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This Newsletter seeks to be a contact organ to inform the members of the Woodcock and Snipe Specialist Group (WSSG), a research unit of Wetlands International (WI) and of IUCN, the International Union for Conservation of Nature. The subjects of WSSG are species of the genera *Scolopax*, *Gallinago* and *Lymnocryptes* that in several respects differ remarkably from all other wader species. For this reason a separate research unit was established.

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Editorial

This issue 42 of our Woodcock & Snipe Specialist Group Newsletter is still greatly marked by the contributions of our "Eastern" colleagues. In Belarus, experiments on the restoration of Great Snipe habitats are on the right track. In Russia, monitoring of Common Snipe breeding numbers is going on and Woodcock hunting bags are more and more precise. These are important features in relation with the responsibility of this part of Europe in the conservation of Woodcock and Snipe breeders.

But we must not forget that a good reproduction success and a high level of breeding numbers could be insufficient if mortality in the wintering grounds is at a high level. Of course, it is impossible to act on natural mortality and cold spells or drought can be considered as integrated in the population dynamics. This is not the case with the hunting bags which should be adapted to the demographic situation. One of the most exciting challenges in the future will be to estimate whether hunting is sustainable or not according to our knowledge on numbers, bags, and population dynamics of the considered species. In the "Guidelines on Sustainable Harvest of Migratory Waterbirds – n° 5", AEWA (African-European Waterbirds Agreement) clearly recommended an adaptive management approach to assess the harvest sustainability. This includes constructing predictive models. This is certainly the path to follow in the coming years for the WSSG. Whatever their conservation status, we have to objectively consider the situation of hunted species and promote recommendations to make harvest sustainable. Whereas we have probably enough information for some species such as Woodcock, there is an obvious lack of knowledge for others. Another challenge to be met!

This year is a great one for the Woodcock and Snipe researchers. Indeed, we will have two opportunities to discuss about such issues.

The first is the **8th Woodcock & Snipe Workshop** which will be held in **Pico Island** (Azores, Portugal) from **9th to 11th of May**. The Workshop site is really exceptional in terms of birds and habitats. Now you should have received the 2nd announcement and we wish to meet many WSSG members at this event which matters in the life of our Group. If you have not done so yet, visit the Website at the following address: https://sites.google.com/view/wssg-workshop-2017

The second event will be the **11th American Woodcock Symposium** which will be held in **Michigan** (USA) from **25th to 27th of October**. This Symposium entirely dedicated to American Woodcock will be the opportunity to meet researchers and to make the state-of-the-art knowledge on this species. For any information, please contact Alan Stewart (stewarta1@michigan.gov).

Finally, we wish you a happy new year 2017, a good success in your research work and hope to see you in Pico Island in May.

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First Latham's Snipe T0 with geolocator recaptured at Port Fairy!

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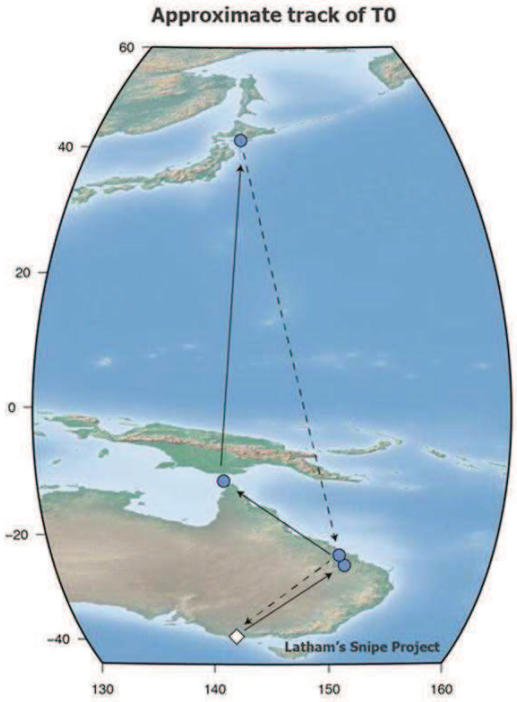
The Latham's Snipe project team is hugely excited to have recaptured their first snipe at Port Fairy, Victoria, Australia. The bird, first captured on October 1, 2015, was re-captured on Sunday morning October 9 only a few hundred metres from its original capture site over 12 months previously! The geolocator appeared in good condition and the bird was in good health.

With the help of Simeon Lisovski and Ken Gosbell, we have obtained a full migration track for the snipe (see below). T0 left Port Fairy in February and spent about 2 months in SE Queensland before flying to Cape York (or somewhere in the region) in April.
From there the bird flew direct to Hokkaido and arrived around early May. The bird may have incubated a clutch whilst on the breeding grounds somewhere in southern Hokkaido, over May-June. In late August it flew direct from Hokkaido back to SE Queensland in 3 days, where it spent about a month presumably staging before returning to Port Fairy on September 26.
This is the first time a migration track has been obtained in this manner from Latham's Snipe. This result confirms what we had suspected, that some snipe return to Powling Street wetlands in Port Fairy each year. We are therefore hopeful we may recapture another of our birds.
I would like to thank the extremely hard work and dedication of my team in Port Fairy and our helpers on catches over the last 13 months, which has made it possible to do this project. And thanks to the VWSG for supporting the project and the Australia Japan Foundation for funding to cover geolocators and our visit to Japan.
The next catch is scheduled for October 29 and 30 in Port Fairy. We will be again deploying and hoping to retrieve geolocators, as well as deploying some radio transmitters.



Woodcock hunting in Denmark 2015/16

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This report summarizes the Woodcock hunting season 2015/16 in Denmark. The hunting season starts on 1 October and ends on 31 January, a season length which has been unchanged since 2011. In Denmark there are no restrictions on Woodcock hunting with respect to daily bag limits or specific days of hunting, and Woodcock may be hunted from sunrise to sunset. At the end of the season, hunters have to report their personal bag to the official Bag Record, but may also, on a voluntary basis, contribute to the Danish Wing Survey, by sending in one wing from each bagged Woodcock. Both the Bag Record and the Wing Survey are administered by the Danish Centre for Environment and Energy/University of Aarhus, Denmark.

In the 2015/16 hunting season, a total of 39,700 Woodcock have so far been reported to the Bag Record. This figure is preliminary, as the reporting period runs until 31 March 2017. However, from experience, only a slight increase, if any, is expected to occur before reporting is closed. Compared to an annual bag size ranging between 34,000 and 39,000 during 2011-2014, the bag total in 2015/16 adds to the picture of a stable Woodcock harvest level in recent years. With a stable breeding population of c. 2.000 Woodcock, the vast majority of birds bagged in Denmark are staging and wintering migrants originating from breeding areas in northern Scandinavia and European Russia.

During the 2015/16 hunting season, a total of 1,152 woodcock wings were received by the Danish Wing Survey. As all wings are labeled with specific harvest date and exact location, they provide information on the seasonal and geographical distribution of the woodcock bag. Based on plumage characteristics, all wings are determined to the age class (adult and juvenile), and this provides both an age specific temporal distribution and an annual index of reproductive success, expressed as the number of juveniles per adult bird.

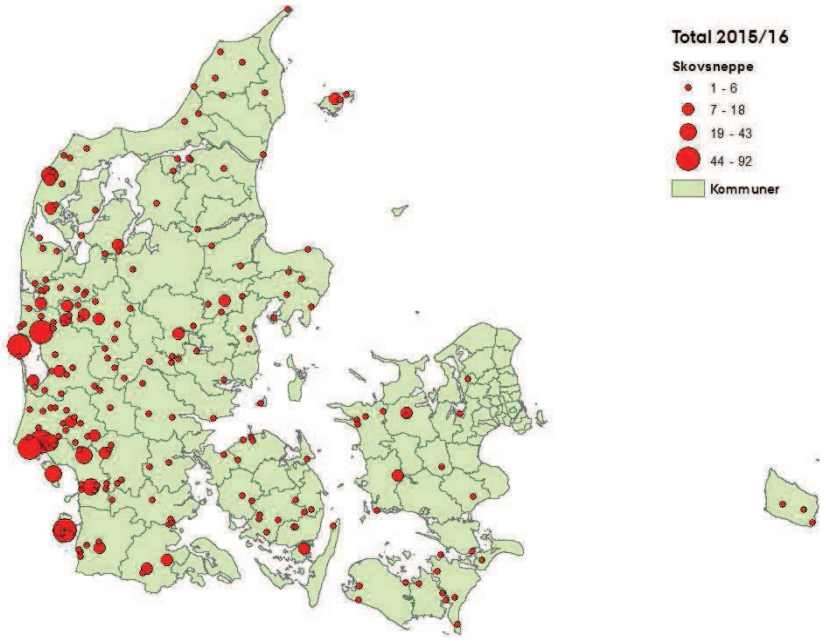

Figure 1. *The geographical distribution of 1,152 wings from Woodcock bagged in Denmark during the 2015/16 hunting season.*

