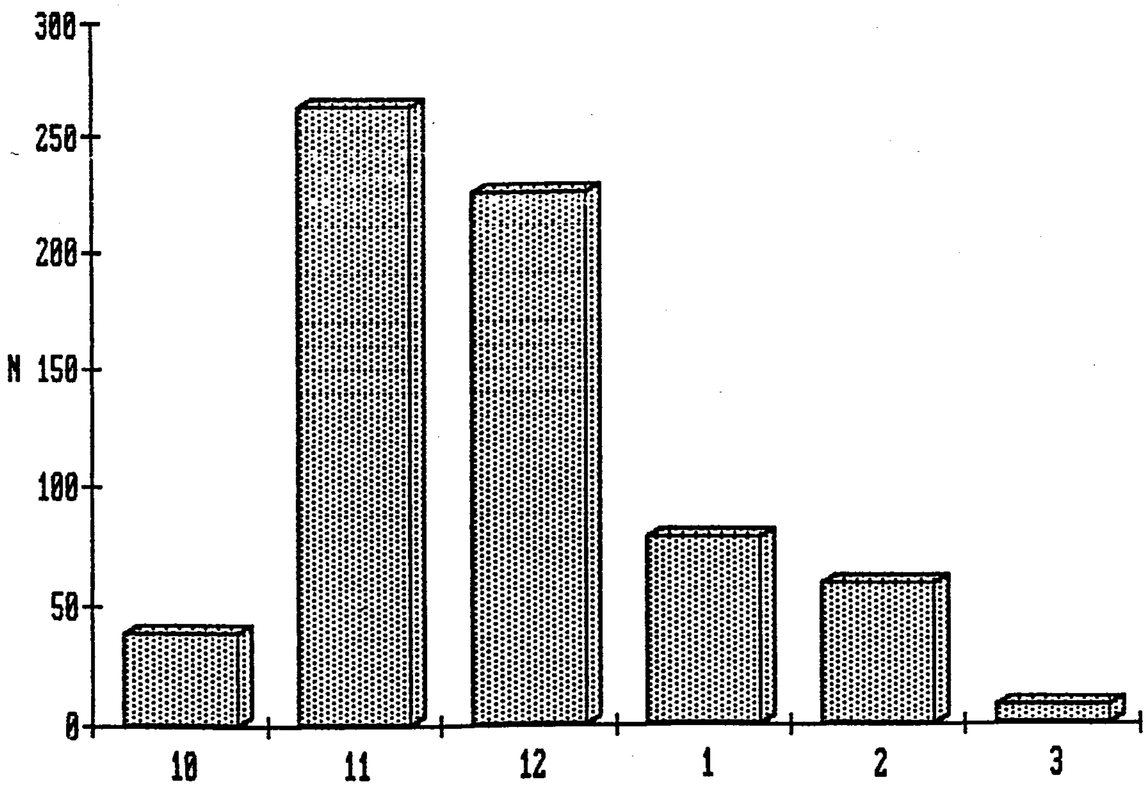


Figure 2 : Evolution mensuelle du nombre de bécasses baguées en 1989-1990

Le résultat global de cette saison est remarquable dans la mesure où les densités furent assez faibles dans les zones habituelles d'hivernage. Toutefois quelques départements ont été privilégiés à certaines périodes, ainsi le Pas de Calais en octobre-novembre, le Morbihan en novembre-décembre, et la Seine Maritime en Février.

Les opérations de baguage de ces 7 dernières saisons ont permis le marquage de 2.752 oiseaux.

2-2 Sorties et taux de réussite (tableau 1)

Les différentes équipes ont effectuées 459 sorties nocturnes c'est à dire une centaine de moins que l'an passé. Au cours de ces sorties 2.517 bécasses ont été vues c'est à dire 400 de moins qu'en 1988-89. Cette année, l'efficacité des équipes a donc sans doute compensé la relative faiblesse des effectifs hivernants.

Le taux de réussite de la saison s'élève à 25,4 %. C'est le meilleur depuis 7 ans. La précocité des captures explique probablement en partie cette valeur, car nous savons en effet que les oiseaux sont bien souvent moins méfiants en octobre-novembre. Le faible effectif encore présent en février-mars a découragé bien des équipes et a amélioré "artificiellement" le taux de réussite.

2-3 Evolution mensuelle des captures (figure 2)

Près de la moitié des oiseaux (45 %) ont été capturés en octobre ou novembre. L'effort de marquage en début de saison apparait à nouveau cette année et correspond tout à fait aux objectifs.

2-4 Reprises

Nombre et lieux de reprises

Au cours de la saison nous avons eu connaisance de 72 reprises intra-annuelles (carte 2) et 62 reprises inter-annuelles (carte 3) en France.

A celles-ci s'ajoutent 10 reprises étrangères (carte 4). En U.R.S.S., 5 bécasses ont été tirées à la croule en Avril dans la République de Russie, près de Moscou, et 3 dans les Pays Baltes. Deux autres oiseaux ont été repris, l'un fin mars en Hongrie, l'autre en décembre au Portugal.

Taux de reprise (Tableau 2)

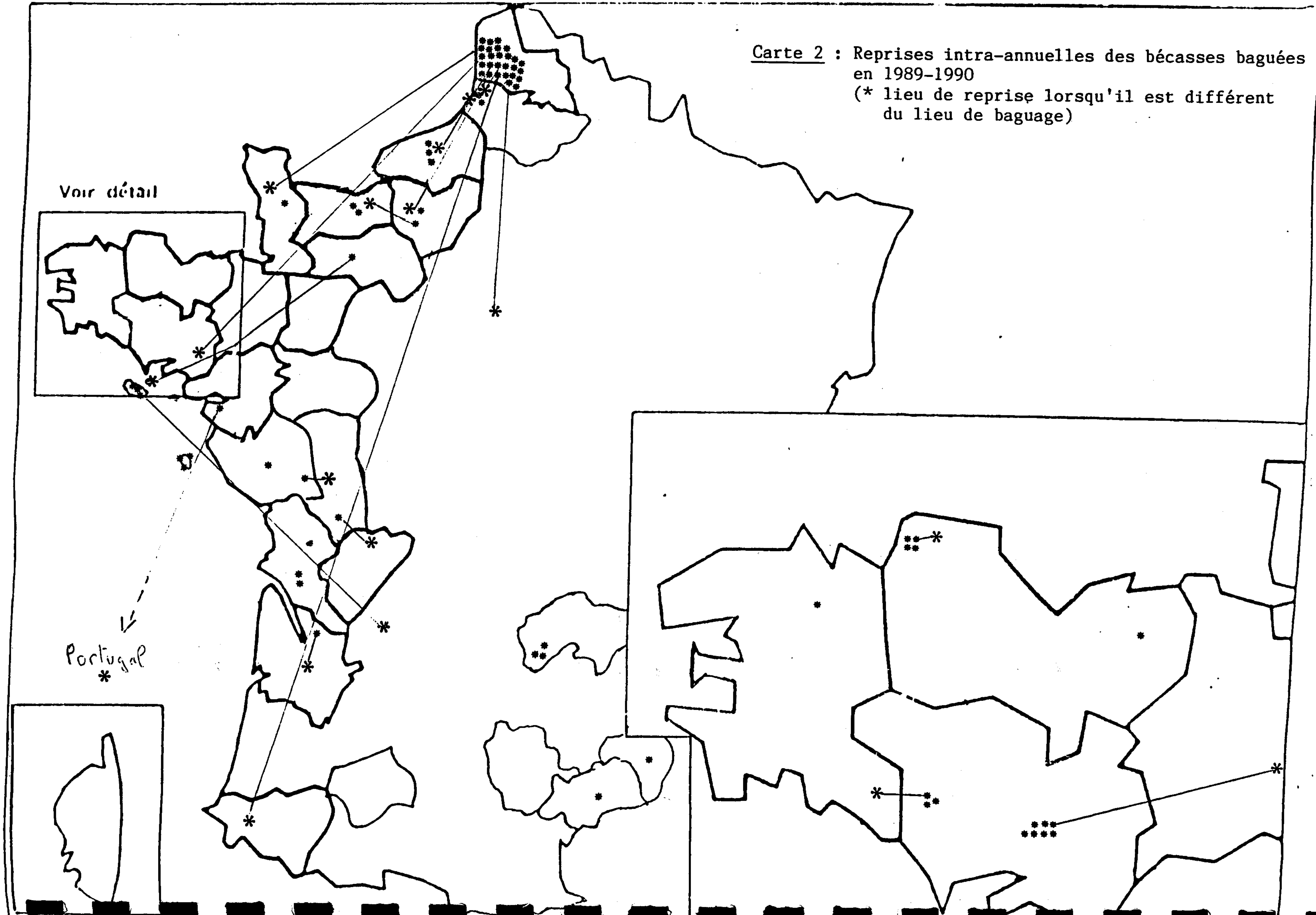
Avec une valeur de 10,8%, c'est le plus faible enregistré depuis la mise en place du réseau sans qu'on puisse véritablement l'expliquer.

Département	Nombre de sorties nocturnes	Nombre de contacts (N)	Nombre de bécasses baguées de nuit (B)	Nombre de contrôles (C)	Nombre de bécasses baguées de jour *	Taux de réussite $T = \frac{B + C}{N}$
04 - Alpes de Haute-Provence	6	5	-	-	-	-
14 - Calvados	20	29	6	-	-	20,6 %
15 - Cantal	27	27	8	-	-	29,6 %
16 - Charente	15	65	11	1	-	18,5 %
17 - Charente-Maritime	25	77	16	-	-	20,8 %
22 - Côtes d'Armor	21	194	36	2	-	19,6 %
27 - Eure	12	94	20	4	-	25,5 %
29 - Finistère	33	230	55	5	-	26,0 %
30 - Gard	18	8	2	-	-	-
33 - Gironde	?	?	1	-	-	-
34 - Hérault	-	-	-	-	20	-
35 - Ille-et-Vilaine	17	65	10	2	-	18,5 %
44 - Loire-Atlantique	32	52	24	1		48,0 %
49 - Maine-et-Loire	15	2	-	-	-	-
50 - Manche	18	113	25	2	-	24,0 %
53 - Mayenne	27	85	22	4	-	30,6 %
56 - Morbihan	35	512	139	6	-	28,3 %
61 - Orne	6	30	8	-	-	26,7 %
62 - Pas-de-Calais	38	306	109	2	-	36,0 %
64 - Pyrénées Atlantiques	10	28	4	-	-	14,3 %
76 - Seine Maritime	28	358	83	8	-	25,4 %
79 - Deux-Sèvres	6	91	11	-	17	12,0 %
78 - Yvelines	-	-	-	-	1	-
80 - Somme	15	20	3	-	-	15,0 %
85 - Vendée	36	154	46	2	-	31,0 %
Totaux et moyennes	460	2.517	639	39	38	25,4 %