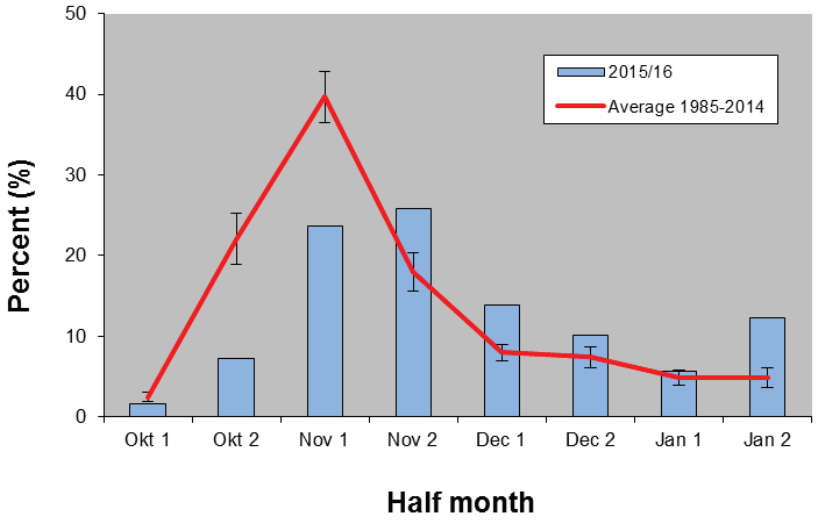

Figure 2. *The temporal (half-monthly) distribution of Woodcock bagged in the hunting season 2015/16 in Denmark based on 1.152 Woodcock wings received by the Danish Wing Survey.*

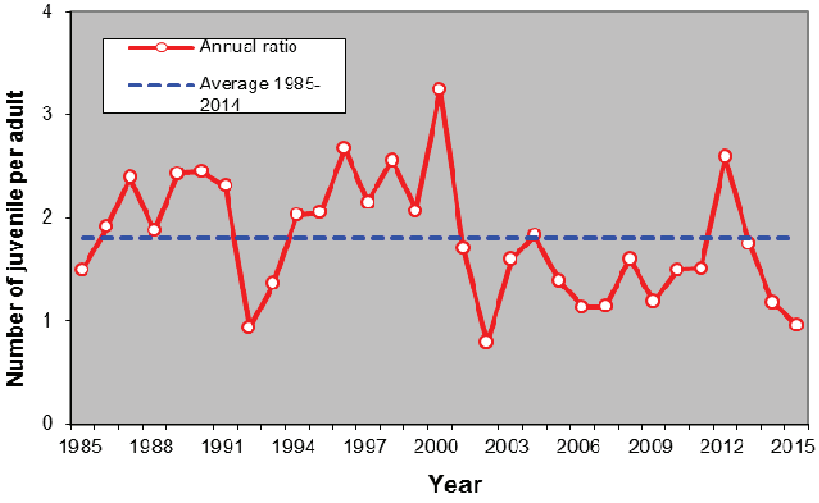

Figure 3. *The annual number of juvenile per adult Woodcock in the Danish Wing Survey for the hunting season 1985-2015.*

The geographical distribution of bagged Woodcock in Denmark 2015/16 follows the usual pattern, with the majority being bagged in the western part of the country (Figure 1). In this area, bordering the North Sea, migrating Woodcocks are frequently found in high numbers making (forced) stops before crossing the water to the wintering areas in Great Britain. In 2015/16 the temporal occurrence of Woodcocks in Denmark seems somewhat delayed when compared to the long-term average (1985-2014), and numbers recorded in January are markedly higher than average (Figure 2). Even though midwinter numbers of Woodcock in Denmark are largely determined by average temperature, the later occurrence recorded in 2015/16 follows the general pattern of the Woodcock bag being taken progressively later in the autumn over the latest decades (since the mid 1980s).

In 2015/16, juveniles represented 49.0% of the annual bag. This figure is lower than the long-term average of 63.1% (1985-2014), and is only comparable to 48.3% in 1992 and 44.3% recorded in 2002. That Woodcock had a poor reproductive success in 2015 is also substantiated in the low value of 1.0 juvenile per adult this year (Figure 3).

Continuation of research on the Great Snipe in Belarus

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One of the large breeding populations of the Great Snipe, a species listed as Near Threatened, is located in Belarus. Today, loss of habitats through vegetation succession and land abandonment increases the negative impact on the breeding population, and further reduction of Great Snipe numbers occurs rapidly. This year, we started the project: "Conservation of the Great Snipe through the development of appropriate habitat management and public awareness" supported by the Rufford Small Grant. The main aims of the new project are the development and implementation of appropriate management for breeding habitats based on a study of breeding biology using radio-telemetry and camera-traps. Other important tasks are the discovery of new breeding sites to include them in the Emerald Network, and increasing public awareness about the conservation problem of the species.

Preliminary Results

We carried out Great Snipe censuses in the Sporovo Reserve. The staff of the reserve extended the works on restoration of habitats (Figure 1). Nevertheless, numbers of males on leks were very low, which was probably connected with high spring floods this season. Our team conducted the search for key breeding habitats in floodplains of the Nischa, Svol'na, Berezina, and Drut Rivers in Vitebsk and Mogilev regions. We found 7 new leks where total numbers of males was estimated at about 70-100 individuals. Detailed investigations using a kayak were conducted in the Drut River floodplain for about 100 km of the riverbed. We used camera traps on some leks to estimate numbers of males and to study their lekking activity. Results have shown that for the proper estimation of male numbers on big leks it is necessary to use about 10-15 camera traps.

We used two types of camera traps: Trophy Cam HD Aggressor No-Glow and Reconyx HC600. These models have the LED flash filter that helps to prevent detection of the camera by animals. Lekking males were observed near cameras (Figure 2). Video camera mode worked better than the photo mode if night was foggy. Birds were registered at distances up to 15-20 m from a camera.

The manual mowing championship was conducted in the Sporovo Reserve to increase public awareness about rare species conservation problems. The championship was carried out ten times and now this event is the symbol of the Reserve. 23 teams from different regions took part in the championship.

Figure 1. *Restoration of the Great Snipe breeding habitats in the Sporovo Reserve using a tractor with mill cutter.*

Figure 2. *Screenshots of video (left) and photos (right) captured by the camera traps in different weather conditions.*

2016 Central Russia Woodcock Report

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Spring migration and breeding conditions

Winter 2015-2016 began late enough.
The snow cover was established only in January which was also frosty (on average: 3.2° C below normal in Vladimir, 4.2 ° C in Tver, and 3.5° C in the Kostroma provinces). Snow melted out at the usual period. In Vladimir province, a record amount of precipitation (86 mm; 215% more than normal) was registered and snow depth in forests was 40 - 45 cm by the end of January. In the Tver province, precipitation was 141% above normal, and 164 % in Kostroma province.
In February, precipitation was also above normal (187%, 136% and 170% in Vladimir, Tver and Kostroma provinces, respectively) and snow and rain alternated. Average temperatures were warmer than usual (6.6, 6.5 and 6.9 ° C, respectively). As a result, the ground was very wet in spring but snow depth decreased to 30-35 cm.
In March, strong freeze was registered at night but in the afternoon the temperatures were near 0-3° C, around normal. As a result, thick ice crust was formed. Precipitation was 92 % of the average in Vladimir province, 147% in Tver province, and only 76% in Kostroma province. The air temperature was everywhere within the usual limits. In Vladimir province, the first patches of ground appeared on 27 March in meadows, on 30 March in light birch forest and on 6 April in mixed forest.
Thawed patches appeared more and more frequently in woodlands at the beginning of April, but snow depth was still 10-20 cm. April was warmer than usual (1.6°C, 1.3°C and 1.0° C, in the 3 provinces, respectively), precipitation was above normal in Vladimir province (182%), below normal in Tver province (55%), and around normal in Kostroma province (106%).
Spring arrived at the average timing. For example, in Vladimir province, migratory birds species arrived at their long-term average dates: gulls, cranes, starlings on 30 March, lapwings on 31 March, snipes, curlews on 5 April, robins, *Turdus iliacus,* on 6 April, *Turdus viscivorus* on 8 April, *Philloscopus trochilis* on 15 April, *Anthus trivialis* on18 April, but others earlier than usual: *Turdus philomelos*, larks on 31 March, white wagtails on 1st April, *Luscinia svecica* on 16 April, *Porzana porzana* on 19 April. Cuckoo arrived on 18 April, i.e. 10 days before the average long-term date.

First roding woodcock were observed on 2 April, 6 days earlier than the average long-term date (8 April) and woodcocks were observed only in young forest regrowth, fragmented fields and clear woodlands, where there were "spots" of thawed earth. Roding was observed in the old forests only from 8 April. The roding male numbers remained weak in this period. The temperature reached 18°C on 8 April. From this date, numerous roding males were observed everywhere in Central Russia.

Roding males' hunting was open from 16 to 25 April in most Central regions of Russia. In Kostroma provinces it was open from 30 April to 9 May. The mean number of contacts per evening was 4.6 in Vladimir province, 5.5 in Moscow, 3.7 in Yaroslavl, and 8.7 in Kostroma.

		Total		Mean		Max		
Province	Points	contacts	birds	contacts	birds	contacts	birds	"no roding" points (%)
Arkhangelsk	23	172	200	7.48 ± 0.76	8.70 ± 0.84	17	20	0
Vologda	197	1 793	2020	9.10 ± 0.29	10.25 ± 0.33	29	30	0
Karelia	28	210	229	7.50 ± 0.62	8.18 ± 0.65	15	15	0
Komi	54	304	330	5.63 ± 0.29	6.11 ± 0.3	20	21	0
Leningrad	117	1 085	1243	9.27 ± 0.35	10.62 ± 0.4	27	28	0
Novgorod	209	1 933	2156	9.25 ± 0.26	10.32 ± 0.28	32	36	0
Pskov	13	135	173	10.38 ± 0.8	13.31 ± 1.19	20	25	0
Bryansk	29	308	377	10.62 ± 0.69	13.00 ± 0.77	24	31	0
Vladimir	17	182	205	10.71 ± 1.01	12.06 ± 1.13	28	28	0
Ivanovo	37	330	363	8.92 ± 0.9	9.81 ± 0.99	28	29	0
Kaluga	1	18	18	18.00	18.00	18	18	0
Kostroma	90	956	1053	10.62 ± 0.4	11.70 ± 0.45	27	29	0
Moscow Region	10	51	57	5.10 ± 1.43	5.70 ± 1.4	13	14	10.0
Orel	23	93	99	4.04 ± 0.32	4.30 ± 0.37	9	9	0
Ryazan	5	44	44	8.80 ± 2.58	8.80 ± 2.58	22	22	0
Smolensk	1	5	5	5.00	5.00	5	5	0
Tver	94	779	871	8.29 ± 0.36	9.27 ± 0.38	22	27	0
Tula	177	758	815	4.28 ± 0.23	4.60 ± 0.25	28	28	6.8
Yaroslavl	115	784	869	6.82 ± 0.3	7.56 ± 0.34	19	21	0
Belgorod	11	30	35	2.73 ± 0.4	3.18 ± 0.51	6	7	0
Voronej	67	175	208	2.61 ± 0.24	3.10 ± 0.29	9	13	22.4
Lipetsk	15	67	79	4.47 ± 0.49	5.27 ± 0.64	15	19	0
Tambov	117	517	529	4.42 ± 0.22	4.52 ± 0.23	14	15	1.7
Nyjny-Novgorod	7	25	34	3.57 ± 0.46	4.86 ± 0.69	5	8	0
Kirov	12	102	110	8.50 ± 0.96	9.17 ± 0.93	17	17	0
Mariy El	1	11	11	11.00	11.00	11	11	0
Mordovya	51	277	305	5.43 ± 0.31	5.98 ± 0.37	14	17	0
Chuvashya	61	258	284	4.23 ± 0.28	4.66 ± 0.33	12	14	6.6
Penza	20	116	132	5.80 ± 0.83	6.60 ± 0.85	19	19	5.0
Saratov	23	61	72	2.65 ± 0.47	3.13 ± 0.58	8	12	26.1
Tatarstan	62	415	462	6.69 ± 0.53	7.45 ± 0.58	52	56	9.7
Ulyanovsk	69	462	537	6.70 ± 0.46	7.78 ± 0.54	18	22	0
Bashkortostan	4	27	27	6.75 ± 2.56	6.75 ± 2.56	17	17	0
Perm	36	162	175	4.50 ± 0.43	4.86 ± 0.47	19	19	8.3
Sverdlovsk	81	661	785	8.16 ± 0.34	9.69 ± 0.41	23	23	0.0
Chelyabinsk	124	936	1153	7.55 ± 0.26	9.30 ± 0.32	24	25	0.0
TOTAL/mean	2 001	14 242	16 065	7.12 ± 0.08	8.03 ± 0.1	52	56	2.5

***Table 1**. Results of the 18th National Woodcock Roding Census in Russia in 2016.*

The main woodcock migration ended before the opening of the hunting period. According to our observations, the main part of Woodcock migration in 2016 took place from April 8 to April 14.
Weather conditions were favorable for roding and the beginning of the breeding period. May was also warm, in the range of the normal temperatures. During the hatching period, strong rains were registered: 6 - 9 June and 11 - 13 June in the Vladimir province, 4 - 6 and 11 - 13 June in the Tver province, and 4 - 9 June in the Kostroma province. They probably slightly negatively affected the Woodcock breeding success. No cold period was observed.
Summer was warm and rainy enough to favor growth and survival of chicks.

Results of the 18th National Woodcock roding census

The 18th National roding census was organized by the State Information-Analytical Center of Game Animals and Habitats, the "Woodcock" group, the "Rosokhotrybolovsoyuz" Association, several hunting offices, and the "Russian hunter newspaper". It was carried out on 28 May 2016.
2,800 forms were sent to 35 provinces of the European part of Russia and Ural through the system of hunter societies of Rosokhotrybolovsoyuz. Besides, the Vologda, Karelia, Novgorod, Tula, and Chuvashia Hunting departments carried out this work themselves and sent us information per district. One of the "Russian hunter newspaper" issues presented the census form and the census methods, so that every reader was able to send a press-cutting from these periodicals with his own census results. Thus, the total quantity of forms distributed in Russia was similar to the previous years. The form itself and the census methods remained exactly the same. The results are presented in Table 1.

By 2016, 3,599 forms were collected from 36 regions of the European part of Russia. 1,598 forms (44.4%) were rejected. Every region was more or less represented in the total of forms selected for the analysis, but Central and North regions made up the main part. 209 forms came from Novgorod province, 197 from Vologda, 177 from Tula, 124 from Chelyabinsk, 117 from Leningrad and Tambov, 115 from Yaroslavl. Several tens of forms were sent from many other provinces: 1-4 forms from Bashkortostan and Mari-El republics, Kaluga and Smolensk oblasts. The general results are presented in Table 1.
In total, 14 242 contacts were registered. They represented 16 065 birds (1.13 individuals/contact). No roding male was observed at 50 points (2.5 %) in 9 provinces. The highest numbers of contacts were registered at census points in Tatarstan (52 contacts; 56 individuals), Novgorod (32/36) and Vologda (29/30).

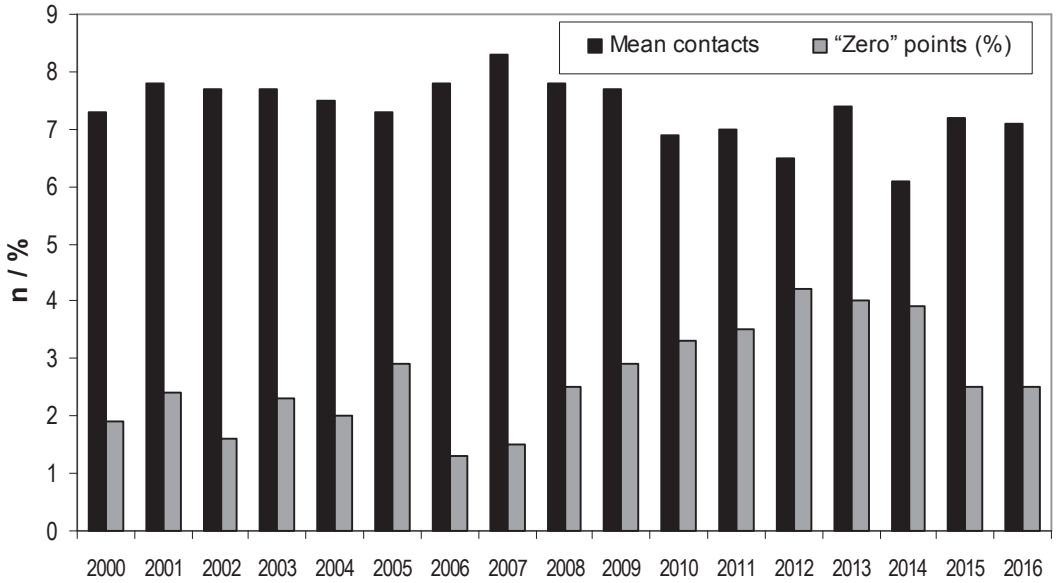

Figure 1. *Inter-annual variations of the mean number of contacts and the proportion of "Zero" points (no roding) from 2000 to 2016 according to the National Roding Census.*

The average roding intensity during the 2016 census was as follows:

Poor roding (2.6 – 5.0 contacts per 2 hours of roding) was recorded in 8 provinces: Belgorod, Voronej, Lipetsk, Nijny Novgorod, Orel, Saratov, Tambov, Tula, Perm, and in Chuvashia republic.

Average roding (5.1 – 10.0 contacts) was registered in 14 provinces: Arkhangelsk, Ivanovo, Kirov, Leningrad, Novgorod, Penza, Chelyabinsk, Sverdlovsk, Tver', Ulyanovsk, Yaroslavl', Vologda, Ryazan, Moscow, and in 4 republics: Karelia, Komi, Mordovia, and Tatarstan.

Good roding (10.4 – 10.7 contacts) was observed in Bryansk, Kostroma, Pskov, and Vladimir provinces.

On average, 7.1 contacts of 8.0 individuals per roding were registered in 2016 in European Russia. This is close to the 2015 results (Figure 1).