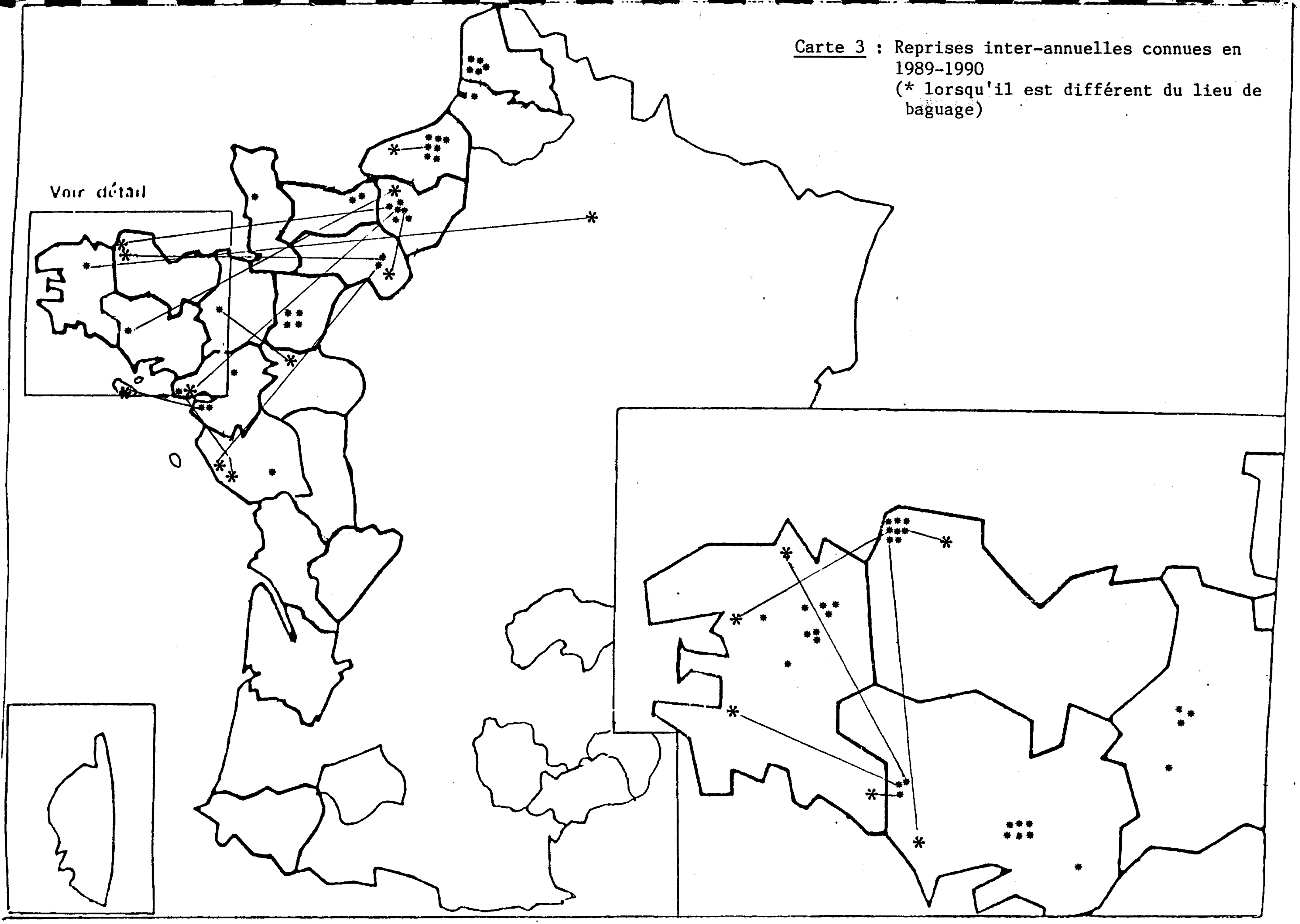
TOTAL = 677 oiseaux bagués

* captures non comprises dans le calcul du taux de réussite

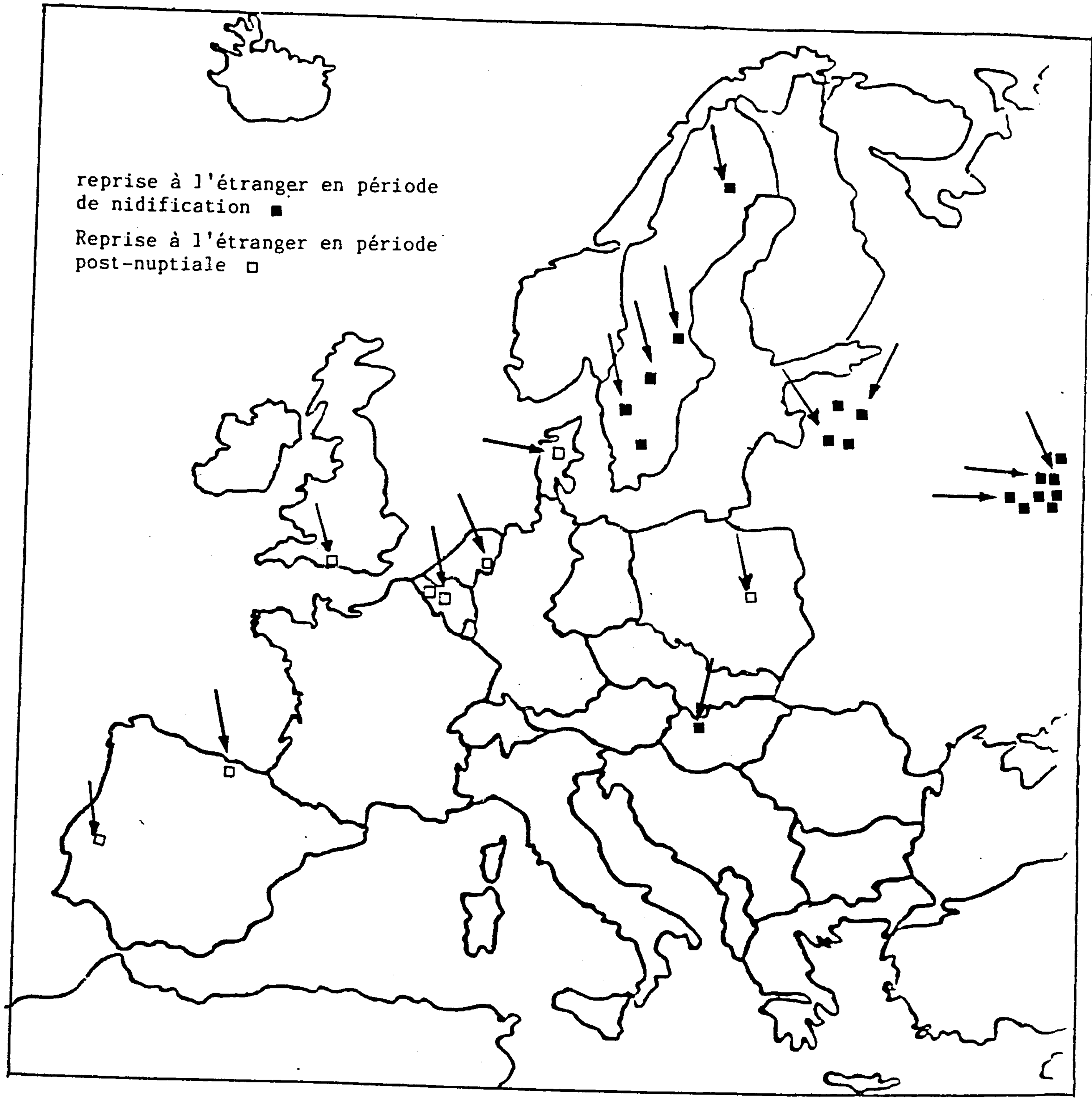
Tableau 1 : Résultats globaux des captures au cours de la saison 1989-1990



Carte 2 : Reprises intra-annuelles des bécasses baguées en 1989-1990
(* lieu de reprise lorsqu'il est différent du lieu de baguage)



Carte 3 : Reprises inter-annuelles connues en 1989-1990
(* lorsqu'il est différent du lieu de baguage)



Carte 4 : Reprises en Europe de bagues posées en France au cours des saisons 1983-1984 à 1989-1990

Délai de reprise intra-annuel (Tableau 2)

Cette année le délai de reprise intra-annuel est de 23,7 jours. Il est très voisin de ceux des autres années.

Distance de reprise

La distance moyenne parcourue par les 73 oiseaux bagués et repris cette année est de 59,7 km. L'un d'eux, bagué en Loire Atlantique, fut tué 1.100 km plus loin au Portugal. La distance moyenne des 65 reprises effectuées à moins de 100 km du lieu de baguage est de 8,1 km.

Contrôles

Au total 39 contrôles ont été notés cette année, quasiment autant que pendant la saison dernière. Un oiseau a même été contrôlé 4 années après sa première capture dans le Finistère.

3 - Discussion

3-1 Evolution inter-annuelle du délai de reprise

Les délais moyens sont présentés dans le tableau 3. Depuis 1985-86 le délai de reprise n'a pas varié de façon significative. Sous l'hypothèse que ce délai est corrélé négativement à la pression de chasse celle-ci n'a pas évoluée de manière évidente dans les secteurs de baguage. Rappelons que cette valeur est, parmi les variables issues du baguage, celle qui présente le moins de biais et le plus grand intérêt pour la gestion cynégétique.

3-2 Age-ratios obtenus par le baguage et dans les tableaux de chasse

La proportion de jeunes capturés au cours des opérations de baguage est-elle du même ordre que celle obtenue à la chasse? Pour tester cette hypothèse nous avons comparé les age-ratios obtenus pour chacune des méthodes de capture dans quelques départements où les bécasses n'ont pas été uniquement recherchées en zone réserve. Les résultats sont présentés en tableau 3.

Aucune différence n'apparait en 1988-89 dans le Finistère et le Pas-de-Calais, et en 1989-90 dans le Morbihan, la Seine-Maritime et la Vendée. En revanche des différences significatives apparaissent en 1988-89 dans le Morbihan ($X^2=9,15>3,84$ $x=0,05$) et dans l'Ille-et-Vilaine ($X^2=4,58>3,84$ $x=0,05$), et en 1989-90 dans le Pas-de-Calais ($X^2=7,16>3,84$ $x=0,05$).

Département	Nombre d'oiseaux bagués	Nombre de reprises	Taux de reprise	Délai moyen de reprise intra-annuelle en jours	variance
22 - Côtes d'Armor	36	5	13,9 %	14,2	51,2
27 - Eure	20	2	10,0 %	14,0	8,0
29 - Finsitère	55	1	1,8 %	57,0	
56 - Morbihan	139	15	10,8 %	17,7	98,8
62 - Pas-de-Calais	109	27	24,8 %	19,8	554,3
76 - Seine Maritime	83	3	3,6 %	22,7	16,3
85 - Vendée	46	5	10,9 %	28,0	753,5
Autres départements	189	15	7,9 %		
Totaux et moyennes	677	73	10,8 %	23,7	466,8

Tableau 2 : Taux et délais de reprise intra-annuels - Saison 1989-1990

Selon l'année ou le département, l'égalité statistique entre les age-ratios est ou non vérifiée. Baguage et analyse des tableaux de chasse sont donc nécessaires l'un et l'autre.

Curieusement le traitement à part des données recueillies en 1989-90 à Pontcalleck (zone réserve du Morbihan) n'indique pas une différence significative avec les age-ratios du reste du département ($X^2=4,70<5,99$ $x=0,05$).

3-3 <u>Distance des reprises intra-annuelles dans le Pas-de-Calais</u> (carte 2)

Parmi les 27 reprises intra-annuelles connues de bagues posées dans le Pas-de-Calais, 8 ont été faites hors du département dont certaines à des distances importantes dans la Manche, le Morbihan, l'Eure-et-Loire et les Pyrénées Atlantiques. Ces bagues avaient été posées entre le 26 octobre et le 2 novembre.

La situation géographique du Pas-de-Calais et la zone de baguage choisie près du littoral ainsi que les arrivées importantes dès la dernière quinzaine d'octobre permettent des opérations de baguage précoces sur des oiseaux parmi lesquels bon nombre sont de passage.

4 - Le baguage à l'étranger

Depuis 1987, nous avons entrepris des missions à l'étranger pour développer des contacts avec les principaux pays d'origine des bécasses des bois et, par notre travail sur le terrain, promouvoir le baguage de ces oiseaux.

4-1 <u>La Norvège</u>

Grâce aux deux missions d'octobre 1987 et octobre 1988, 172 bécasses ont été baguées dans la région de Stavanger. Nous avons atteint notre objectif car une équipe de bagueurs norvégiens a continué ce travail et a marqué 35 oiseaux en 1989.

Des reprises ont été faites en Norvège et dans d'autres pays (carte 5), dont l'une en France dans le département de la Charente.

4-2 <u>La Finlande</u>

Cette mission réalisée en octobre 1989 nous a permis de découvrir de beaux biotopes de nidification pour la Bécasse. Cependant, mis à part sur l'île Åland située entre la Suède et la Finlande, nous n'avons pas trouvé de milieux favorables aux captures de nuit. En effet, seul ce lieu présente des biotopes intéressants et semble constituer une étape migratoire

Ille-et-Vilaine

		Adultes	Jeunes	% jeunes	
1988-89	baguage	25	46	64,8 %	χ^2 = 4,577 ddl = 1 pas de différence significative
	chasse	27	100	78,7 %	

Finistère

		Adultes	Jeunes	% jeunes	
1988-89	baguage	24	76	76,0 %	χ^2 = 3,57 ddl = 1 pas de différence significative
	chasse	9	63	87,5 %	

Morbihan

		Adultes	Jeunes	% jeunes	
1988-89	baguage	31	98	76,0 %	χ^2 = 9,15 différence significative
	chasse	15	130	89,6 %	
1989-90	baguage	53	85	61,6 %	χ^2 = 1,267 pas de différence significative
	chasse	24	54	62,9 %	
(Pont-Calleck)	baguage	29	33	53,0 %	idem

Pas-de-Calais

		Adultes	Jeunes	% jeunes	
1988-89	baguage	9	50	84,7 %	χ^2 = 0,704 pas de différence significative
	chasse	33	130	79,7 %	
1989-90	baguage	4	102	96,0 %	χ^2 = 7,16 ddl = 1 α = 0,05 différence significative
	chasse	34	223	86,8 %	

Seine Maritime

		Adultes	Jeunes	% jeunes	
1989-90	baguage	25	57	69,5 %	χ^2 = 0,43 ddl = 1 pas de différence significative
	chasse	29	86	74,8 %	

Vendée

		Adultes	Jeunes	% jeunes	
1989-90	baguage	9	37	80,4 %	χ^2 = 0,05 ddl = 1 pas de différence significative
	chasse	26	97	78,8 %	

Tableau 3 : Proportion de jeunes au baguage par rapport au tableau de chasse

<u>Carte 5</u> : Reprises de bagues à partir des 210 bagues posées en Norvège de 1987 à 1989

● Lieu de baguage (Stavanger) de l'équipe norvégienne

▲ reprise de bague

pour les bécasses, compte tenu de sa distance par rapport aux lieux de nidification (300 à 1.000 km et plus). Des passages réguliers et massifs y sont d'ailleurs notés chaque automne.

4-3 La Suède

Ce pays sera le prochain lieu de mission en octobre 1990. Nous avons remarqué, lors de notre passage en Finlande en octobre 1989, les potentialités des milieux du sud de la Suède. Cette partie sud de la Scandinavie paraît constituer une étape migratoire très intéressante pour les bécasses. Nous devrions travailler sur l'île Öland au sud-ouest du pays où des passages massifs ont été observés certaines années fin octobre.

Cette mission sera, comme toutes les premières missions dans un pays étranger, une mission de prospection et de prise de contact. Nous serons probablement amenés à réaliser une autre mission du même type en URSS en 1991. Nous pourrons ensuite envisager des marquages intensifs dans les zones les plus favorables.

Conclusion

Grâce aux efforts conjugués de tous, nous avons d'excellents résultats de baguage en France. Nous avons, au travers de tous ces travaux, un rôle moteur en Europe pour l'étude et la gestion des populations de Bécasse des bois.

Pour la prochaine saison de baguage, il est souhaitable de conserver les mêmes objectifs :

- baguer sur les mêmes sites avec la même intensité ;

- conserver la chronologie des sorties des années précédentes, en accentuant l'effort en début de saison ;

- compléter le réseau de sites de baguage s'il est faible ceci, dans la mesure du possible, sans nuire aux anciens sites.

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A contribution to our knowledge on the Common Snipe (Capella gallinago) from three years of wing collection

M. Devort

INTRODUCTION

If accurate and repeated counts are regularly carried out in various parts of Europe on geese, ducks and a good number of shorebirds, no such similar observations are feasible on the common snipe.

We are thus deprived for the study of this species of the most reliable method of evaluating the fluctuations of its paleartic populations year by year. Then only remains for us, for this task, the analysis of ringed birds, hunting bags and wing collections.

Difficult to net, snipe are little ringed in Europe unfortunalety, and everyone knows, except in exceptional circumstances, the low scientific value of the quantitative study of hunting bags.

So the analysis of wing collections, allowing an estimation of the age ratio, is then the only feasible method we can use.

This has been very well understood by the International Snipe Hunters Club, started by Jean de MAREUIL in France in 1986, which has made its task that of improvins the knowledge available on the various types of snipe.

To this end, it has put in hand from its conception a programme of wing collestions in France to begin with, and then later if possible paleartic wide. To begin with, we had to improve the external determination of age and sex, which is very delicate to archieve on the Common Snipe (DEVORT, to be published).

We are ready now to announce the results of our first three seasons of wing collection.

MATERIAL AND METHOD

With the exception of the Danish and Dutch age-ratios, for which we are very grateful to Messrs IB. CLAUSAGER and SIEBREN SIEBENGA, all the figures given in this study come from the analysis of wings and tails of Common Snipe (Capella, or Gallinago, gallinago gallinago) sent in by members of the International Snipe Hunters Club (10 rue de Lisbonne, 75008 PARIS).

For three years our correspondants have sent in for each bird one wing and the tail together, with the date and place where the bird was taken, with very often as well an indication of the weight of the bird to within two grams. In addition about a third of the birds had undergone an autopsy to research the gonads and Fabricius Bursae. The presence of this latter being characteristic of young birds.

The examination of the wing allows adult birds to be distinguished from juveniles in 95 % of cases, whilst the study of the tail feathers permits the external determination of sex, correct to between about 83 and 91 % of cases, dependins on whether the feathers are of juvenile or adult type (DEVORT and GRISSER, 1986, and to be published).

We have studied over the last three seasons, 600, 900 and more than 1 500 snipe respectively. Although this study only concerns the paleartic Common Snipe (C. g. gallinago), mingled inevitably with a few Faeroe Snipe (C.g. faeroeensis), it seems to us interesting to note that among their sub-species we have received some Wilson Snipe (C.g. delicata) from Canada, Cuba and the United States of America and some Magellan Snipe (C.g. magellanica) from Uruguay, Argentina and Chile.

Some birds of other species have also been collected, like the Madagascar Snipe (C. macrodactyla) in Madagascar, the Solitary snipe (C. solitaria) in China, and the Pintail Snipe (C. stenura) in China and Vietnam.

Finally several hundred Jack Snipe (Lymnocryptes minimus) have been taken and they, belonging to a different genus, will be the subject of a separate study.

As to the Common Snipe itself, birds having come to us from Wales, Ireland, France, Portugal, Morocco and Senegal, we have just about covered the wintering area of the mot western population.

The only too few italian and egyptian birds did not permit us to draw conclusions on the mediterranean winterings and finally the snipe taken in Vietnam and Kashmir have been used to complete the study we have made in Manchuria on several hundred birds on post-nuptial migration (DEVORT, TROLLIET and VEIGA, to be published).

I - The biological meaning of age-ratios :

Since, as far as we know up to now, no study on this sort has been undertaken on the Common Snipe, we have taken for our base the works carried out by J. HARRADINE, G. HIRONS and C. FADAT on the woodcock, but at the same time bearing in mind the biological and behavioural differences of the Common Snipe itself.