Autumn migration and ringing

In autumn 2016, 7 teams of ringers worked in 6 regions of Russia: two teams in Kostroma province and one in Moscow, Vladimir, Tver' and Pskov provinces. The weather conditions were favorable to ringing. September was warm and damp, close to normal, in Moscow, Vladimir, Tver' and Kostroma provinces, but very dry in Pskov province.
The beginning of October was also favorable for woodcock ringing with warm temperatures and rains till 8-9 October, then increasingly colder and dry. The new moon also favored the captures.

Province	Ringing trip duration (min)	Total number of contacts	Average contacts/hour (IAN)	Number of ringed woodcocks	Number of retrapped woodcocks	Number of night trips	Number of birds ringed in 1 trip average
Moscow	2 340	83	2.13	20	2	18	1.1
Kostroma	4 735	131	1.8	51	1	32	1.6
Vladimir	1 800	72	2.4	19	-	12	1.6
Tver'	4 050	43	0.64	18	-	27	0.7
Pskov	2 645	24	0.54	1	-	26	0.04
Total	15 570	353	1.36	109	3	115	0.9

Table 2. *Night censuses of woodcock in autumn 2016.*

In total, 353 woodcocks were encountered during 115 night trips (15 570 hours). 109 were ringed and 3 woodcocks were retrapped (direct retraps). The 2016 and 2015 results are the lowest over the last 10 years**.** One of the reasons is the decrease of the numbers/surface area of typical favorable night feeding sites. Even in Kostroma province, many good pastures are converted into corn fields from year to year. The cows graze in the fields after mowing of clover and corn. These sites are not as attractive for woodcocks as grasslands and permanent pastures. We do not find woodcocks in the tillage.

The general results are given in Table 2.

The numbers of birds found in the Moscow Region, Vladimir and Kostroma provinces were nearly the same as in the previous years but largely below in Tver' and Pskov provinces. In 2016, the peak of migration was not visible everywhere. In total, the mean number of contacts/hour (IAN) registered during the ringing trips was 1.36. If we take into account only the Moscow Region, Vladimir and Kostroma provinces, IAN amounted to 1.9. In 2016, for the same study areas, IAN was higher than in 2015 in Vladimir province (2.40 *vs* 1.57), stable in the Moscow Region (2.13 *vs* 2.19) and considerably less in Kostroma province (1.8 *vs* 3.6).

The last birds were observed at night on 24-25 October in most of the regions, on 4-5 November in forests and woodlands at daytime. Only in Kostroma province did woodcock disappear 2 week earlier.

2016 ringing season in numbers

Number of regions:	6
Number of sites:	18
Number of ringers:	11
Number of night trips:	115
Number of contacts:	352
Number of ringed woodcock:	109
Number of direct retraps:	3
Number of indirect retraps:	0
Capture success:	31.0%
Proportion of juveniles:	81.6 %

(early broods: 69.6 %, late broods: 30.4 %)

The proportion of juveniles amounted to 81.6 % which is more than usual and probably related to a good breeding success. The proportion of early broods among the young was also high (69.6 %) in comparison with the previous years**.** The average weight of juveniles was 336.2 g (n= 89), which is less than in 2015 (352.9 g) and 2013 (340 g) but slightly more than in 2014 (334.7 g).

Acknowledgements

We are very grateful to the *Office national de la chasse et de la faune sauvage* (ONCFS) and to the Fédération départementale des chasseurs de l'Isère for financial, equipment and methodological support of this work. We also express our gratitude to the ringers: Yuri Romanov, Marina Kozlova, Vladimir Ershov, Nikolai Sorokin, Andrei Blokhin, and Alexandr Fedorov.

About 15 days-old Woodcock chick found in Armenia in summer 2016 (© Alexander Malkhasyan)

Monitoring of Woodcock hunting bags in Moscow region

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Woodcock (*Scolopax rusticola L.*) is a popular game in Europe and the main part of the European population is shot on wintering grounds and during migration. The European bag is estimated at 3.5–4 millions, of which about 2 millions in Italy and France (1–1.5 million and 740 000, respectively) (Ferrand and Gossmann, 2009; Aubry et al. 2016). In Russia, the hunting pressure on woodcock populations varies according to the regions. In the most populated and industrialised areas of the centre of the European part of Russia, the woodcock is an important, if not the main, spring game, while in the south it is hunted in autumn, and to the east of the Urals it is generally not hunted at all. In the European part of Russia, the bag is estimated at 200,000 woodcocks, which is about 5 % of the number bagged in Europe.

In Moscow suburban game husbandries of the Interregional Sports Public Organisation "Moscow Hunting and Fishing Society" (MHFS), approximately 85 % of hunters who obtain hunting licenses hunt in spring during the roding period. The remaining 15 % are geese or duck (with decoy) hunters. According to our estimations in recent years, about 32,000–33,000 people hunt woodcock in spring, about 25,000 of whom do it in the MHFS game husbandries, judging from the number of issued permits and licences.

Material and methods

In the Moscow region, hunting grounds are assigned to 21 hunting providers. The area of public grounds is relatively small, a little more than 50,000 ha. The largest user of hunting grounds is still the MHFS, which has approximately 71% of the territory. Hunting is carried out based on permits and licences (Article 3.2. of Hunting Regulations), which must be returned to the place of registration at the end of the season with information on game species. In fact, we get a little more than 2/3 of the total number of issued documents (in 2015, 65.5/68.3 % for spring/autumn; maximum in 2011 summer–autumn season: 71.4 %).

Not all permits are filed properly when returned: in some of them, no information on number and shot species are given. It should be noted that even if the final data (Table 1) are below the actual level, the difference is probably not significant. A few years ago, we compared the results obtained in the roding period from game husbandries' reports gathered during permit processing and from individual hunting questionnaires. We found that the numbers of woodcocks shot in spring in the two cases differ, in general, by less than 5 % (Anoshin, Kiryakulov, 2012).

The Federal State Institution "Tsentrokhotkontrol" (2010) provides data on the woodcock hunting bag for the 2002–2007 period. According to these data gathered by the Russian Hunting Department, about 17,300 birds (11,335–22,677) were hunted in spring, while it was 15,867 birds in 2007, which, on the whole, corresponds to our data.

During the 2002-2007 period, the spring hunting time was modified three times, and the bag limit was reduced from 5 to 2 woodcocks for a trip. The reduction of the bag limit is a formal act which does not affect the total number of shot birds, as it is rare for one hunter to be able to shoot more than two birds per trip in Moscow suburban game husbandries.

Despite the tightening of the hunting legislation, we observed a continued decrease in the spring woodcock bag from year to year (Figure 1) and an increase in autumn (Figure 2). The decline observed in spring could be due to the mortality on the wintering grounds where the hunting bag can be estimated at around 2 million birds.

However, bag limits exist in some countries and special legislations are set in case of adverse weather conditions (Anoshin, 2013).

In Russia, the overall average autumn bag is ~10% of the spring bag and continues to grow. This could be partly due to the increase in the number of hunting dogs. However, it remains small as shown by an inquiry carried out in 2014 which estimated at less than 20 % the proportion of hunters who used dogs for Woodcock hunting.

Now, the average bag is about 1 bird/hunter for all the hunters using a hunting dog (pointers, spaniels and retrievers) or not (Figure 2).

Years	Hunting bag of "MHFS"		Total hunting bag		Duration of the spring hunting season (days)
	spring	autumn	"MHFS"	Moscow region	
2007	11881	705	12586	15700	10 (two periods)
2008	10425	710	11135	14000	10 (two periods)
2009	13061	1058	14119	17600	16 (two periods)
2010	16109	705	16814	21000	16 (two periods)
2011	14573	959	15532	19400	16 (two periods)
2012	12232	1008	13240	16550	16 (two periods)
2013	10705	1305	12010	15000	10 (one period)
2014	8693	1345	10038	12500	10 (one period)
2015	8638	1583	10221	12800	10 (one period)
2016	9309	2303	11612	15100	10 (one period)
Average	***9241***	***1168***	***12730***	***16000***	

Table 1. *Woodcock hunting bags in MHFS (Moscow Hunting and Fishing Society) and Moscow region as a whole in spring and fall hunting seasons, 2007-2015.*

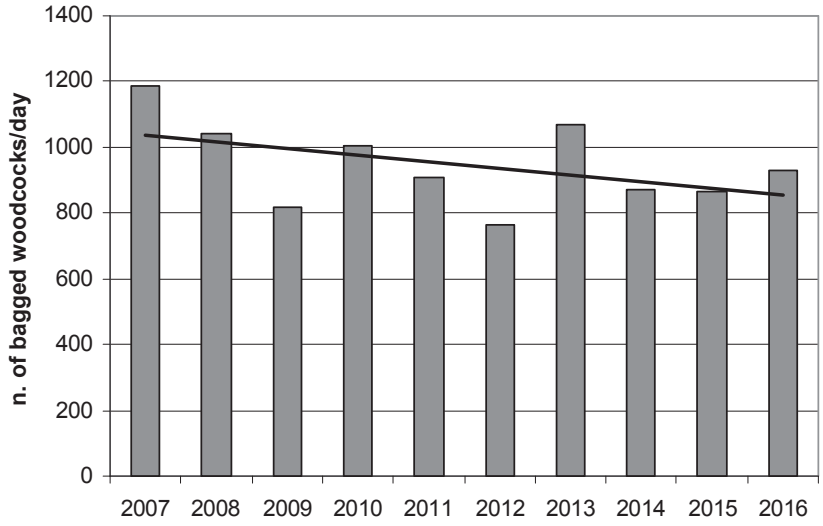

Figure 1. *Daily Woodcock hunting bag in spring in Moscow region, 2007-2016 period.*

However, there are no grounds for imposing restrictions on seasonal hunting, such as exist in France: 30 woodcocks per season (5.5 months). In Russia, the autumn hunting season is formally more than 4 months, from the third Saturday of August to the end of the year (Para. 41.6 of Hunting Regulations), but the period when successful hunting is possible is much shorter. Processing hunters' questionnaires in 2014 showed that in the summer–autumn season the most successful hunting in the "MHFS" hunting territories is possible between 20 September and 15 October. In September, the maximum bag was obtained on weekends, on 21–22 September and 27–28 September, whereas in October, this pattern was not observed (maximum bag on 2, 5, and 7 October). The first woodcock of the season was shot in Serpukhov district on 23

August, while the last one was shot in the Pushkino region on 25 November. However, woodcocks are very rare at the beginning and end of the season.