In the very first place, FADAT (1981) and HARRADINE (1986) agreed on the fact that it was hardly possible to establish the world state of a population with only the age-ratios from a single country. On the contrary it is indispensable that these should be compared with results from other countries of the same migratory flyway.

FADAT (1986) is of the opinion that the post-migratory age-ratios could reflect, to the differential in migratory mortality(*) between young birds and adults, if this exists, that obtained in the ante-migratory stage (so the annual production of young) if that sample picture was carried out over the whole wintering area and was representative of the whole population.

This then confirms the idea which was the basis of the formation of the International Snipe Hunters Club (CICB), that is the necessity of carrying out research all over the wintering area of the species under study.

At the local level, even national, the age-ratios may vary due to many factors independant of the state of the population.

HIRONS (1986) quotes : "the migratory patterns, the differential be haviour due to age and the influences of winter atmospheric conditions - temperature and rainfall amounts".

It is up to us in the future to define the influences of these different factors in the case of the Common Snipe. However such is the attraction that this species has for the French hunter that here and now we can accept the idea put forward for woodcock by C. FADAT (1986) that the principal limiting factor is the mortality due to shooting.

Certainly it is still impossible to estimate if shooting snipe by walking them up, the method largely used with this species, affects more systematically the young or the adult birds, but it is impressive to state, that with the woodcock, in the winter ing areas just the variation in the hunting pressure varies the age-ratios from 5-10 % to 80-85 % of young birds (FADAT 1986).

With this species, in effect, the loyalty of adult birds to their wintering areas results in a high mortality due to shooting maintaining a high age-ratio as relatively few birds will come back the following winter whilst the annual recruitment of young birds continues to arrive (HIRONS 1986).

What do we know today about this supposed loyalty of snipe to their wintering grounds. Nothing definitely, in that no specific ringing programme of wintering birds has yet been put in hand. We shall hope from next year to start a basis.

(*) Note of author : and in the selectivity of shooting according to age, if this exists.

However two items of analysis are available to us :

- The fact which has been clearly shown with the woodwock and with other shorebirds. Great loyalty of wintering woodcock in extremely localised areas from one winter to another (HIRONS 1981 in Cornwall and WILSON 1983 in Ireland ; more than 30 % of winter ringed birds returning to the same property the following season (HIRONS 1986).

- The analysis of our irish data over the last two seasons (Map I). So in 1987 and 1988, data was sent us from a first area (A) where no shooting pressure had been put on the snipe until the day of the data collection, and from a second area (B) where the pressure of shooting occurred about once every ten days all season. Each year, the age-ratio was substantially less in the area not shot before reaching an extreme low in 1987 with 35, 3 % of young birds. This difference compared with the shot over area is highly significant the first year reaching a threshold of 98 % (ε = 2, 34) and less the second year (82 % ε = 1, 35) after, it is true, the data collection of 1987. This seems to show a return in numbers of adults, not shot over the seasons before, to their earlier wintering ground.

There is nothing in all this to affirm that the Snipe, like the Woodcock, is faithfull to his wintering grounds, but we will concentrate our efforts in future years on the confirmation of this hypothesis which affects in a fair way the interpretation of annual age-ratios.

Age-ratios which C. FADAT considers in this way, with the woodcock, as indicative of mortality rates.

He has notices that Ireland, Great Britain and France, although receiving birds from the same nesting area (confirmation of this with the Common Snipe is given by HEMERY and NICOLAU-GUILLAUMET (1979) and KALAS (1980) and so with a premigratory age-ratio probably identical, have winter age-ratios of 45 %, 55 % and 80 % respectively (FADAT, 1986). These figures seem to be in keeping with shooting pressure in each respective country.

HARRADINE (1986) notes him self that although the three countries, to which he adds Denmark, give different age-ratios, the annual variations tend to agree.

It is logic to consider from that, that these variations are a reflexion on the changing annual production of young birds.

However we cannot fail to take into account the opinion of Graeme CAUGHLEY (1974) who, with a mathematical example to back him up, puts into cause the value of lessons drawn from the analysis of age-ratios, which according to him contain little usable information.

If the recognizes that changes in age-ratios cannot be ignored and show clearly that "something is going on", his scepticism puts him very certainly in opposition to the conclusions of the authors we have previously quoted.

We can agree with him when he states : "that a change in the rate of survi val affecting all age groups has no effect on the age-ratio" or later on "that a scientist using only age-ratios to follow the evolution of a population (of waterfowl in particular) will quite overlook a fall or massive increase in effectives swept along by a general change in rates of survival".

There is no question of denying that age-ratios alone cannot allow an estimation of the state of health of a population, an appreciation of the densities being equally necessary.

On the other hand, CAUGHLEY's study confirms, with certain reservations, that none of the previous authors have neglected either, that the changes in one sense or another of the rates of fecundity translate themselves in a homogeneous manner by changes in age-ratios.

So it seem s to us reasonale to interpret the local age-ratios on the wintering grounds, as signs mainly of shooting pressures and of winter mortality, their variations from one season to another and comparisons between different migration and wintering zones allowing no doubt an estimation of annual productivity.

This simple view of things must leave a place however to a differential study , according to the age, of : migratory. behaviours, influence of the winter atmospheric conditions and indeed selectivity of the methods of shooting used.

II – <u>Analysis of the age-ratios obtained</u> :

1° – Non european age-ratios (Map I)

The percentages of young birds met with outside Europe are easy enough to analyse.

The chinese results could conjure up age-ratios typical of a population which has not, before, had any shooting pressure and it is remarkable that they are identical with that of the not shot over Irish area, but with a possible bias due do the fact that the data collecting was done in an area which the adults use for their post-nuptial moult (DEVORT, TROLLIER and VEIGA, to be published).

In Africa, like in Vietnam, it is clear that the adult birds are extremely rare. In Senegal particularty, where the shooting pressure however is low on our species, three adults only have been captured in three seasons. The tendancy of young birds to migrate further south than their elders is a phenomenon well known for a large number of species of migratory birds. We have here with the Snipe yet another proof.

2° - European age-ratios (Map I)

Have we had reason to suppose that the mean level of each national european age-ratio can be considered as a reflection of the pressure of shooting in the country.

You can certainly think so looking at the figures of the first two seasons concerning France (mean 87 %), Ireland (55 %) and Portugal (61, 8 %).

In the latter two countries* in fact the shooting pressure is less than in France on the species we are concerned with. Indeed the means are comparable to those observed in the case of the Woodcock by FADAT, HARRADINE and HIRONS (1986).

* In Portugal the fact that access to shooting areas not made into reserves is free is largely compensated by the fact that they are closed five days a week and that few local hunters are attracted to shoot the snipe (Fr. SIMOES pers. comm.).

Concerning Holland and Denmark it must be noted that these countries are not wintering but mainly migratory areas and that their age-ratios should not be directly tied up to the shooting pressure exercised locally on the Snipe. We will only state that the danish woodcock age-ratios (Ib. CLAUSAGER in FADAT 1986) are closer to the French age-ratios than to the Irish, which is equally the case for the Snipe.

3° - Variations in age-ratios over the period (Fig 1 and Map 2)

During the first two seasons of this study, the french regional age-ratios were homogeneous enough, nonebeing significantly different from a very high national level : 87, 3 and 86, 8 %.

In 1988-1989, the age-ratio fell considerably to reach a mean over France of 62, 4 % (Σ of 9, 3 compared with the mean readings of the two previous seasons). This drop is seen in every region but from the Somme, where the drop from 90 to 81 % is not mathematically significant.

We will note that in this department, the territory studied this year situated on the edge of the sea, should be considered as a migration rather than a wintering zone, its age-ratio being in fact the same as Denmark's, and that it is based quite completely on birds sent in during the autumn.

How should we analyse this important drop in age-ratios in 1988-1989 ?

It seems to us wise, in the first place to exclude the possibility of a reduction of shooting pressure in the previous season which would have resulted in a greater number of birds coming back as adults in 1988.

There are two other possible explanations, either a spectacular reduction in the production of young, or a space-time distribution, not the same as usual for the young during a season marked as we know by as exceptional mildness and dryness.

Here we have an illustration of the impossibility of analysing a variation in age-ratios from the results of a single country.

The examination of the Danish age-ratio for 1988-1989, that is 81, 5 % and so higher than the two previous seasons, is almost sufficient to make us understand that the hypothesis of a bad year for reproduction can be eliminated. On the contrary, the season seems to have been especially favourable for almost all waterfowl (Ib. CLAUSAGER, personal comm.) being even exceptional for some like the Eider Duck (ANDERSON, pers. comm.).

It is however interesting to look for confirmation in the age-ratios of other countries.

Those of Africa have not much to offer in this respect for, as we have seen, they are pretty constant from one year to another, the adults rarely venturing beyond the Mediterranean. This leaves Portugal.

If the hypothesis of a fall in productivity had been the good one, the portuguese age-ratio would also have fallen. If it had progressed on the contrary, that could have shown that the young birds had abandonned a somewhat little welcoming France for a more southernly country.

At first sight, the age-ratio in question having gone from 61, Ø to 7Ø, 7 % the second solution should be retained.

But we should analyse the situation in greater detail.

First, this variation does not show itself mathematically significant (Σ = Ø, 9), in part because of the small number of birds studied in 1987 (N = 34). In addition all the birds in 1987 were killed in november and the age-ratio of november 1988 was 54, 8 % so less than that of 1987 ! (Fig. n° 1).

Our portuguese correspondent having told us that he had found in 1988 some new places not much shot over before, this could provide a logical explanation to such a lowering of age-ratios.

Two observations however are going to let us come to the conclusion that the young deplaced themselves towards the south.

First the portuguese age-ratio changed from 54, 8 % in November to 85, 2 and 78, 8 % respectively in December and January, and second, our correspondent achieved a bag 3 times as large as for the previous year, still only shooting two days a week.

How could this have been so if the productivity that year had been so much lower ?

The examination of the evolution of the french and portuguese age-ratios in function of the time is going to help us understand what probaly happened that season. As each year, there is an absence of adult birds in August in France apart from a few rare nesting birds. (This observation led us not to take into account birds taken in August for the calculation of annual age-ratios, failing which different proportions of birds bagged this month from one year or region to another would have constituted a bias it was better to avoid). In our country the summer migration is of young birds only .

The first adults arrive in September and the main arrival is in October. The recrudescence of young birds observed in November 1986 and 1987 did not take place in 1988. Was it "replaced" by the very high peak of young birds getting to Portugal in December.

Logically we could suppose so.

The exceptional afflux in that coutry (SIMOES, personal communication) compares as well with a very good season too in Morocco and in Egypt (Club members pers. comm.).

If all is not perfect in the analysis (the lack of portuguese age-ratios in previous December is a grave short-coming), it seems to us reasonable to suppose that a more southernly than usual migration, due to the exceptional dryness, took place this season, interesting above all the young birds not subject by definition, as would be adult birds, to a certain loyalty to their previous wintering grounds.

III - Study of the sex-ratio

The study of the tail which we always ask correspondents to send in with the wing, allows a statistically correct approach to the determination of the sex of the birds sent in, which is not possible with the woodcock (DEVORT and GRISSER, 1986, and to be published).

We have chosen in this study of the sex-ratios (the figures given here represent the percentages of females) to distinguish young birds from adults, so it seems evident to us that, if differential migration behaviour exists between males and females, it must be more marked in adults than in sexually immature young birds.

The sex-ratio of young birds is generally quite logically round about 50 %. Quite correctly we are able to note a tendancy to a slight reduction of this value, and so an increase of young males going south and that for each of the three years of the study.

We are however even further from being able to set this up as a general rule as in Senegal in 1988-1989 over two thirds of the young birds were shown, and with autopsies to help in this case, to be females.

The sex-ratios of the adults(*) (Map 4) appear to be much more unbalanced than that of the young birds.

From the first two seasons we can state that more than three adult birds out of four, present in France, were females. At the same time they represented 62 % of the adults in Ireland and less than 50 % in Portugal.

But what is striking is the fall of this sex-ratio in France during this last season, a most significant one (ε = 2, 78).

At the same time the irish and portuguese sex-ratios stayed remarkably the same.

How can such a phenomenon be explained ?

Can we have watched a shift of female adults to a more southernly country as seems to have been the case with the young birds ? Or could they have stayed further north profiting from a very mild winter ? Could there have been in France a bigger arrival than usual of male adults than in the previous years ?

What have we got to help us answer this question ?

TUCK (1972) studying C. g delicata states : "that there is some evidence that in the autumn adult females migrate before male adults. Adults taken in Newfoundland, end October - beginning November are always males".

However he quotes straight away H. MONAHAN (personal comm.) as showing no sexual segregation on the most northernly wintering areas, and above all WHITEHEAD (1965) observing that the males arrived in Louisiana in October and left in March whilst the females arrived in November and left in April. An early migration of males in autumn that TUCK had not been able to see during his studies.

(*) We are fully aware that the pretty small number of birds concerned by this data must cause us to relativise the conclusions we draw from these differences.

This is anyway what happened in September 1988 in France with 34, 4 % of females only, these arriving in October (64, 8 %) and November (65, 5 %). This confirms the curve of 1987 where the percentage of females passed from 68, 2 % in October to 84, 2 % (!) in November.

This observation of adult males arriving earlier seems logical to us. Certainly the adult male C.g.g. brings up, like his mate, a part of the brood. So he is supposed to spend as much time as her on the reproduction site. However we know (TUCK, 1972) that a number of females stay on often alone to bring up late or replacement broods.

This earlier departure of the males, their post-nuptial moulting being in advance of that of the females(*), appears clearly in the study we have made in Manchuria (DEVORT, TROLLIET and VEIGA, to be published).

It seems that this staggering persists well beyond the moulting areas.

Another interesting element is given us by the irish collections in November-December 1987. A sharp cold snap in the west of that country provoked an important arrival of female adults, these then seeming to constitute the majority of the northern reluctant migratory birds.

Knowing that the winter 1988-1989 was particularly mild and in the light of what has been said earlier, it seems to us that the most satisfactory hypothesis is that a number of adult females stayed North of their usual wintering aera;

(*) Confirmed in the cas of "delicata" by GINN and MEVILLE (Moult in birds 1983) and TUCK (1972) : the stagger being of three weeks for the former and of two weeks for the canadian author.

Conclusions

From Denmark to Senegal we have been able to collect a good amount of data, whose variations in time and space will certainly allow us to obtain very worthwhile indications about migration, wintering and reproduction, and if we succeed in joining them some estimates of density, about the state of the paleartic population of the Common Snipe.

With the help of the I.W.R.B. and in particular its working group on wing survey, we hope to expand still further in future years the geographical distribution and the numeric importance of our sampling.

In conclusion we quote J. HARRADINE who considers that , besides their scientific interest wing collections, which, let us remember, are with the Snipe the only really efficient method of studying them, offer to the hunter the opportunity of contributing to the research into their sport and allow him to feel concerned.

This is exactly what the Members of our Club have understood and we hope, at this time, when shooting is under strong attack, that numbers of other sportsmen both french and foreign will join us in this work.

Remember that all that is necessary for this is to slip into a simple envelop, on which you have written the date and place where it was taken, one wing and the bird's tail and send the lot to the following address :

Michel DEVORT, 95 rue du Jardin Public
33000 BORDEAUX (FRANCE)

Michel DEVORT
pour le C.I.C.B.

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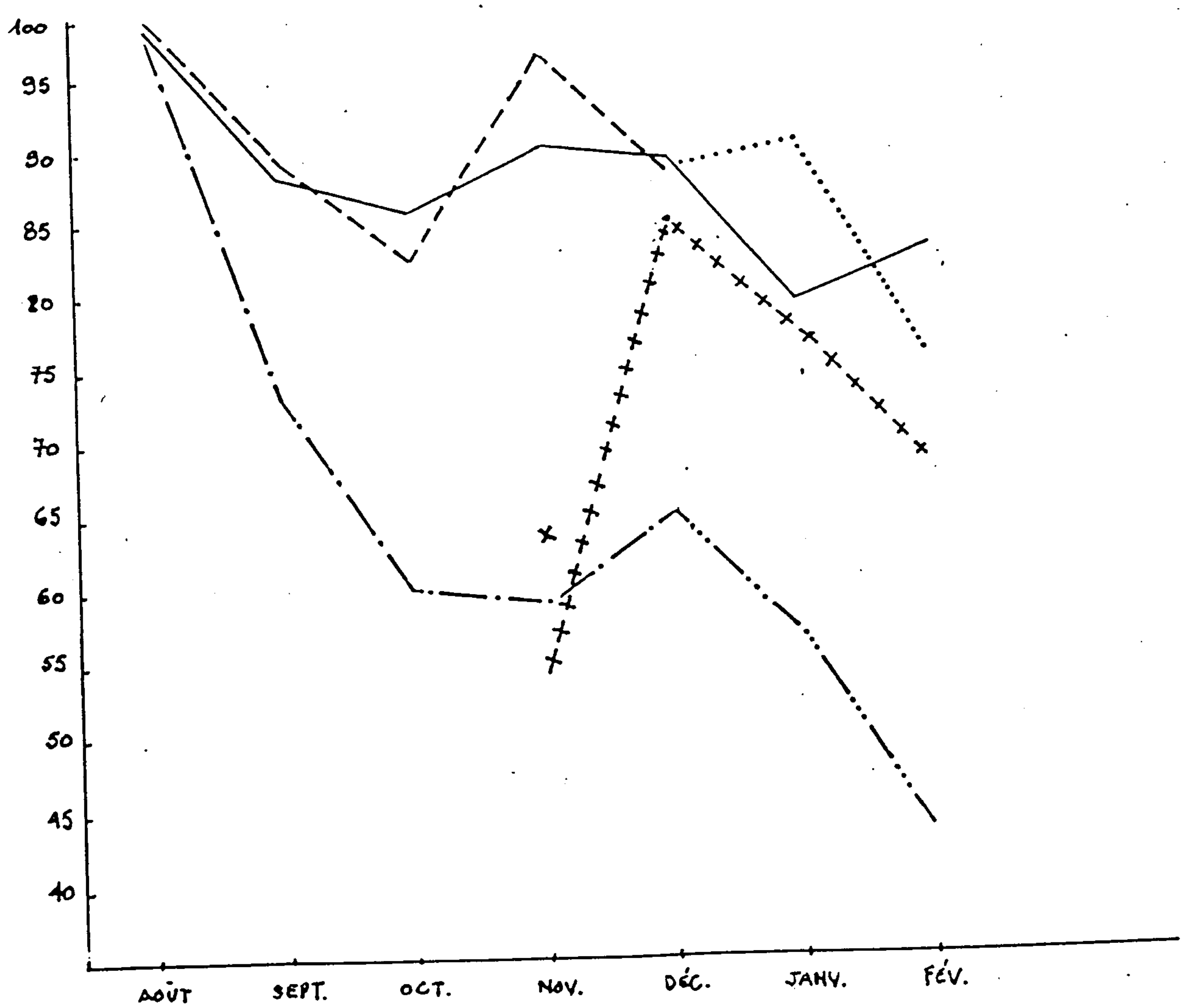
AGE - RATIO

% de JUVENILES

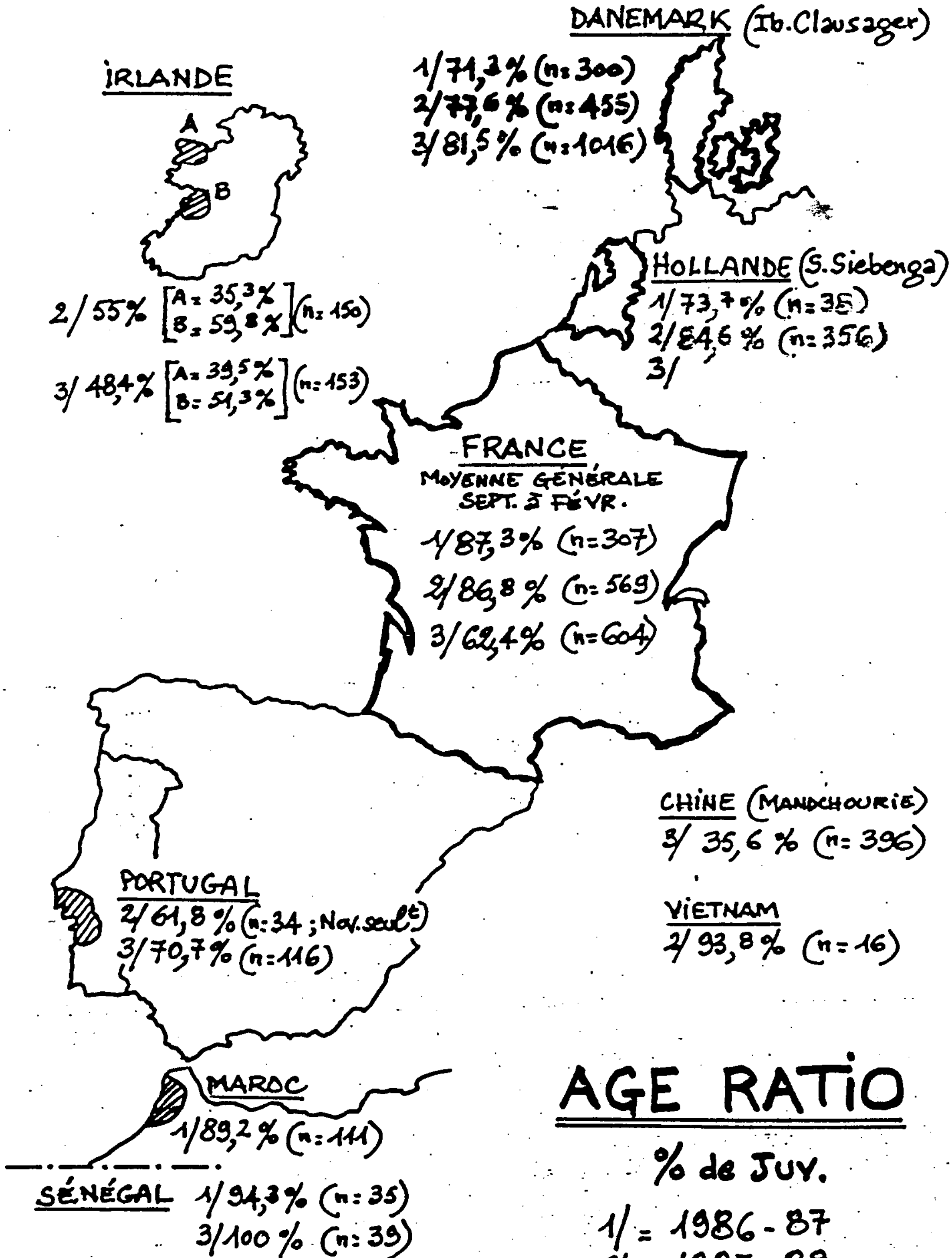
Fig 1

FRANCE ---- 1986-87 (n= 321)
—— 1987-88 (n= 662)
-.-.- 1988-89 (n= 700)

PORTUGAL + + +. 1988-89
+ 1987



MAP 1



AGE RATIO

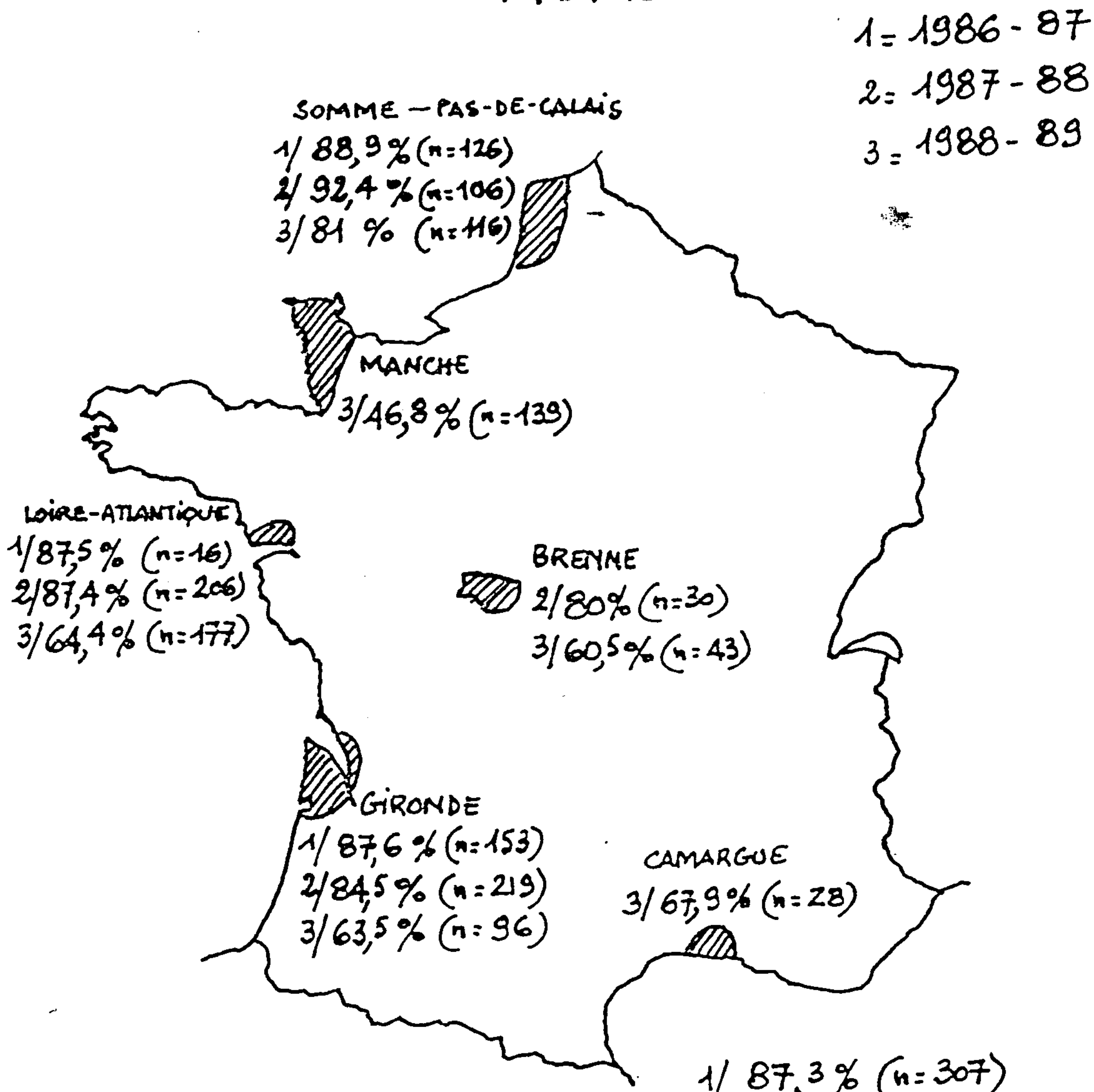
% de Juv.

1/ = 1986 - 87
2/ = 1987 - 88
3/ = 1988 - 89

MAP 2

AGE RATIO (% JUV.)

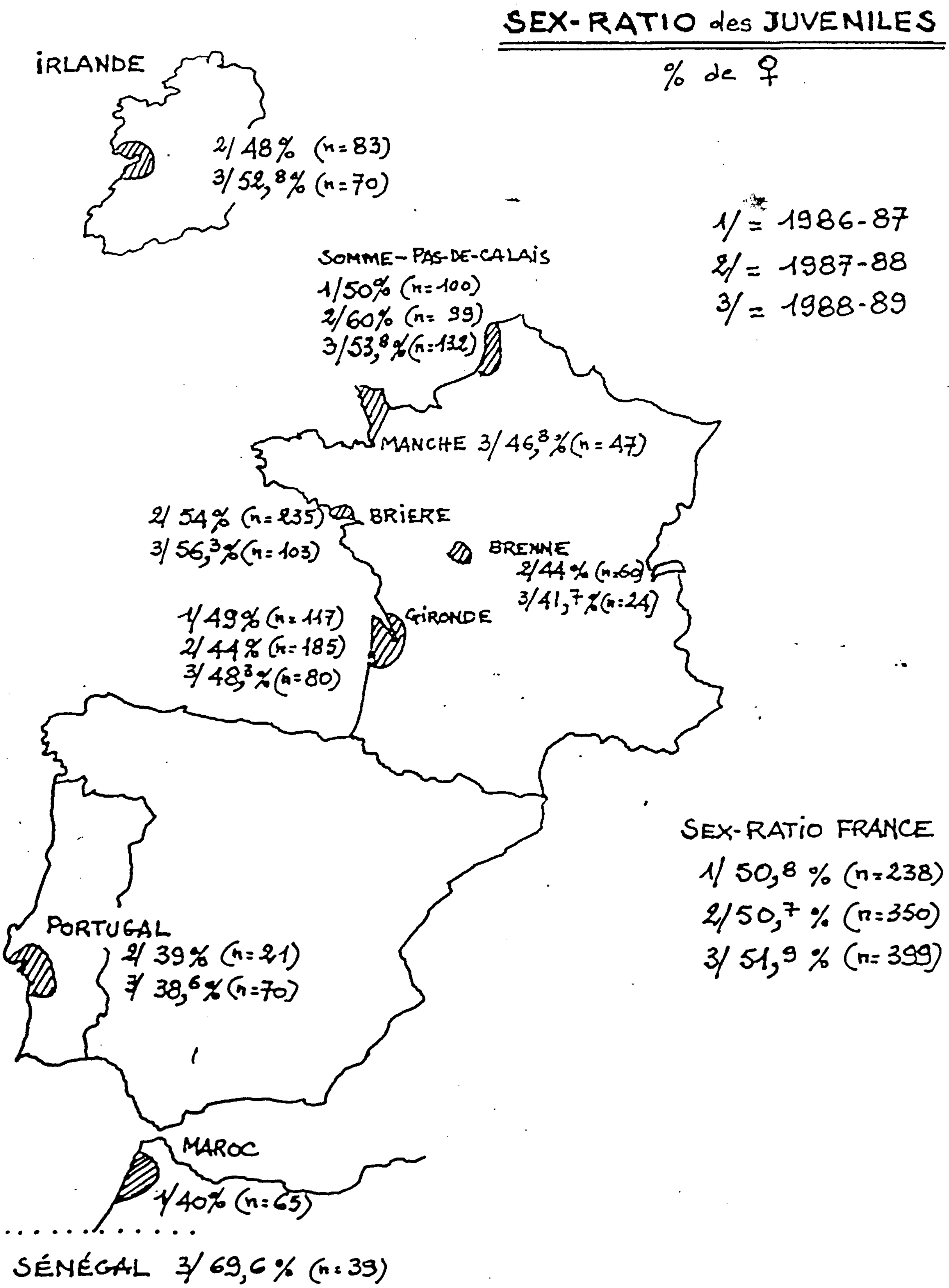
- FRANCE -



AGE RATIO MOYEN FRANCE
(Septembre à Février)