Usually, the woodcock is hunted in September and October, whereas according to the ratio of shot birds to the total of seen birds, hunting in August and especially in November is much more successful (Table 2). In the first case, the bag is mainly made of juvenile woodcocks which can be considered as easier to approach and shoot. In the second case, success could be due to overfed woodcocks which are easier to approach with a dog. An additional hypothesis is that in November there are no leaves on trees, which makes shooting easier.

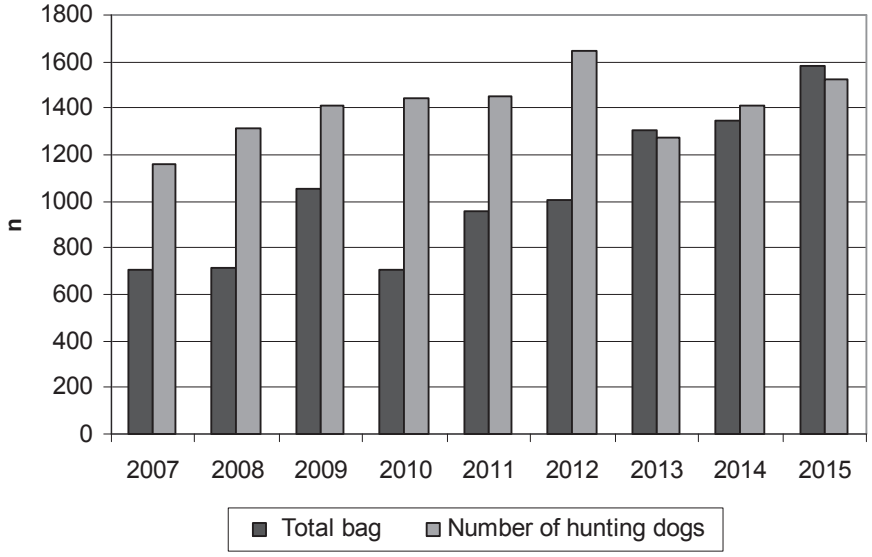

Figure 2. *Total Woodcock bag in autumn and number of pointers and spaniels registered in MHFS (Moscow Hunting and Fishing Society), 2007-2015 period.*

	Number of contacts	Number of shot	Contact/shot ratio
August	42	5	11.9
September	431	13	3.09
October	349	13	3.72
November	16	3	6.25

Table 2. *Ratio of the number of contacts and shot woodcocks every month in autumn 2014 from questionnaires of MSFH's hunters (n = 120).*

Results and discussion

Comparative data on the number of woodcocks are necessary, including for sustainable game management. One of the methods to get information on woodcock population is a survey with hunters. The MHFS has been working in this field since 2008. In three spring hunting seasons (2009–2011), we received about 5,000 filled-in questionnaires. After processing the questionnaires, we obtained information on roding during every spring hunting season in "Moscow Hunting and Fishing Society" game husbandries, in the administrative districts of the region which have such territories, and in the whole region. In particular, it was found out that in the evening, roding hunters in the Moscow region observed 3.2 woodcocks on average (1.25 - 6.4 in different districts) and shot 0.5 (0.2 - 1.15) woodcocks. The average percentage of birds shot is 17 % of the total number of birds observed by hunters. This data set was to be used, among others, as control numbers to validate the data collected from game husbandries, to assess and compare the roding intensity and indirectly to determine

the population status of the species, although such a task is far beyond the charter responsibilities of our public association (Anoshin, 2013). Similar work of collecting hunters' questionnaires but in the summer–autumn season was carried out in 2014.

In general, the data from processed questionnaires correspond to those of the other parts of the European woodcock habitat. For instance, V.A. Kuzyakin (2002) reports that in Russian central regions, one hunter shoots 0.7 woodcocks during roding, and the number of birds observed is 5.2 on average per dawn; the hunting bag during the roding period in Eastern Belarus was 0.3 birds, and the average number of birds observed was 4.2. The State Institution "Tsentrokhotkontrol" conducted a survey among hunters in the Moscow region in 2003. Based on 118 processed questionnaires from 9 districts, it was revealed that in 2003, in a ten-day season (spring hunting was opened in the area in two periods), each hunter spent 4.9 days hunting and shot 1.8 woodcocks during roding in the season (Blokhin et al., 2005). In this case, a hunter's average game for a trip was about 0.37 woodcocks. E. I. Zarubin and V. A. Makarov (2012) report that in the Kirov region the average bag is 1.1 (0-6) woodcock per hunter per trip, i.e. about 20 % of seen birds. It turns out that the average number of woodcocks observed at dawn during the spring hunting season is 5.4. In the most wooded part of the southeast Vologda region, 13.5 - 13.8 contacts were registered during roding in 2008 and 2009 (Blokhin et al., 2012).

One of the authors had a chance to observe roding in June in the mountainous and taiga zone of Tuva (1988), and found uncountable roding woodcocks. At the same time, in Moscow suburbs, 5.1 (4.4 - 5.9) birds per trip were observed during roding in Shakhovskoy district alone and a little more than 6 in Lukhovitsky district in 2009 (Anoshin, 2013). However, it was before wildfires destroyed much of the forest in the abnormally hot and dry summer of 2010.

It is interesting to consider data showing the intensity of roding, received after the questionnaire collection period, as well as information from areas outside the Moscow region.

Years	Average per hunting trip		Shot/contact ratio
	Number of contacts	Shot	
2004	4.92	1.16	0.24
2005	3.81	0.75	0.2
2006	3.66	0.68	0.18
2007	3.86	0.41	0.11
2008	2.93	0.64	0.22
2009	1.2	0.2	0.2
2010	2.37	0.68	0.29
2011	4.33	0.33	0.08
2012	4	0.62	0.15
2013	3.15	0.55	0.17
2014	4.93	1.2	0.24
2015	4.28	1.2	0.23
2016	3.74	0.68	0.18
Average	***3.63***	***0.7***	***0.19***

Table 3. *Average number of contacts and bagged roding woodcocks in Pereslavl district (Yaroslavl region), 2004 to 2016.*

It should be noted that these data are not a result of a mass survey, but were obtained as a result of documenting hunting results of individual experienced hunters, which partly explains some differences. In Kashirsky district of the Moscow region and neighbouring Venyovsky district of the Tula region, spring hunting is opened with a week difference. In the 2015 season, an average of 3.95 woodcocks observed per dawn was registered. The maximum number was 15, 11, and 7 woodcocks on 10–12 April and 14 April, respectively. The average bag was 0.65 birds per dawn, i.e. 17 % of the total number of woodcocks observed. In 2016, the numbers were 3.27, 0.46, and 14.3 %, respectively, and maximum numbers were observed on 13 - 15 April: 7, 6, and 8 roding woodcocks. In 2015, there were 2.2 times more juvenile birds than adults in the bag and in 2016, the number of juvenile birds was also one third greater. In 2015, the average weight was 289 g for adult birds and 306 g for juveniles, and in 2016, it was 275 g and 247 g, respectively.

In the 2015 season in the Galich district of the Kostroma region, 4.0 birds were in general observed at dusk and 0.75 birds were shot, which is 19 % of the total number of registered roding woodcocks. The maximum number was on 25 April (hunters observed an average of 7 woodcocks). The data on roding and woodcock hunting results over a number of consecutive years in Pereslavsky district of the Yaroslavl region (Table 3) are of exceptional interest. The average number of woodcocks observed per dawn differs by 75 % and that of birds shot – 6 times. It should be noted that the hunting bags differ substantially from year to year. The minimum results registered in 2009 were due to a minimal number of hunting trips where the hunting period did not coincide with the peak of migration. Nevertheless, the final figures for the whole period do not differ much from, for example, those of "Moscow Hunting and Fishing Society" game husbandries, although the sporting load is significantly lower in this area and it would seem that the number of roding woodcocks should be considerably higher. If the average number of bagged woodcocks is higher, it must be noticed that this indicator is largely determined by hunting skills.

Conclusion

Information on woodcock numbers and reproduction success obtained from local sources were quite close to those obtained from the survey carried out with hunters in the Moscow region. We believe it can be used to assess the Woodcock conservation status in European Russia.