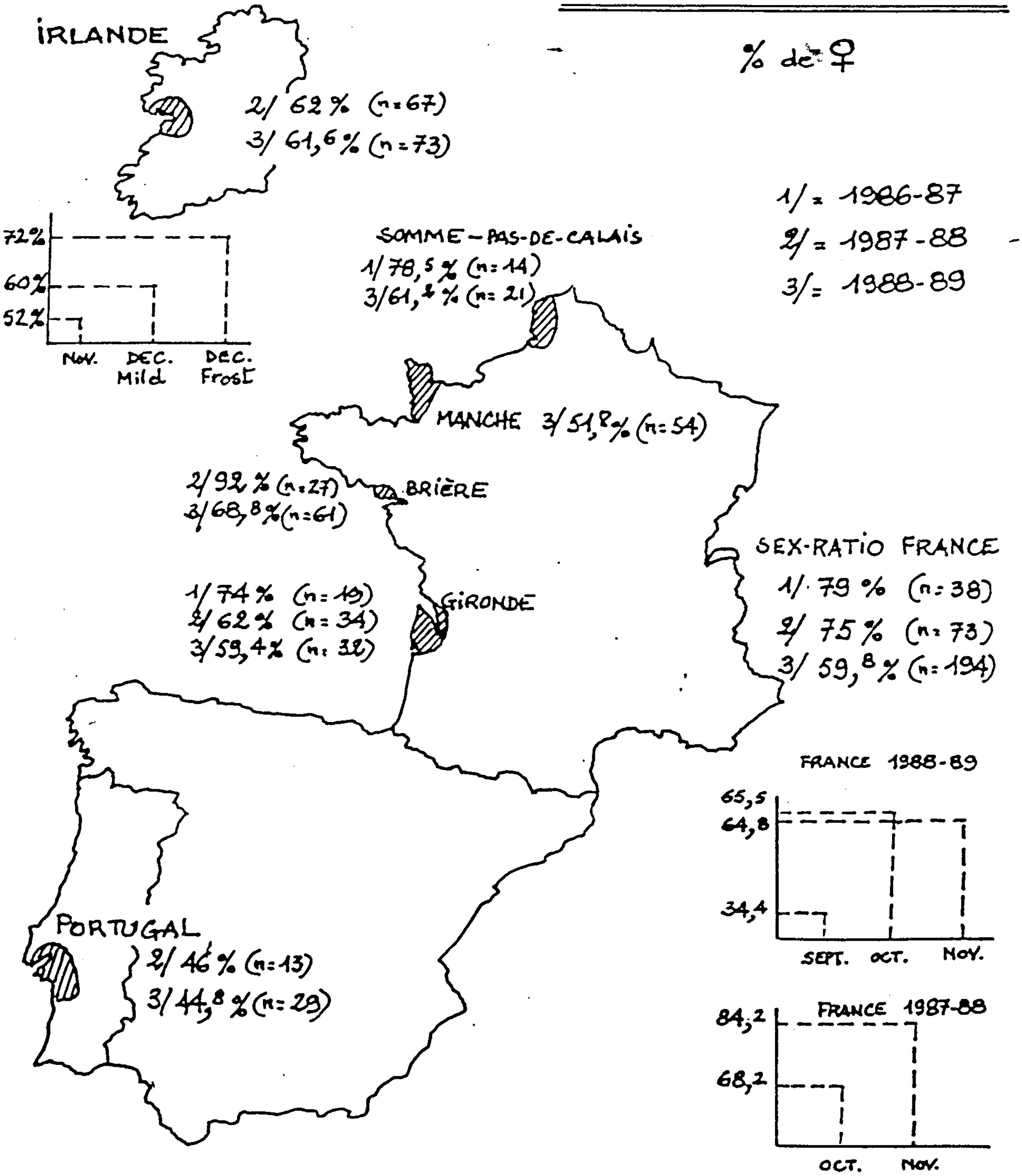
1/ 87,3 % (n = 307)
2/ 86,8 % (n = 569)
3/ 62,4 % (n = 604)

MAP 3


SEX-RATIO des JUVENILES
% de ♀
1/ = 1986-87
2/ = 1987-88
3/ = 1988-89
IRLANDE
2/ 48% (n=83)
3/ 52,8% (n=70)
SOMME-PAS-DE-CALAIS
1/50% (n=100)
2/60% (n= 99)
3/53,8% (n=132)
MANCHE 3/ 46,8% (n=47)
2/ 54% (n=235)
3/ 56,3% (n=103)
BRIERE
BRENNE
2/44% (n=69)
3/41,7% (n=24)
1/49% (n=117)
2/44% (n=185)
3/48,3% (n=80)
GIRONDE
SEX-RATIO FRANCE
1/ 50,8 % (n=238)
2/50,7 % (n=350)
3/ 51,9 % (n=399)
PORTUGAL
2/ 39% (n=21)
3/ 38,6% (n=70)
MAROC
1/40% (n=65)
SÉNÉGAL 3/ 69,6 % (n=39)

MAP 4

SEX-RATIO des ADULTES



FINLAND

Report on the Woodcock (Scolopax rusticola) mission of O.N.C. France to Finland

Y. Ferrand and F. Gossmann

I - INTRODUCTION

After two missions in Norway, in 1987 and 1988 [FERRAND Y. and GOSSMANN F. (1988)*], this new mission aimed at perfecting our knowledge of the biology of the Woodcock, *Scolopax rusticola*, in Scandinavia and in the light of our French and Norwegian experience to estimate the potentialities of the South coast of Finland for ringing of this species. Actually, the recoveries of woodcocks ringed in Finland clearly show that France is greatly dependent on this population (Table 1).

This mission of prospection took place from the 2nd to the 19th of October. The search for favourable catch habitats and the discussions with the Finnish researchers made up the majority of our activities.

II - PROGRAMME

a - Prospecting for habitats

A great part of the daily routine was devoted to the search for meadow areas and particularly pastures which are favourable habitats for our catching method.

With this aim we covered 3200 kms throughout the Finnish "continent", from Vaasa to Helsinki (Fig. 1), and more than 800 kms in the Aland Islands, located between Sweden and Finland (Fig. 2).

b - Meetings - Discussions

During our stay we had long talks with Dr Lennart SAARI, Docent of Game Biology at the University of Helsinki and like us member of the Woodcock and Snipe Research Group of I.W.R.B. Moreover, we met :

- Pr M.NUORTEVA, Head of the Department of Agricultural and Forest Zoology at the University of Helsinki

*FERRAND Y., GOSSMANN F. (1988) Report of two missions of Woodcock, *Scolopax rusticola*, ringing in Norway. O.N.C. 45p.

- H. LINDEN, Head of the Game Division at the Finnish Game and Fisheries Research Institute
- A.ERMALA, Research Assistant at the Finnish Game and Fisheries Research Institute
- J.HAAPALA, Head Assistant of the Finnish Ringing Center
- J.ERICSON, Ornithologist, Head of the Biological Stations in the Aland Islands
- J.HARBERG, Responsible for wildlife studies in the Aland Islands

On the 13th of October, at the University of Helsinki, we presented a paper explaining our catching method and the results obtained in France and Norway.

III - RESULTS

a - Post-nuptial migration period of the Woodcock

Before our departure the collected informations indicated that the woodcocks' autumn migration in Finland occurred in the first half of October. Further information obtained on the spot confirm this (Tables 2,3, and 4).

If the woodcocks' post-nuptial migration period is relatively well known, the exact dates are relatively badly known because of the extreme discretion of this species at this time of the year. Hunters using pointing dogs are in the best position to detect a period of high migratory intensity but their low numbers in Finland [around 200 pointing dogs (A.ERMALA, com.pers.)] reduce the probabilities of observation. In contrast, the spring migration is very well followed by the numerous ornithologists and does not escape notice. Tables 3,5, and 6 present the mean dates of woodcock spring migration for different areas.

The very mild temperature of last autumn in Finland probably delayed woodcock migration and prevented us to observe the same high migratory intensity as we did in Norway in 1988. However, in the Discussion we shall come back to the modalities of the Finnish woodcock

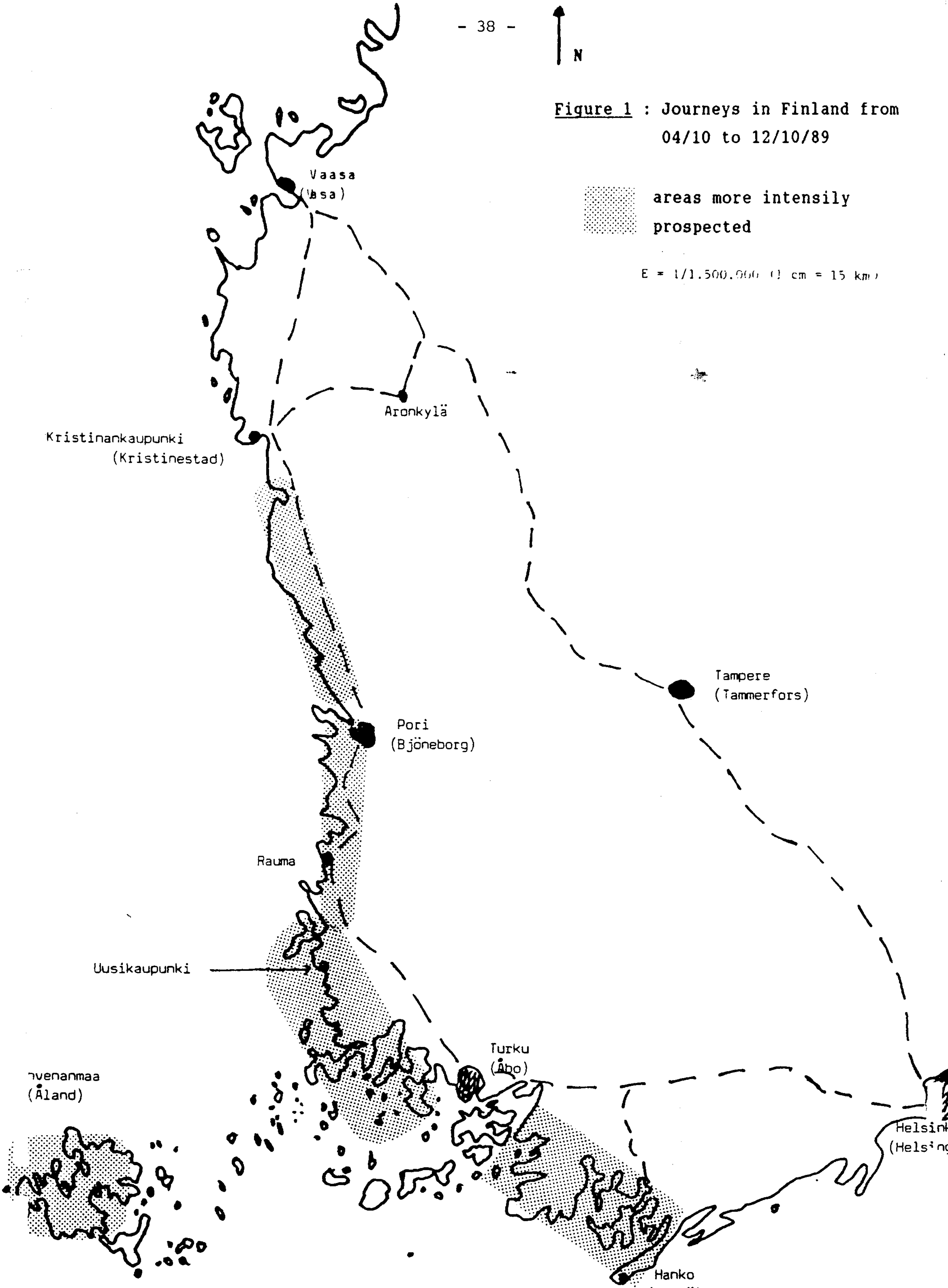


Figure 1 : Journeys in Finland from 04/10 to 12/10/89

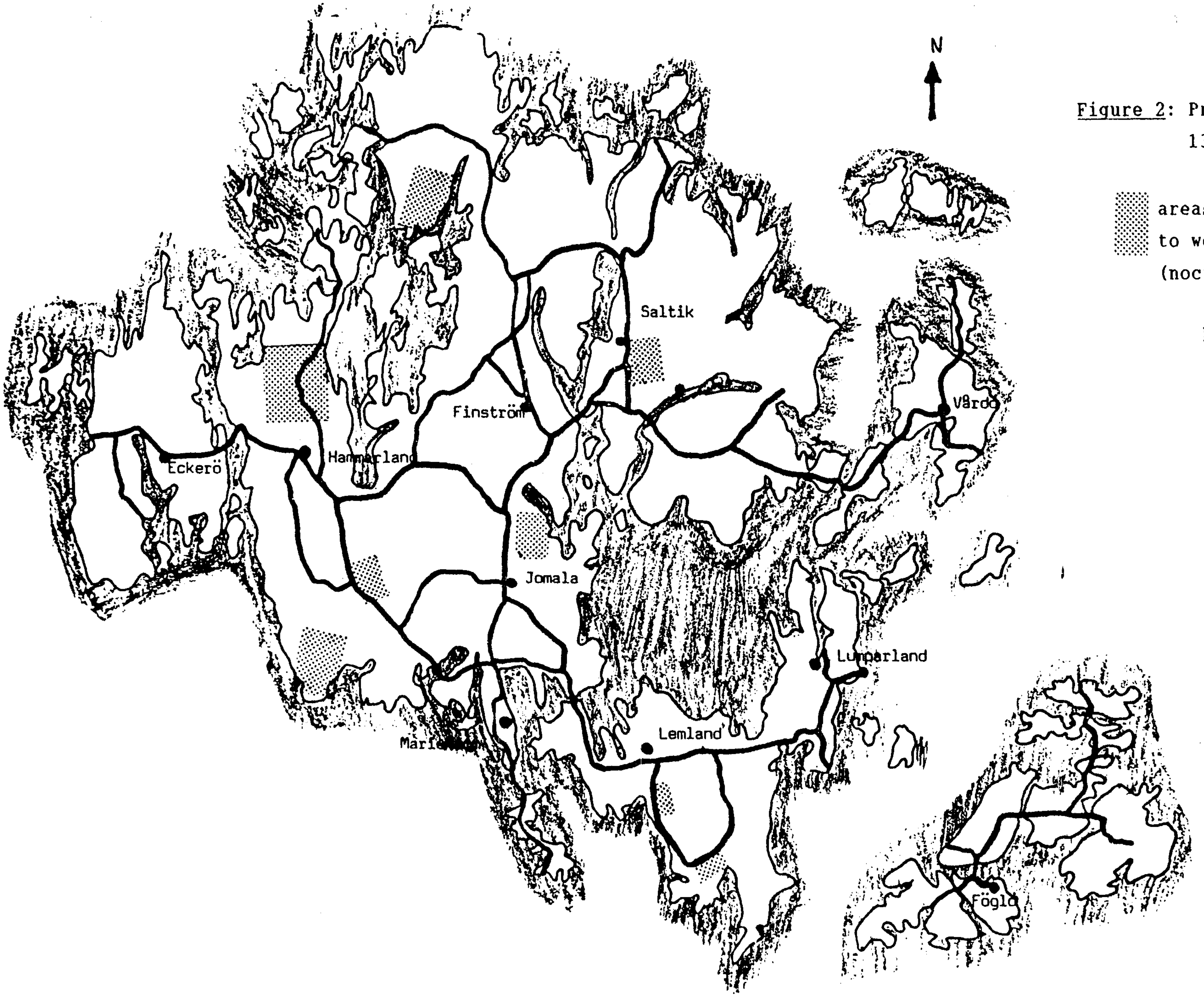


Figure 2: Prospection in Aland from 13/10 to 17/10/89

areas potentially favourable to woodcocks (nocturnal sites)

E = 1/280.000

migration.

We also have to specify that some individuals can stay for a long time, even in winter, on the Southern coast, as shown by the very late dates of observation presented in Table 7.

b - Habitats

The diurnal habitats of the woodcock are omnipresent in the country. The mixed forest is abundant in the whole southern part down to the Baltic Sea. The woodcock breeding area in Finland (Fig.3) is evidence for this habitat abundance. A certain homogeneity of its distribution is an indication of the uniformity of the Finnish biotopes.

In return, the nocturnal habitats likely to be used at the beginning of the autumn migration and where numerous woodcocks could be realized, are failing dramatically. We vainly searched for pastures large enough to be attractive. From our knowledge such areas are very rare in the south-western part of the country. The farm-school of the University of Helsinki was the single area where we found good catching conditions. Finland's open areas are in fact a mere patches in the forest and in the study area those clearings are rather devoted to the cultivation of crops.

However, the three days of prospection in the Aland Islands have permitted to find good enough habitats. In these isles, the forest is on one hand less stately - coppices are numerous - and, on the other hand a little richer in deciduous trees. But above all, pastures are relatively numerous and evidently used, during the day, by a lot of bird species, particularly fieldfares, *Turdus pilaris*, and during the night by some woodcocks as was shown by their dropping and pecking. Unfortunately, we could not confirm this by nocturnal observations.

c - Observations - Captures

On the whole, we observed 5 times during the crepuscular movements and saw 4 woodcocks. For 3 nocturnal trips, 2 were positive with respectively 1 and 2 sighted birds. One of them was caught and ringed (N° : SO 94265) October 13th at the farm-school of the University of Helsinki. A jacksnipe, *Lymnocryptes minimus,* was also caught and ringed during the same night.

IV - DISCUSSION

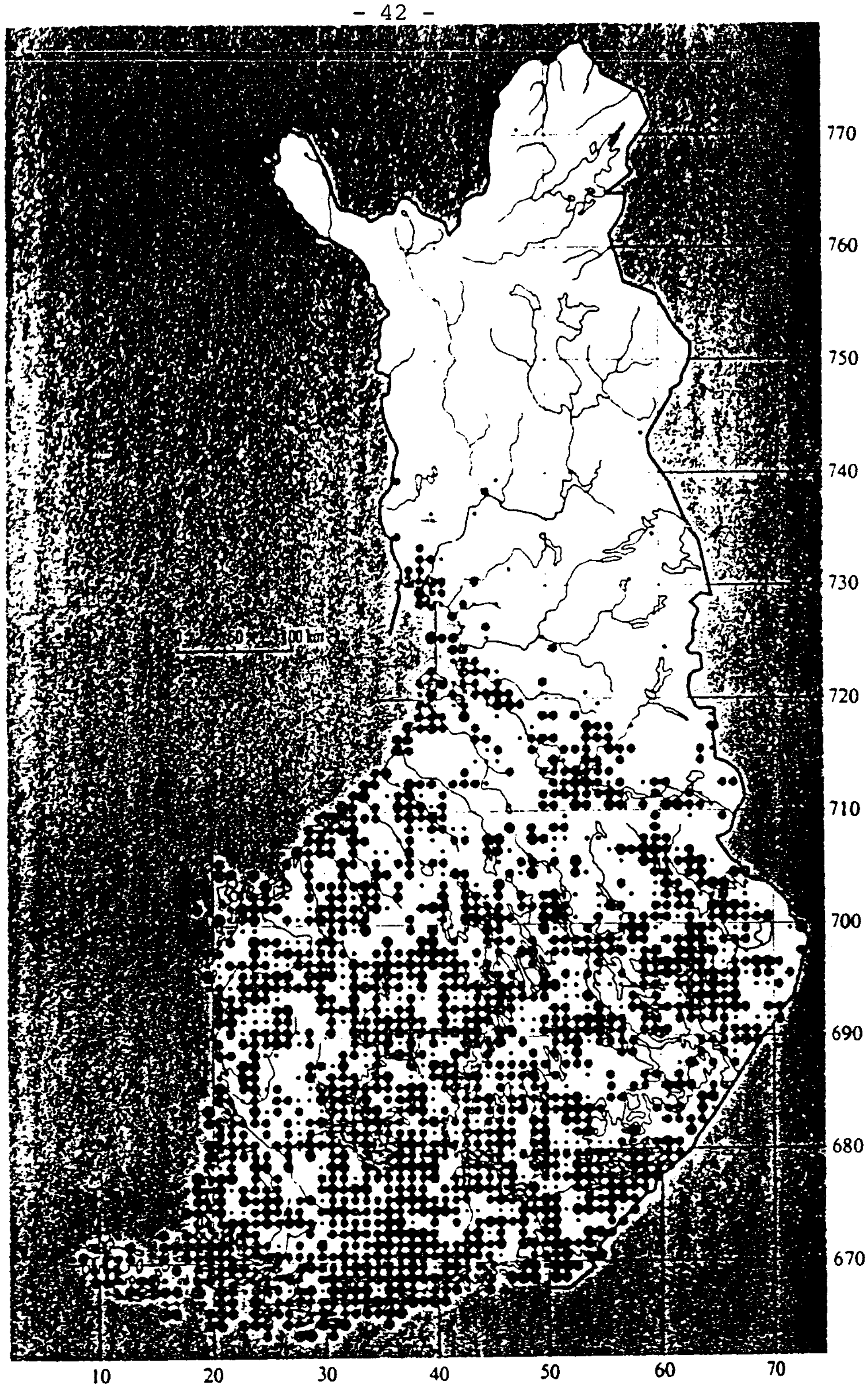
a - Hunting attraction of the Woodcock in Finland

The Woodcock is not a very popular game bird in Finland. From this point of view this country is the same as Norway. The annual hunting bag, around 2 500 woodcocks, is nearly in totality taken by Tetraonidae hunters because they have the opportunity to find the woodcocks. In the Aland Islands the hunting bag is higher in proportion with around 1 000 woodcocks (table 8) for a human population of only 23 000 people. In these isles the hunting bag is filled for 90% in May (table 9) during roding in contrast to the Finnish "continent" where this hunting method is forbidden. At Aland, it corresponds to a traditional hunting method, which came from a difficult historical period during of which it was one of the means to avoid starvation. Of course, the inhabitants of these isles set a great value upon it, like the Swedish for which this hunting method is also allowed as of the 1st of July.

With an annual hunting bag of 3 500 woodcocks, the Finnish take only a very small part of the woodcock population of the Palearctic.

b - Modalities of the woodcock autumn migration in Finland

Of course, we don't have the intention to explain in totality the autumn migration in Finland. The very numerous Finnish ornithologists and particurlaly Lennart SAARI have undoubtedly higher and more accurate



sure breeding	●	558 (32%)	occupation rate	45%
probable breeding	•	869 (50%)		
possible breeding	·	301 (17%)		

Figure 3 : Breeding area of the Woodcock, *Scolopax rusticola,* in Finland [from HYYTIA K., KOITINEN J. and KELLOMAKI E. (eds. 1983) *Suomen lintuatlas* SLY:n Lintuetio Oy, Helsinki].

knowledge than us about it. We only wish to give some indications and hypotheses further to our observations.

Located in the center of the breeding area of the species, Finland represents the point of departure for a great part of the woodcock population. The northern birds have to fly over more than 500 kms to reach the southern coast and the Finnish Archipelago. Our work hypothesis, before starting our mission, was the following one : instar of the Norwegian birds, the Finnish woodcocks have to stay for some days at migratory stopping places in habitats with a great feeding richness in the South-West of the country, e.g. along the classical migratory route NE-SW. Our observations on the spot have shown us that this kind of habitats hardly exist.s Moreover, the few meadows which are present, are slightly poorer in Lombricidae than the deciduous forest nearby, respectively a mean 11,1g/m² and a mean 12,1g/m² [J.TERHIVUO (1989)*]. Therefore, the woodcocks would have no interest in staying in the few meadows in the South. In contrast, during our travels in Sweden we saw a great number of probably favourable habitats - large pastures in the middle of mixed forests - along the east and west coasts. These Swedish habitats have a 6 to 8 times higher lombricidae richness : about 60g/m² for the permanent meadows and 80g/m² for the mixed forests. [S.NORDSTROM, S.RUNDGREN (1974)*]. Particularly attractive sites exist around Angelholm, in the south of Landskrona and in the whole of an area in south of a line from Malmö to Kristianstad(fig.4).

These observations lead us to 2 hypotheses :

- before their departure for the autumn migration, the woodcocks fatten themselves in Finland, either in the deciduous forests, or in areas located further in the center of the country where we have not gone; in this case we should have a summer erratism similar to the returns of the French woodcocks to the high altitudes, in summer.

*TERHIVUO J. (1989) The lumbricidae (Oligochaeta) of southern Finland : species assemblages, numbers biomass and respiration. Ann.Zool.Fennici 26: 1-23

NORDSTROM S., RUNDGREN S. (1974) Environmental factors and lumbricid associations in southern Sweden. Pedobiologia, Bd. 14, S. 1-27.

- during their migration to the South-West, the woodcocks reach the southern coast of Sweden where they can fast accumulate adipose reserves useful for flying to their wintering sites.

In both cases the Aland Islands can be a migratory stopping place offering a feeding complement during short stays. This comment is sustained by the informations of J.HARBERG who found, with a pointing dog, 50 to 100 woodcocks in a single day around the 15th of October. Such migratoy movements should last only 2 or 3 days. J.HARBERG also told us that small migratory movements could be observed as early as September on.

The migratory route through Sweden is not the only one for the Finnish woodcocks. The Baltic countries also receive birds in transit. The opinions are divided about the importance of one or the other route.

c - Development of woodcock ringing in Finland

With 1 000 ringers, Finland has extraordinary potentialities for ringing of migratory birds in the Western Paleartic. Main breeding site of a great number of migratory game birds, Finland is well located for the development of research on them.

The catching method that we have developed in France and experimented with success in Norway can equally be applied here without any technical difficulty. However, as we have seen, the main limit is, that surface areas of the favourable habitats are too small for this method. In our opinion, numerous catches in a few favourable sites are difficult to plan. But we think that the great number of ringers, some of which are very interested in learning a new catching method as J.HAAPALA told us, can compensate for the lack of large habitats. So, 10 ringers working in several tens of sites finally are able to ring as many birds as on only ringer in a good and large site.

Moreover, time-limited ringing operations during a migratory peak should give good results in the Aland Islands. It seems possible to obtain in these isles a success equal to the Stavanger area in Norway. The main problems are the small number of ringers (3 in all) and the complexity of the land property legislation which can delay the issue of authorizations for the nocturnal trips. Finally, the Signilskär, Natö, and Lågskar ornithological stations, where over several decades a great number of migratory birds have been ringed, should be tested for woodcocks.

V - CONCLUSION

The two Norwegian missions of 1987 and 1988 have led us to think that a mission of prospection was useful before launching any mission of catching in an unknown area. This Finnish mission has really confirmed our opinion. Geographically well located we likely thought that Finland offered ideal conditions for catching woodcocks. This mission, with light financial and human means, has permitted us to drive across a great part of the South-West of the country and to find an unexpected problem : the lack of meadows favourable to the nocturnal staying of birds. Let us add, that it would have been very difficult to imagine such a phenomenon without visiting the country. The experience got in France and Norway thus cannot be transferred and from this point of view our mission of prospection perfectly attained its objective.

Our "Scandinavian" knowledge of woodcock biology has greatly increased thanks to the numerous discussions with Lennart SAARI about the migrations as well as about the breeding biology of this species. From all these informations we inferred not to consider Scandinavia like homogeneous block. So, in Sweden, we drove through temperate areas similar to those in Brittany for instance. These findings are an incentive to us to complete our research in the Baltic countries, one of the migratory routes of the woodcocks wintering in France.

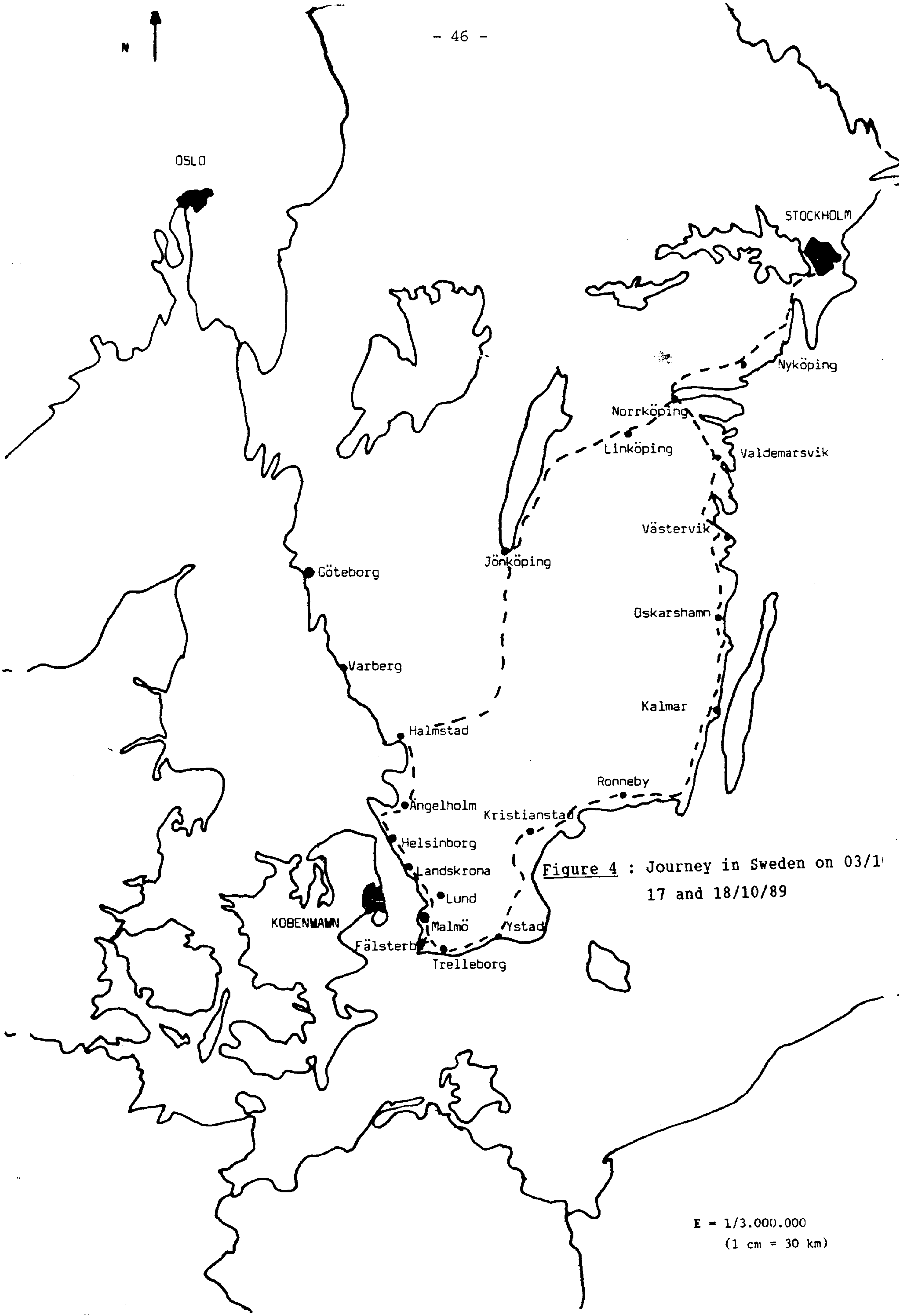


Figure 4 : Journey in Sweden on 03/1
17 and 18/10/89

<u>Table 1</u> : Distribution of woodcocks ringed in Finland by country and month of recovery (till 1978). [E.PERTTUNEN (1979) - Lehtokurpan (*Scolopax rusticola*, muutto, pesimäbiologia ja metsästys Suomessa. Thesis 84p]