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2016 European Russia Common Snipe report

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In 2016, the cooperation between the Russian Society for Conservation and Studies of Birds and *Office national de la chasse et de la faune sauvage* (ONCFS) concerning the monitoring of Common Snipe (*Gallinago gallinago*) populations in European Russia has been continued. In April–July 2016, the census of "drumming" males of Snipe was made at the same control sites and with the same protocol as in 2012 (Blokhin 2012). It was carried out in 12 Provinces/Republics of the Russian Federation. Finally, 131 plots were visited for a total area of 97.82 km^2.

Weather conditions of the 2016 season

North region (South tundra and forest-tundra)
Winter was very snowy and spring was early and short. Snow appeared early, in mid-May. The flood of rivers was early and low. Summer was dry and hot, so many ponds and bogs dried out.

North region (North taiga)
Spring was unusually warm and early. The temperatures in April, May and June were higher than average. Snow melt was unusually early, therefore the flood of rivers was early. The water level was lower on the average at bogs, outside of floodplains. Rains were rare.

North region (Middle taiga)
Snow melt was as usual in mid-April. In April, precipitation was frequent (twice as usual). May was cool and dry, but June was rainy again.

North-West region (South taiga)
A cold spring came after a warm winter with little snow. There were no high floods, but the water level was higher in rivers, in comparison with the previous year. Rains were rare.

Central region (South taiga)
In March, thaws alternated with snowfalls. At the beginning of the second decade of April, snow was completely melted, ice was broken up on lakes and the peak of flood was registered. In May, a lot of water was observed in floodplains, firstly as a result of river flood, and in the third decade of May as a result of rains. It became sharply cold in early June.

Central region (Mixed coniferous-deciduous forest)
Spring was early and dry, after a warm winter with little snow. Snow came off early. River floods did not occur everywhere, and were earlier than usual. There was little precipitation in April.

Central region (Deciduous forest)
Little snow appeared in winter and no spring flood was observed. It was very dry in floodplains. In April, precipitation was rare. Rains began only in the second half of May which increased soil moisture.

Volgo-Vyatsky region (Mixed coniferous-deciduous forest)
Spring was colder than the previous year. In the first half of May it was cool, rains were frequent, but then it became warmer. In different parts of the region, flood was heterogeneous. Generally, the breeding conditions were favourable.

Volga region (Deciduous forest)
Spring was dry, and the Snipe habitats were slightly wet. Rains in April were infrequent, but high levels of precipitation were observed in mid-May. The soil was dampened and in many bog areas there was a lot of water.

Central Black Earth region (Deciduous forest and forest-steppe)
Winter was warm and moderately snowy, and spring was early. In March, ice broke up on rivers. The flood was low and earlier than usual.

Results

South tundra
In the Pechora basin in the north-east of Bolshezemelskaya tundra (Komi Republic) in watersheds, Snipe was observed in flat-hilly bogs with willow bushes (7.8 ± 1.9 pairs/km^2) and open fens in flood-lands (3.3).

Forest-tundra
In the Pechora basin in the south-east of Bolshezemelskaya tundra (Komi Republic) in watershed big-hilly bogs, Snipe was rarer (5.8 ± 2.9 pairs/km^2) than in valleys and river flood-lands (4.4).

In 2016, the number of Snipe in flat-hilly bogs in south tundra and floodplains of south tundra and forest-tundra was slightly higher than in 2015. In large-hilly bogs of forest-tundra (the basins of rivers Pechora and Usa) the Snipe numbers were high but lower than in the previous year. These differences were probably the result of the early and dry spring and the absence of prolonged flooding of floodplain habitats in the past season (Figure 1).

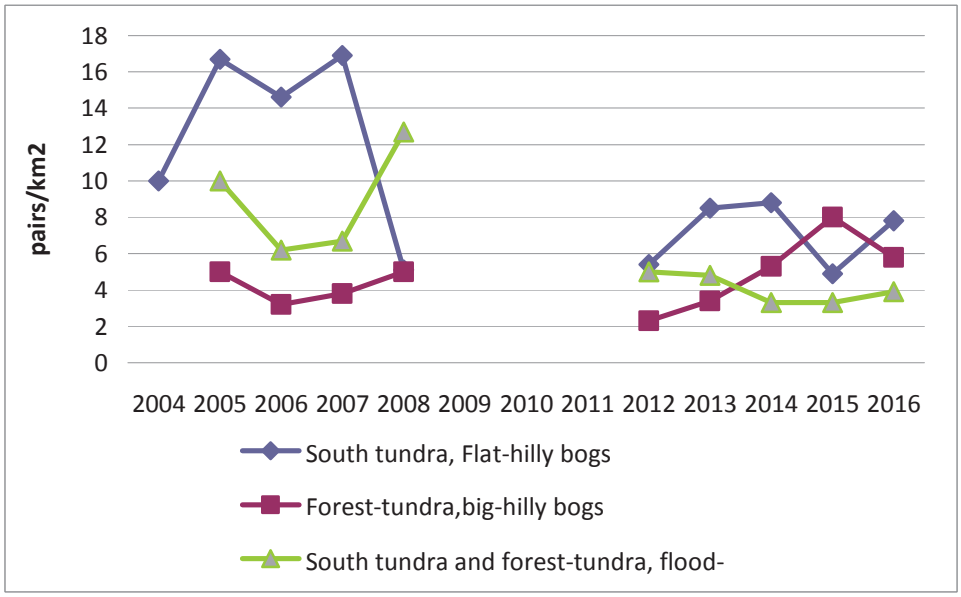


Figure 1. *Common Snipe breeding density in swampy habitats of south tundra and forest-tundra (Pechora basin).*

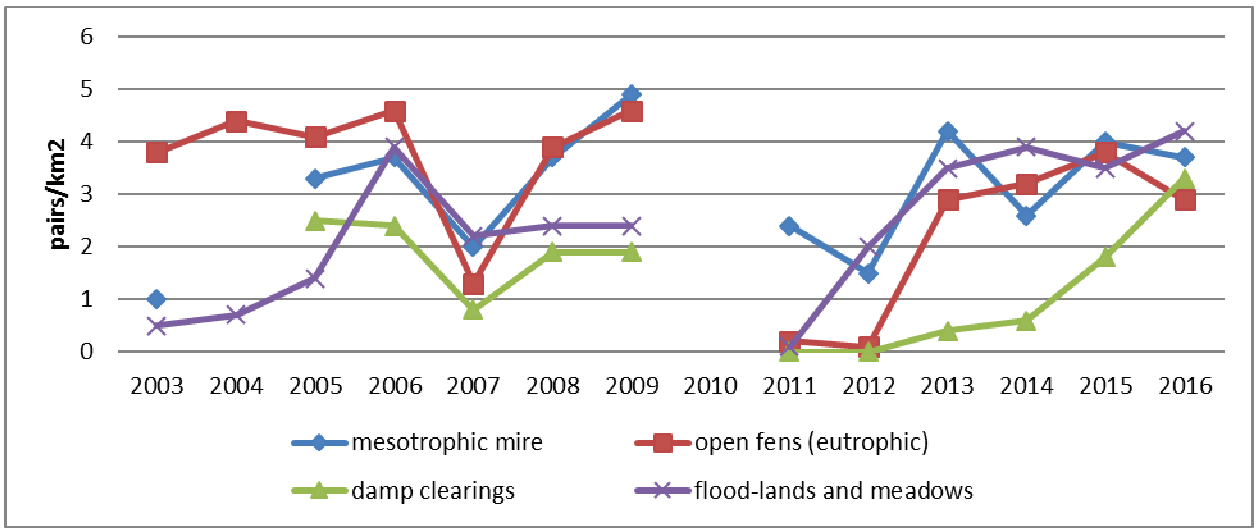


Figure 2. *Common Snipe breeding density in swampy habitats of north taiga (Severnaya Dvina basin).*

North taiga

In the Severnaya Dvina basin (Arkhangelsk province) Snipes were observed in very low numbers in mires (0.4 ± 0.3 pairs/km^2). More snipes were observed in other types of habitats: 2.9 ± 0.3 pairs/km^2 in fens, 3,3 pairs/km^2 in damp clearings, 4.1 ± 0.8 pairs/km^2 in mesotrophic bogs, and 4.2 ± 0.9 pairs/km^2 in floodplains, damp meadows and meadows in combination with fens. A very high Snipe density was registered at new sites in the Kuloy river floodplain, where it reached 16.9 ± 5.7 pairs/km^2 in damp meadows in combination with fens.

In 2016, the Snipe numbers (Severnaya Dvina basin, Pokshenga river) in clearings and floodplain meadows were the highest for all years of observations. In mesotrophic bogs and fens, the density of birds was rather high but not maximal (Figure 2).

Middle taiga

Snipe were rare on the eastern shore of Lake Ladoga (Karlia Republic) in damp abandoned fields (1.1 ± 0.4 pairs/km^2). The density of birds was noticeably higher in forest fens (2.9 ± 0.3) and open mesotrophic mires (3.0 ± 2.1). The highest density of Snipe was found in damp abandoned fields in the floodplain (6.0).

In comparison with 2015, the 2016 Snipe density (Lake Ladoga basin) remained at the same level in mesotrophic bogs and also on damp spots (farmlands and places near roads around villages) and slightly decreased in forest fens (Figure 3).

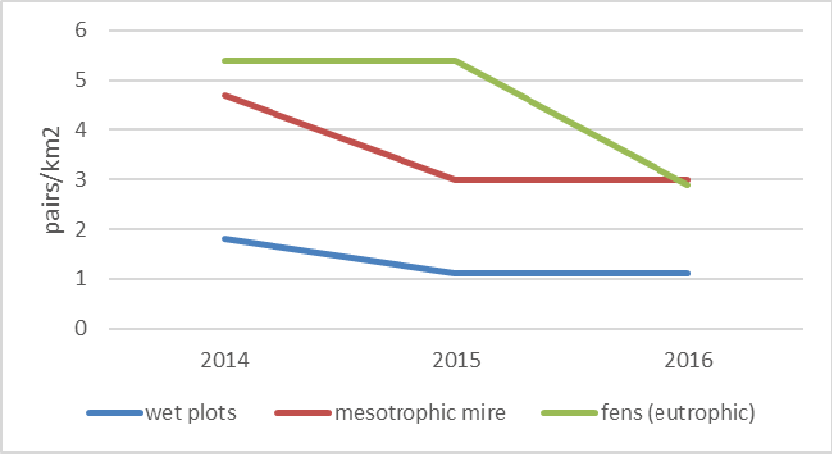


Figure 3. *Common Snipe breeding density in swampy habitats of middle taiga (Lake Ladoga basin).*

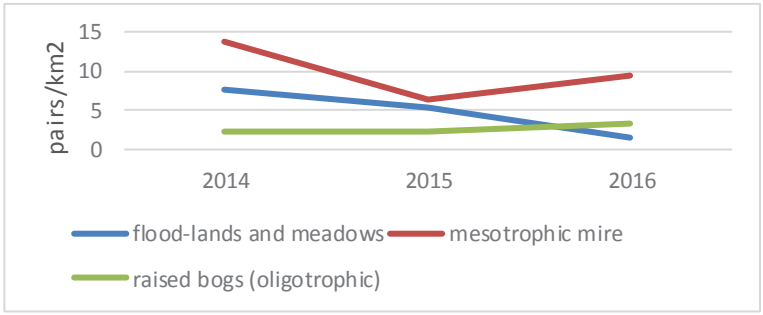
South taiga

In Pskov-Chudskaya lowland (Pskov province), the highest Snipe density was registered in mesotrophic mires (7.3 ± 1.5 pairs/km^2). It was substantially lower in mires (3.1) and floodplain fens (1.5).

In the Zapadnaya Dvina basin (Smolensk province), most snipes were observed in areas where mires had been burnt out (8.3). In other habitats, the Snipe numbers were high in floodplains on grass and tussock meadows (6.4 ± 2.5 pairs/km^2), in damp hollows near uninhabited villages, and on damp spots in farmlands (6.0 ± 0.5 pairs/km^2), and also in mesotrophic mires (3.5 ± 2.5 pairs/km^2).

The highest Snipe numbers of the 2016 season were registered in the Upper Volga basin (Ivanovo province) in a lowland reed-cattail floodplain bog (70.8 pairs/km^2). The density of birds was also very high in a mesotrophic mire outside of the floodplain (25.0). In damp floodplain meadows, the Snipe density amounted to 22.0 ± 4.3 pairs/km^2 and 12.0 ± 3.0 pairs/km^2 on burnt places. The Snipe density was 13.3 pairs/km^2 in peat quarries completely covered with quagmire. At mires with separate undersized pines, territorial males gathered closer to mesotrophic edges of bogs and their density was estimated to 11.2 ± 3.4 pairs/km^2.

In south taiga in Pskov-Chudskaya lowland, the Snipe density was the highest for the last 3 years in mires and the lowest in floodplain fens (Figure 4A). In the Zapadnaya Dvina basin (Yelsha river) the numbers of breeding Snipe males increased in 2016 in comparison with the previous year, almost in all habitats except in damp depressions near uninhabited villages and on damp spots in farmlands, where it decreased (Figure 4B). In the Upper Volga basin, the Snipe density increased in all habitats in comparison with 2015, and was the highest of the last 5 years of observations in floodplain meadows, fens, and on burnt places in mires (Figure 4B).



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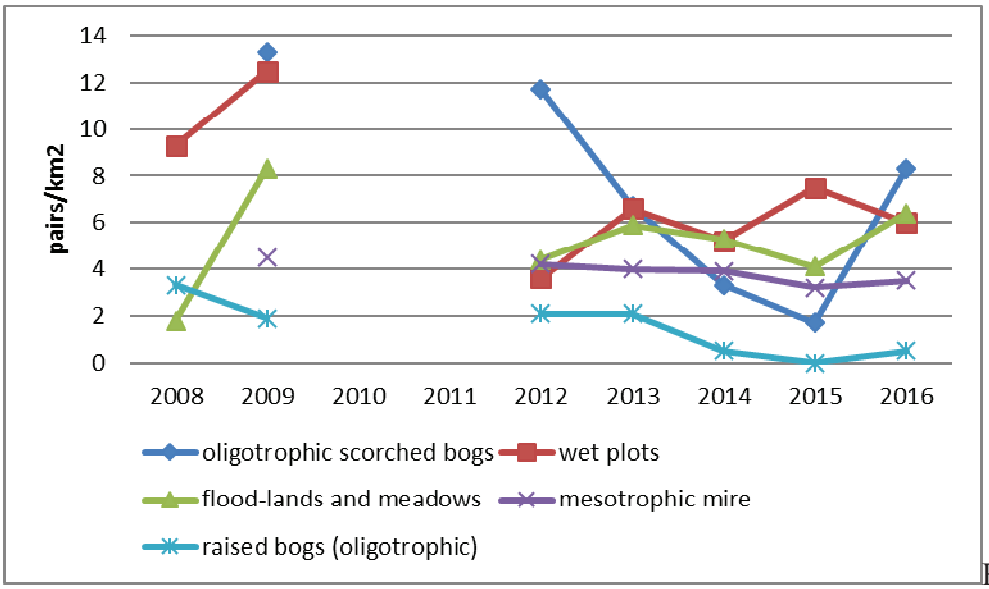

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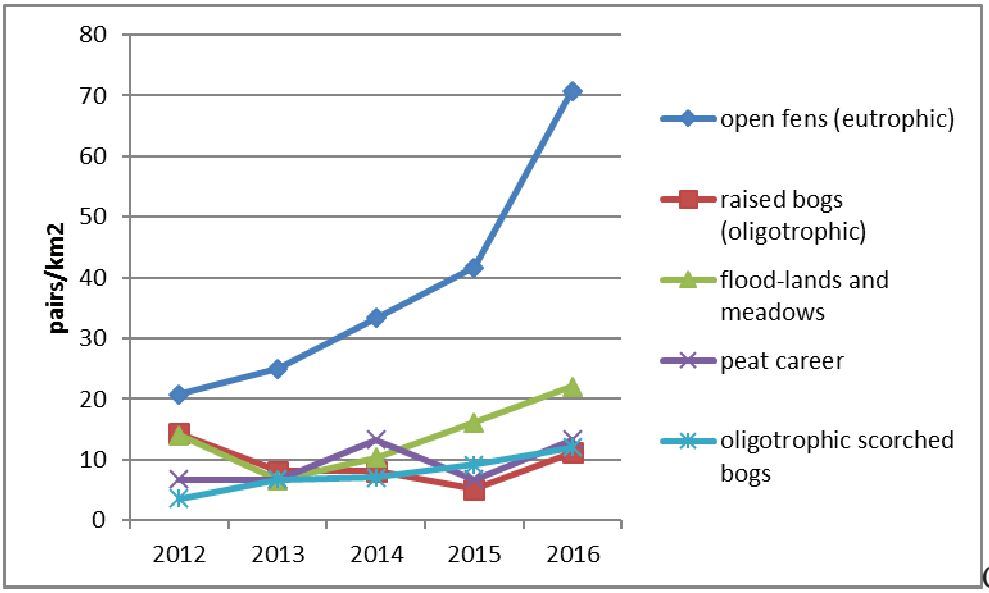

C

***Figure 4 A, B, C**. Common Snipe breeding density in swampy habitats of south taiga (A - Pskov-Chudskaya lowland; B - Zapadnaya Dvina basin; C - upper Volga basin).*

Coniferous-deciduous forest
In the Upper Volga basin (Vladimir and Ryazan provinces, Moscow Region) the highest density of Snipe was registered in damp meadows alternating with fens on non-flooded areas of the floodplain (11.0 pairs/km^2) and also in drain depressions in farmlands (8.3 ± 3.5) and in mesotrophic bogs (6.5). The Snipe numbers were lower in areas of the floodplain where water meadows alternate with sedge fen bogs and temporary reservoirs (6.0 ± 1.4) and in bogged floodplain woods (2.4 ± 0.3). Lower numbers of Snipe nested in watersheds on meadow areas adjoining bogged depressions (3.3 ± 2.4) and in bogged woods (0.4 ± 0.3).