Month / Country	8-9	10	11	12	1	2	3	4	5	S	%
Finland	2									2	1,4
Aland Islands									1	1	0,7
Danmark		2	3							5	3,6
Sweden									1	1	0,7
W.Germany			1	2	1		1	1		6	4,3
Netherlands			3	5						8	5,7
Belgium			2		1					3	2,2
British I.			1	6	6	2				15	10,7
Ireland			2	2						5*	3,6
France		2	16	19	13	5	2	1		59*	42,1
Poland								1		1	0,7
U.S.S.R.	1	1							2	4	2,9
Spain			3	3	1	1				8	5,7
Italy			5	4	2		1			12	8,6
Greece				3	2	1				7*	5,0
Turkey					1	1				2	1,4
Algeria					1					1	0,7
T	3	5	36	44	28	10	4	3	4	140	
%	2,2	3,7	26,3	32,1	20,4	7,3	2,9	2,2	2,9	100,0	

* a ring without precise date

Table 2 : Number of woodcock observations by five-day periods in autumn in Aasla Island (Finnish Archipelago) from 1975 to 1984. [L.SAARI (1985) Observations of waders on Aasla in October-March. UKULI 4/85. 16vsk 193-198]

Period	n	X/r	Period	n	X/r	Period	n	X/r
1-5/10	18	0,44±0,17	21-25/10	12	0,30±0,41	11-15/11	2	0,04±0,05
6-10/10	22	0,58±0,30	26-31/10	10	0,30±0,40	16-20/11	3	0,06±0,05
11-15/10	15	0,36±0,15	1-5/11	9	0,26±0,21	21-25/11	2	0,06±0,13
16-20/10	12	0,38±0,15	6-10/11	7	0,10±0,12	26-30/11	3	0,16±0,23

X/r : mean by census route $\pm\sigma$

Table 3 : Dates of woodcock observations in spring-summer and in autumn-winter at Lagskär Ornithological Station (Aland Islands). [V.SALONEN Lagskär fagelskyddsförening 45p]

spring-summer	earliest	10/3/77	28/3/78	24/3/79	7/4/80
	mean	13/4/77	31/3/78	22/4/79	14/4/80
	latest	12/6/77	5/6/78	14/6/79	28/5/80
autumn winter	earliest	9/10/77	(17/8)1/10/78	10/10/79	18/9/80
	latest	15/10/77	27/11/78	13/11/79	28/9/80

Table 4 : Latest observation dates of woodcocks in autumn at Aasla Island (Finnish Archipelago). [L.SAARI 1985) Observations of waders on Aasla in October-March UKULI 4/85 16vsk. 193-198]

Year		Year		Year	
1974	2/11	1978	23/11	1982	16/10
1975	21/10	1979	26/11	1983	8/11
1976	17/10	1980	21/10	1984	28/11
1977	19/11	1981	21/10		

Mean date: 4/11 (±17,1)

Table 5 : Spring arrival dates of woodcocks in the Finnish Archipelago. [L.SAARI 1985) Observations of waders on Aasla in October-March. UKULI 4/85 16vsk. 193-198]

Year							
1967	28/3	1973	29/3	1979	10/4	1985	9/4
1968	31/3	1974	30/3	1980	10/4		
1969	9/4	1975	31/3	1981	5/4		
1970	27/4	1976	3/4	1982	27/3		
1971	8/4	1977	24/3	1983	4/4		
1972	3/4	1978	28/3	1984	7/4		

Mean date: 4/4
(σ =7,7)

Table 6 : Spring arrival dates of woodcocks in the biological province of Varsinais-Suomi (SW Finland) [R.LAINE (1989) Muutolintujen saapuminen Varsinais-Suomen 1965-1987 UKULI 2/89 20vsk. 22-23]

Year					
1967	28/3	1974	30/3	1981	24/3
1968	31/3	1975	20/3	1982	27/3
1969	9/4	1976	3/4	1983	1/4
1970	11/4	1977	22/3	1984	29/3
1971	29/3	1978	27/3	1985	25/3
1972	7/4	1979	4/4	1986	23/3
1973	29/3	1980	3/4	1987	30/3

Mean date: 30/3

Table 7 : Winter observation dates of woodcocks in Varsinais-Suomi (SW Finland) from 1957/58 to 1982/83. [L;SAARI (1985) Winter observations of waders in Varsinais-Suomi, SW Finland. UKULI 1/85 16vsk. 15-17]

winter	date	n	location
1964/65	7/1	1	Korpoo,Jurmo
1967/68	5/12	1	" "
1969/70	18-19/12	1	" "
1972/73	5/12	1	" ,Utö
1972/73	3/1	1	" ,Jurmö
1975/76	11/12	1	" "
1977/78	27/12	1	Rymattylä,Aasla
1979/80	8/12-28/1	1	Korpoo,Jurmo
1980/81	4-5/1	1	" "
1981/82	2-12/12	1	" "
1982/83	15/12	1	Rymattylä,Aasla

Table 8 : Annual hunting bag of woodcocks at Aland Islands [H.BECKMAN (1989) Jakstatistik för Aland 1988 - Alandsk Utredningserie 1989 (3) 11p]

Year	1977	1978	1983	1988
n	1170	576	881	1027

Table 9 : Opening dates of the Woodcock hunting season in Aland Islands [J.HARBERG (1978) The development of the protection of waterfowl in Aland, 58-71, *in* Alands Fagelskyddsforening 1927-1977]

Year of law	1925	1933	1946	1965	1972	1975
Opening dates	1/8-28/2	10/5-31/5 1/8-30/11	1/5-25/5 1/9-30/11	1/5-25/5 20/8-30/11	1/5-25/5 1/9-31/12	1/5-25/5 1/9-31/12

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NORTH AFRICA

Some notes on the woodcock season 1989/90 in Morocco

Joachim A. Wasack

Quite opposite to the previous season when record numbers of woodcock arrived in Morocco (Newsletter No. 15, p. 41) a minimum of woodcocks were recorded to dwell here during winter 1989/90. Most likely this was a consequence of the extremely mild winter in southern and central Europe, as birds were not forced to migrate long distances. A similar situation was observed in Austria (p. 3 , this issue) and in Portugal.

By the new hunting law the number of hunting days was reduced; however, hardly any woodcocks were flushed during the few outings conducted.

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NORTH AMERICA

Eigth Woodcock Symposium

Ten years have passed since the Seventh American Woodcock Symposium held in Pennsylvania, October 1980. Now in Lafayette, Indiana, 118 participants met, a new record in the constantly increasing number since the first meeting of only 25 participants in 1966.

Woodcock research in North America is under the duty of the Office of Migratory Bird Management that had organized this symposium. It was sponsored by the Ruffed Grouse Society, an organization dedicated to conserve habitats of woodland game birds. One of the highlights of this meeting was the signature of a contract between authorities of the Forest Service, Fish and Wildlife Service and Ruffed Grouse Society for better cooperation in finding compromises between the requirements of game birds and human economy. This contract shall be a base for implementation of The American Woodcock Management Plan (see WSRG-Newsletter 14, 1988, p. 20-29). It was further decided to better organize woodcock research by employing a full-time coordinator.

One of the main topis of the scientific presentations as well as of two field trips was the question, how to increase woodcock densities. Since more than two decades American woodcock populations are monitored by counting singing males along transect lines. The slight, but constant decline is thought to be a consequence of changing habitat quality: Idle farmland providing the highest amount of earthworms as well as clearings for singing males has continuously been altered to dense forests or other forms of human landuse. This assumption has been proven in several projects where the negative population trends were reversed after relevant management practices, such as clearings and special plantings to create cover and increase earthworm densities.

The following selection of abstracts of papers presented at the symposium shall provide some insight into research conducted by our American colleagues.

Methods of woodcock research: Pitfalls, crevices and progress.

Daniel G. McAuley,
Jerry R. Longcore and
Greg F. Sepik

Information on woodcock (Scolopax minor) provided by research is necessary to develop management programs that ensure continued abundance of woodcock for enjoyment of the public (Owen 1977). Although many researchers have studied woodcock, many gaps remain in our knowledge of their basic ecology. Loss of habitat probably has been the major cause in the decline of woodcock populations (Dwyer et al. 1983, Coulter and Baird 1982). Despite numerous seasonal studies there have been few long-term studies of woodcock. Research at Moosehorn National Wildlife Refuge (NWR) is the unique exception, because data have been collected over 5 decades (Mendall and Aldous 1943) and habitat and woodcock populations have been continually monitored there since 1976, mostly by refuge staff and biologists from the Patuxent Wildlife Research Center (PWRC). During this time techniques to study woodcock have be developed, tested, refined, and even abandoned when they were unsuitable to achieve specific research goals. We, who have worked at the refuge, at times have learned through the school of experience----trial and error. In this paper we will describe research techniques that we have used successfully and we will identify the unsuccessful efforts in the hope that we will assist future researchers in saving time, money and headaches when working with this secretive, crepuscular species.

Remote sensing and woodcock habitat; Possibilities and limitations

Richard Couture, Marcel Babin
and Sylvain P.Cartel

The aim of our research is to demonstrate the use of satellite remote sensing as a method for woodcock habitat survey. In a first experiment, a Landsat-4 TM image was used (August 4, 1984). The study area (3807 km^2) located in the Saint Lawrence Lowlands N-W of Montreal included urban, farm-forest and forest areas. A verification of the firsts results was made during a second experiment using a Landsat-5 image (August 25, 1984). The study area (2676 km^2), situated S-E of Trois-Rivieres (Qc) was a farmforest area. In both experiments potential woodock habitats were surveyed and classified. The following procedure was used. 1- Training sites selection. A supervised classification was used and different terrain classes (woodcock habitat, forest, agriculture, water, built-up and bare ground) were localized as training sites on a false color composite image. 2- Preliminary classifications. The spectral signatures of those terrain classes were obtained for each spectral band and enhanced channel using ARIES-III software computer pragram. A preliminary thematic map was drawn. 3- Qualitative verification. A field verification was made on about 100 checkpoints to see if they were well classified. 4- First classification. Uncorrected sites were reclassefied and once the distribution of forest, woodcock habitat and agriculture were known, they were retained as the only three target terrain classes of the survey. 5- Quantitative verification. The average values of habitat variables measured on pixels classified as woodcock habitat and average values of the same variables measured on woodcock habitat training sites were compared. 6- Final classification. A final thematic map was made after incorporating the required corrections observed at point 5.

Remote sensing is a suitable method for identifying potential woodcock habitats. The spatial resolution of the TM senso (o.1 ha) is not an obstacle to mapping. The evolution of habitats with time could be followed. The utilization of remote sensing is more economical than the traditional habitat survey methods. The elements used to classify habitats on one TM image are not transferable to another TM image. One must go through all the different phases indicated above every time we have to work with a different TM image. Since Landsat 4 and 5 can only acquire Scenes of a same area every 16 days, it may be difficult to obtain an image for a precise date. The results only indicate potential habitats. It is important to elaborate a scale of woodcock habits values if we want to use the results in assessing the woodcock population density.

Behavior, habitat use and survival of woodcock wintering in Georgia

G. H. Haas and
J. T. Seginak

Data was collected on 82 radio -tagged woodcock (Scolopax minor) from February 1982 through March 1984. Six thousand, five hundred and three observations were made of the woodcock over a period of 2,341 animal days. Observations were made on the effect of wind and cloud cover on woodcock crepuscular behavior, feeding activity on nocturnal or diurnal covers and the effect of moonlight on woodcock. Home ranges averaged 218 hectares for After Second Year (ASY) woodcock and 261 hectares for Second Year (SY) woodcock. The survival rate for the study period (mid-December through early March) was between 63 and 70 percent for ASY woodcock and between 34 and 51 percent for SY woodcock. The bottomland hardwood forest was the most important diurnal cover, whereas the most important nocturnal covers were clearcuts, young pine plantations and bottomland hardwood forests. Planted pine forests were used by woodcock in their early stages, but by 10-15 years of age woodcock would not use them.

Woodcock Ulilization of Oak-Hickory, Oak-Pine Clearcuts in West Virginia

W. K. Igo

A total of 40 clearcuts in oak-hickory, oack-pine forests of southeastern West Virginia were monitored March-May 1977-82 for woodcock activity. Utilization was primarily limited to singing ground activities. Singing male densities of 1.5 males/100 ha on all cuts, 3.2 males/100 ha on cuts with slopes $<$ 36 percent, and 4.7 males/100ha on cuts with slopes $<$ 26 percent compare favourably with singing male densities found in Maine and New Brunswick. Most woodcock utilized alluvial bottom lands for diurnal haunts. Clearcuts provided low quality diurnal habitat. It is recommended that future woodcock habitat inventories delete oak-hickory, oak-pine stands with $>$ 35 percent slopes since such areas receive negligible woodcock use. State and Federal agencies should include a percent slope category on forest inventory forms. Protection and maintenance of alluvial second-growth areas in oak-hickory, oak-pine habitat is of primary importance to woodcock. A number of singing males in 1981 ended their courtship activities prior to the suggested time period for conducting singing ground surveys. Males monitored in 1982 showed abandonment of singing grounds near the end of the survey period. It is recommended the time period for conducting singing ground routes in West Virginia be reduced 5 to 10 days. Cooperators should be encouraged to run routes during the first week of the census period (April 15 - April 21).

Observations on American woodcock at Northhampton country, Virginia

P. J. Tango, K. Buhlmann,
R. Sodja, G. W. Norman,
R. S. Hughes and
M. R. Bryant

The importance of the Eastern Shore of Virginia National Wildlife Refuge and nearby areas to migrating and wintering American woodcock (Scolopax minor) has only recently been appreciated. We studied term of residency, habitat use, movements, and health of the woodcock population utilizing this region. We banded 822 woodcock over 3 winters between January 1988 and February 1990. Reflective color bands were used in winters 1988-89 and 1989-90 to assess winter residency, local, and regional movements. Four woodcock were equipped with radioes in January 1989 and monitored for 29-75 days. Movements were local and ranged to 1.5 km from the capture site. Banding efforts on the refuge concentrated on and were most lucrative in mowed strips of old field habitat and mowed lawn areas at roadside/old field interfaces or adjacent to forest habitat. For off-refuge banding in the winter 1989-90, capture sites were observed to be more variable than on-refuge with the diverse land use practices of the country. Radiotelemetry indicated primary use of thicket and old field nocturnally and thicket and pine forest complex diurnally for the 4 birds. Weights of birds varied within and between years. Extreme low weights were observed during protracted severely cold climate conditions in 2 of 3 seasons. Further research on this unusual population near the northern limits of its wintering range are encouraged.

Habitat use, home range, and movement patterns of American woodcock in Maine

G. F. Sepik and
E. L. Derleth

We determined daily movements, home range size, and habitat use of 88 radio-marked American woodcock (Scolopax minor) at Moosehorn National Wildlife Refuge (NWR) during the summer and early fall, 1982-1984. Age- and sex-specific estimates of total, nocturnal, and diurnal home ranges and mean distances moved between consecutive diurnal, nocturnal, nocturnal-diurnal, and diurnal-nocturnal locations were calculated monthly. The size of diurnal home ranges varied little between age-sex classes, however, the mean distance between diurnal locations in July of adult males ($\bar{x}$ = 513 m) and adult females ($\bar{x}$ = 331 m) exceeded the diurnal movement of juveniles of the

same sex (Juv M = 245, Juv F = 188). The size of nocturnal and total home ranges and the mean distance between nocturnal locations did not vary among age-sex classes. Age-specific crepuscular movements were not significantly different, whereas males of both age classes exhibited larger mean crepuscular movements than females. Regardless of age or sex, the size of **diurnal** home ranges and the distance moved between diurnal sites were smal est in the balsam fir (Abies balsamea) and alder (Alnus rugosa) cover types and was largest in aspen (Populus spp.). The size of diurnal home ranges and diurnal-diurnal movements were less in sapling stage stands ($\bar{x}$ = 14.6 ha and 179 m, respectively) than in pole ($\bar{x}$ = 18.2 ha and 231 m) and mature ($\bar{x}$ = 29.6 ha and 258 m) stands. There were no correlations between earthworm biomass and habitat use, size of diurnal home range, and diurnal movement. Females used openings for nocturnal roosting less than males. Differences in mobility and use of nocturnal habitat are related more to sex than to age.

Evaluation of diurnal woodcock habitat use by ground searchers with dogs

H. Haas

Data was collected on woodcock (Scolopax minor) located by ground searches with dogs (145.6 hectares searched from December 1982 through January 1984) and compared to similar data collected for 81 radio-tagged woodcock from December 1982 through March 1984 (Six thousand, five hundred and three observations were made of woodcock over a period of 2,341 animal days). Both techniques found that the bottomland hardwood forest was the most important diurnal cover (2.1 per hectare) and that woodcock were present in the pine hardwood forest and scrub community (< 1 per hectare). No woodcock were detected by dog searches in planted pine habitats, though telemetry observations indicated limited use of these habitats during the day. Also, ground searchers with dogs ceased to detect woodcock once migration began and populations decreased.

Effects of weather on earthworm availability and spring food habits of American woodcock

W. M. Vander Haegen, R. B. Owen and
W. B. Krohn

Although numberous studies have examined food habits of American woodcock during the non-breeding season, few published data document the spring food habits of woodcock on its northern breeding grounds. Information on food habits is necessary for understanding habitat use and energy relationships. As part of a study on woodcock bioenergetics, we collected data on weather, earthworm availability, and woodcock food habits. From 28 March through 31 May 1987-89, 47 woodcock were collected on the Moosehorn National Wildlife Refuge, Calais, Maine. The esophagus, proventriculus, and ventriculus were removed from each bird and the contents preserved in 70% ETOH. Samples are currently being analyzed, and food item data will be reported as percent occurrence, percent volume, and percent dry weight. During 1988 and 1989, biomass of earthworms was measured at permanent transects on the study area and at the flush sites of collected birds. The spring of 1989 was late, with persistent frost. Sampling data from transects and flush sites suggest that earthworm availability was very low during late March and early April 1989; preliminary analyses of stomach contents suggest that alternate foods were used during this period. Implications concerning breeding behaviour are discussed.

Earthworm responses to soil acidification in southern pine forests

R. L. Baker, R. J. Esher and
L. Ch. Miller

Earthworms, a primary food of woodcock (Scolopax minor, Gmelin), are known to be sensitive to changes in soil acidity. During the past decade, increases in the acidity of precipitation have raised concern about effects on soil chemistry and biology. Studies in Mississippi and east Texas pine forests have documented earthworm sensitivity to simulated acid precipitation adjusted to pH 3.0 and 4.0 on northern Mississippi loblolly pine forests were investigated in response to soil mactroinvertebrate populations. Earthworm numbers were 25% less on plots treated only once with pH 3.0 solution compared to plots treated with deionized water. The difference was greater following 12 consecutive months of treatement. In a south Mississippi loblolly pine forest and an east Texas longleaf pine forest, rainfall beneath the canopy was collected, pH adjusted to 3.6 or 4.3, and applied weekly to covered 1 m^2 plots. Results were similar to northern Mississippi Earthworm biomass and numbers on pH 3.0 treated plots averaged 20% of the untreated plots. The total macroinvertebrate biomass in pH 3.0 treated plots was 56% less in south Mississippi and 70% less in Texas than in untreated plots; however, most of that difference was due to fewer earthworms. Cumulative effects of acid precipitation have the potential to reduce earthworm populations in southern pine forests.

Papers and abstracts of posters presented at this symposium will be published as proceedings this year. This meeting obviously has provided new impulses to woodcock research in America. So the next symposium was already scheduled for 1993 in Lousiana, a fovoured woodcock wintering area.

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Thefollowing two papers were received from Russian colleagues. The first one is an attempt to calculate woodcock densities by counting roding males on an area of 4.4 mio. ha around Moscow. The latter one provides some aspects of woodcock living at the northern border of its breeding range.

Woodcock (*Scolopax rusticola*) in the Moscow Region

A group of scientists from All-Union Research Institute for Nature Conservation studies the woodcock. The calculation of taken birds took place in 1987.

Up to now the estimation of birds taken was inaccurate and understated.

There are 77 thousand hunters in the Moscow Region. The hunting for woodcock is permitted within 10 days. 81.3 thousand birds were taken in 1987.

A method of calculation of woodcock male total numbers taking part in roding is worked out. In the evening the observers calculate the numbers of birds, determine approximate distance between an observer and a bird and the time (min) of their appearance. Taking into account the rate of flight (V = 0.65 km/min), the mean distance (m) between a bird and an observer (L), the mean numbers of birds observed by one person during 1 min at the moment of the most active flights (n), one can calculate the numbers of males flying over 1 km^2 of forest area at the moment of the most active roding (D).

$$D = \frac{n \cdot 10^3}{3.14 \cdot L \cdot V}$$

If we take into account the fact that in early April only the adult males take part in the evening flights (≈ 30%) and some males stay with females and don't fly, we can approximately estimate the general numbers of the population.

This method is tested by killing all males in separate forest. In spring 1988 a mass calculation of woodcock was organized in different parts of the region. Hundreds of observers worked during 10 days. The general numbers of birds was estimated at 158-180 thousand.

The second calculation of 1989 showed 100 thousand birds. The obtained results don't conform to the bird harvest which doesn't change during several years. Imperfect calculation coefficients can explain this discrepancy. We can suppose that only 30-50% adult males take part in the most active roding and not 70-80%. It is possible that there is a hierarchy of roding where dominating males take part and other males begin to fly later. It is necessary to take into account the possibility of considerable interruptions of flight during one evening when only a small number of males can fly. In order to make calculation more accurate it's necessary to carry out the calculation of time spent by woodcock in flight and on earth. The most probable cause of calculation data and bird harvest discrepancy is the influx of birds into the Moscow Region from other regions, where hunting is less intensive.

Finaly, it is necessary to note that in May 1989 a male of woodcock with short beak was taken in the Moscow Region. The European press published the harvesting of these birds in Denmark.

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About the Woodcock (*Scolopax rusticola* L.) in the Yenissean taiga

Near the northern limit of the range in Siberia the Woodcock is not a subject of hunting. and its numbers. distribution and biological features remain relatively poorly studied. There are. in general, some accidental information received by way when common ornithogeographical inspectations aimed on the morning bird censusing are made. In this connection, more prolonged, though not specialized on the Woodcock, observations near the village Mirnoye on the Yenissei (62o20'NL) are of interest. This set of almost annual zoological data was began by academician E.E.Syroechkovsky and Dr. E.V.Rogacheva in 1970 and continued to nowadays by collaborators of the Institute of Evolutionary Morphology and Animal Ecology of the Academy of Sciences of the USSR. Since 1982 this set was added with short-term observations made over about 200 km around Mirnoye. The Central-Siberian Biosphere Reserve had been founded here in 1985 included the Yenissean valley and adjacent parts of Western and Middle Siberia between the latitudes of Mirnoye and the mouth of the Podkamennaya Tunghuska.

The Woodcock is fairly common in Mirnoye environs, though rarely meet one's eye. The first spring appearence usually falls on the 15-26-th of May, in average for ten years on the 20-th of May. However. in 1982 and 1984. when spring had come extremally early, the first occurence after arrival was registred at the 9-th and 13-th of May. It seems that, in spite of the temperature rises rapidly, the arrival is restrained because of thick snow cover is laying yet everywhere, and there are only few thawed patches along riverside slopes and on man-made open places. The period of highly intensive mating-call begins just after complete snow melting, what happens, as a rule, at last five days of May and continues till the end of the first decade of June.

In best habitats one can count 12-14 males doing their mating flight in an evening-glow. There are not a few such places near the Yenissey: floodplain bushes, forest edges on lakesides, expanded brook valleys, especially neighbouring with fire-places on slopes, where the moss cover is replaced by grass and litter of fallen foliage. 2-5 mating birds per evening one can occur inside the floodplain forest and also on the forest edge along the right, high riverside of the Yenissei or near the settlement. In large tracts of taiga, removed from Yenissean floodplain, suitable habitats are more scattered. So, in 30 km eastwards, a weak mating-call was observed in the Varlamovka river valley. where the wet forest of Siberian fir and cedar with undergrowth of bushy alder (*Alnaster fruticosa*) and birch (*Betula humilis*) and with tussocks of *Carex caespitosa* are developed. Beyond river valleys individual birds were found on the most rich patches of young pyrogenuous birch-aspen forests. In 160 km eastwards from Mirnoye, in the basin of the Stolbovaya river, which cuts outskirts of the Middle-Siberian Plateau, during four seasons of zoological observations, the Woodcock was met only once, at the 1-st of June 1982 on the riverside of the Doulkuma. In the western part of the reserve, in 50 km from Yenissei, a weak mating-call was observed among the edges of extensive lowland bogs. In the

Yenissean valley within the reserve and southwards during the mating woodcocks are marked everywhere. Northwards they were observed to the settlement Verkhne-Imbatskoye (63o10'NL), and were not in Baklanikha (64o20'NL).

The peak of mating-call comes at once after a sunset, i.e. at about 23 o'clock by the sun time. Besides of this, there is the second, less expressed peak of activity, which falls on the middle morning. So at Mirnoye, in the brook valley neighbouring with fire-affected forest, on the 8-th of June 1984, from 6.30 to 7.30, 7 mating males were counted, whereas 14 ones had been counted last evening, approximately between 23 and 24 o'clock. On the 20-th of June 1986 two mating males were heard over the Yenissei floodplain till 9.40. The latest observation of a mating-call was done on 28-th of June 1974.

After flood water has abated, the great majority of summer occurences is located to the patchy complex of the Yenissean floodplain vegetation, where spruce, fir and birch dominate in the scattered first tree layer, alder and willow are common in the second one. The typical face of the habitat is formed by dense bushwood of bushy alder, birdcherry, currants and others. Cereals (primarily Calamagrostis langsdorfii), wild calla (Calla palustris) and diverse another hydrophilous grass cover rich muddy soil.

The second preferent habitat is the fir forest in front of the first river terrace of the Yenissey. In such forest near Mirnoye on the 18-th of June 1981 the pair of birds were frightened off, and on the 4-th of July at the same place D.M.Ochagov found the clutch of 4 week-hatched eggs, which were placed in the moss deepening covered by few alder leaves. Some days later this nest was destroyed by a nutcraker (Nucifraga caryocatactes). In 1982, on the 25-th of July, on a fire-place grown by young birch, the female drawing aside from her chicks was met. Chicks could already flit and were, approximately, of two weeks. That was the year of very early spring coming, but in 1983, when spring had come extremally later, on the 29-th of July the juvenile which had not yet reach the definite size, was frightened off with the adult.

In August one can sometimes meet woodcocks in relatively open habitats including muddy silt banks of the river, near willow bushes. In autumn occurences become much rearer. On the 12-th of September 1982, at 22 o'clock, two migrating woodcocks had been trapped in the Helgoland-type trap on the forest edge at Mirnoye.

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creased by 19% during this time; however they did not prove as substitute habitats, as snipe bags declined by 79% on these areas. The author applies for immediate cooperation between farmers and hunters to stop further habitat degradation.

McAuley, D.G. (1990): Renesting by American Woodcocks (Scolopax minor) in Maine. Auk 107: 407 - 410.
Of 58 female woodcocks radio-tagged in 1987 and 1988 in Maine 12 renested after having abandoned or lost their clutches. New nesting attempts were made at a distance up to several kilometers from the first nest. This explains the fact that hardly any renesting was documented before using telemetry. There was however indirect evidence by delayed hatching peaks and the relatively long male singing period.

Miner, J.G. & J. Bart (1989): Woodcock abundance and hunter success: regional trends from hunter surveys: Wildl.Soc.Bull. 17(3): 258 - 263.
A study on trends in American woodcock populations based on flushes resp. bags per time unit. The results were in line with those of other methods and confirmed the slight but continous decline especially in the eastern flyway.

Potts, G. R. (1990): The Research Departement. In: The Game Conservancy Review of 1989: 22 - 25.
Studies on earthworms in England have revealed that this main prey item of wintering woodcocks is currently threatened by a predatory flatworm Artioposthia triangulata accidentally imported with ornamental plants from New Zealand to Northern Ireland. The effect on earthworms was locally catastrophic.

Potts, G. R. (1990): Woodcock Increase? In: The Game Conservancy Review of 1989: 100.
The slight but constantly increasing trend of woodcock bags in Britain is in line with the results of surveys at night in pastures prior to shooting. Woodcock densities have significantly icreased even in the mild winters of 1987 to 89.

Rabe, D. (1979): Evidence suggesting a second nesting effort by an American Woodcock. Jack-Pine warbler 57: 166 - 167.
On 17 May 1976 a female woodcock with chicks 20 days old was collected in Michigan. Post mortem examination revealed a well-developed reproductive system, the 3 largest ova measuring 10, 6 and 4 mm in diameter. By the stage of the ova and the body weight of 210 g (in contrast to the average weight of females of 177 g at that time of the year) it was estimated that the female could have renested about 1 June. This suggests the female could have produced two successful broods.

Sapetina, I. M. & S. G. Priklonski (1990): Scolopax rusticola hunting bags in the European part of the USSR. IN Matthews, G.V.T.: Managing Waterfowl Populations. IWRB Special Publication No. 12: 115 - 116.
Within two decades woodcock bags have declined from 1.4 mio. birds in the 1970ies to 0.4 mio. birds in the 1980ies. The decline was particularly obvious in southern parts of the USSR, where migrating birds are harvested in fall, while the bag of birds harvested during roding in the northern parts decreased less. The authors try to explain declining woodcock populations by changing habitat quality and high hunting pressure in western wintering areas. However, they also cite examples of different trends even within geographically neighbouring areas.

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Brinch Pedersen, M. (1989): Aspekter of Enkeltbekkasinens Lymnocryptes minimus overvintringsstrategi i Danmark (Danish, English summary). Dansk Orn. Foren. Tidsskr. 83: 69 - 73.
Phenology of wintering Jack Snipes in Denmark. During cold spells they dwell near streams.

Brinch Pedersen, M. (1989): Aendringar i rasteforekomsten of Dobbelbekkasin Gallinago gallinago og Enkeltbekkasin Lymnocryptes minimus på en inlandslokalitet (Danish, English sumary). Dansk Orn. Foren. Tidsskr. 83: 75-82.

Phenology of migrating Common Snipe and Jack Snipe through Denmark. Declining numbers are also obvious from bag statistics.

Clausager, I. (1989): Vingeindsamling fra jagtsaesonen 1988/89 i Danmark. Rapport fra Vildtbiologisk Station Kalø, Denmark.
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