During the dry 2016 breeding season, the Snipe numbers in watersheds (Basins of Volga, Taldom eminence) and non-flooded areas (Volga basin, Dubna river) were estimated as average to high, respectively. They decreased in mesotrophic bogs and bogged woods. In floodplains (Volga basin, Klyazma river, Oka river) the Snipe density was also low (Figure 5).
In the middle Volga basin (Mordovia Republic, Penza province) most of the Snipes bred in peateries (5.7 pairs/km^2). The Snipe numbers were estimated to 10.7 ± 3.2 pairs/km² in river valleys in lowland open and forest fens, 4.4 in mesotrophic mires , 3.3 in raised bogs, and 2.9 ± 2.0 in floodplain meadows.

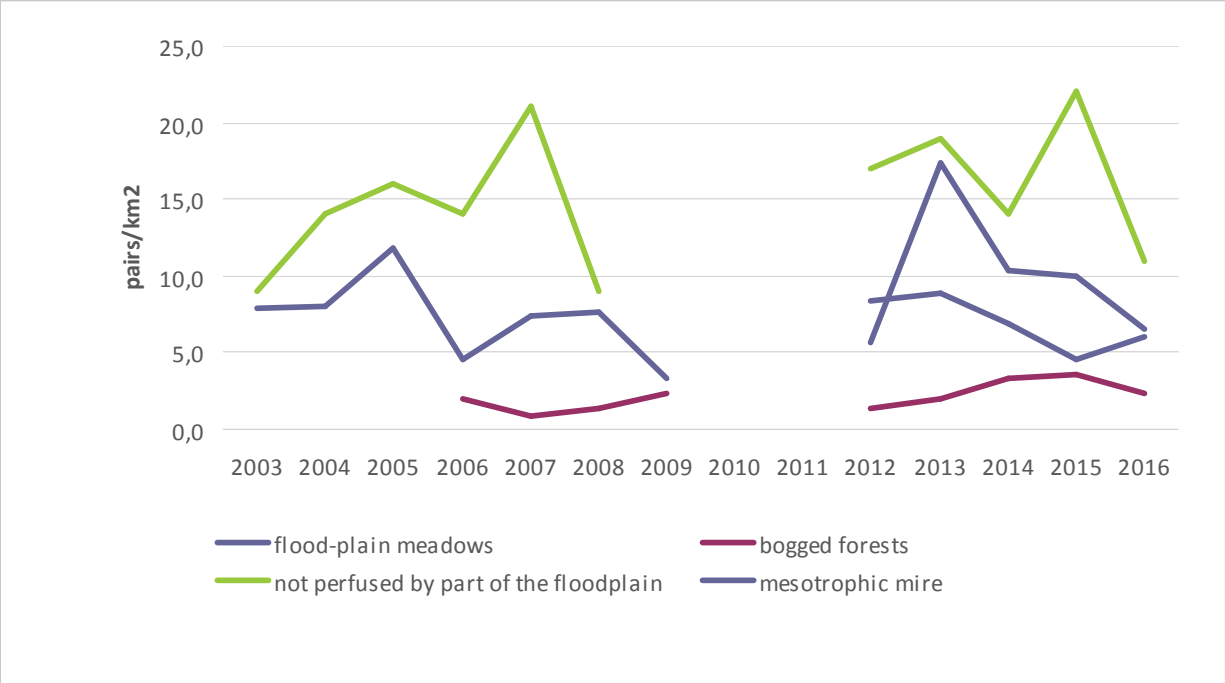

Figure 5. *Common Snipe breeding density in swampy habitats of coniferous-deciduous forest* (*upper Volga basin).*

Deciduous forest
2.1 pairs/km^2 were observed in areas of open sedge fens in combination with hydromorphic meadows, river floodlands of the upper Volga (Moscow Region). In similar habitats in floodlands of the middle Volga basin (Penza province), the Snipe density was 2.9 ± 1.5 pairs/km^2. In the middle Volga basin in watershed forest fens, the Snipe density amounted to 3.2 ± 1.2 pairs/km^2.
In floodlands of the Dnepr basin (Kursk province) the Snipe density in damp meadows in combination with open fens was 4.4 pairs/km^2.

In the dry 2016 season, the Snipe density in the deciduous forest subzone was low in river floodplains (basins of the Upper and middle Volga and Dnepr), although higher than in 2015 (Figure 6A). The Snipe numbers decreased in forest bogs in watersheds. No Snipe was found on water treatment facilities (Figure 6B).

Forest-steppe
In flood lands of the Dnepr basin (Kursk province) the Snipe density amounted to 1.3 pairs/km^2 in damp meadows in combination with open fens and to 2.0 pairs/km^2 in open fens.

In comparison with the last 5 years, the 2016 Snipe density was the lowest in fen bogs of artificial origin (former peateries and fish ponds). In floodplain meadows it was as low as in 2015 (Figure 7).

Figure 6. *Common Snipe breeding density in swampy habitats of deciduous forest (A - flood-lands upper Volga and middle Volga basin; B - middle Volga basin).*

Conclusion

According to the monitoring in different geographic areas, the breeding Snipe numbers were higher in 2016 compared with 2015 in south tundra (in various habitat types, Snipe densities ranged from 3.3 to 7.8 pairs/km^2) and south taiga (0.5 - 70.8). Snipe abundance was lower than in 2015 in forest-tundra (4.4 -5.8), middle taiga (1.1 - 6.0), coniferous-deciduous forests (0.4 -11.0) and forest-steppe (1.3 - 2.0).

The Snipe numbers were probably at the same level as the last year in north taiga (2.9 – 4.2), but with opposite trends according to habitats, and in deciduous forests (2.1 - 4.4).

The breeding Snipe density was higher than in 2015 in flat-hilly bogs, raised bogs, and in river flood plains, and lower in big-hilly bogs and open fens (except south taiga). The breeding Snipe density was the highest in flood land open

fens in south taiga (70.8) and the lowest in bogged woods in the coniferous-deciduous forest subzone (0.4).
Thus, for a significant part of the study area, the 2016 breeding season was not very successful for Snipe. The reasons were the drying up of many habitats in high and southern latitudes and flooding of habitats in the middle latitudes of European Russia.

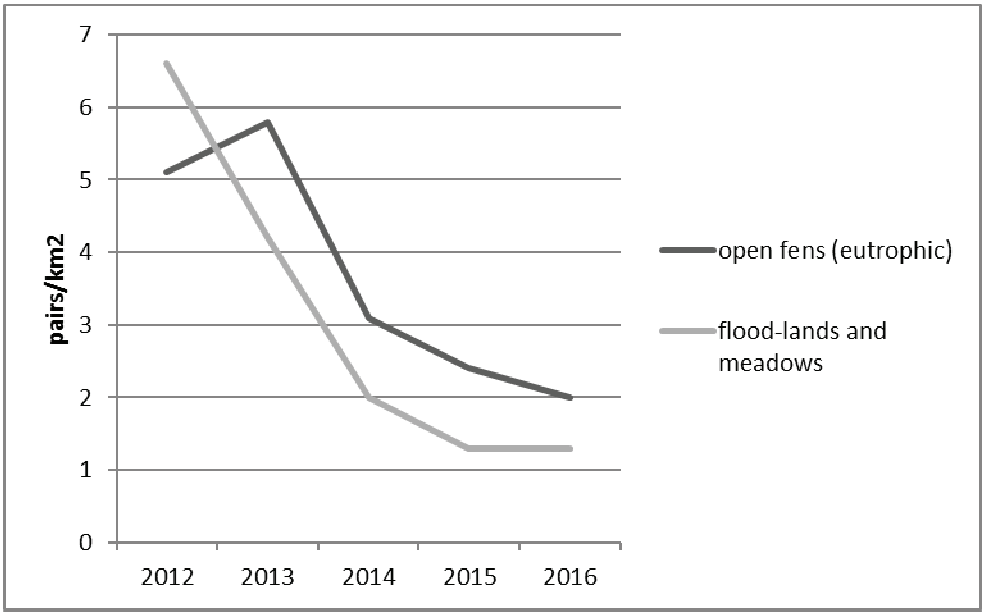

Figure 7. *Common Snipe breeding density in swampy habitats of forest-steppe (Dnepr basin).*

Acknowledgments

We thank the project coordinator in France, and all the participants in the census: Dr. S. Yu. Fokin, Prof. A.V. Artem'iev, Dr. S.V. Korkina, M. V. Kozlova, Dr. V. N. Mel'nikov, Dr. A.L. Mischenko, V. V. Morozov, Yu. M. Romanov, A.M. Rikov, Dr. O. V. Sukhanova, Dr. M.V. Sidenko, Dr. S.N. Spiridonov, Dr. T.V. Sviridova, S.V. Jerdeva, and S.N. Andreev, Dr. D.E. Chudnenko, D.V. Chasov, V.V. Dmitriev, A.A. Esergepov, E.A. Hudyakova, I.I. Loginov, A. P. Mezhnev, L.A. Plusnina, V.M. Safronov, Dr. S.A. Simonov, G. P. Shmeleva, O.A. Zubkova who have worked on the implementation of the Snipe project in the regions.

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2015-2016 French Woodcock Report

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From a meteorological point of view, the 2015/16 season was very mild. One short cold period was registered in the second decade of November. Temperatures in December were largely above the average anywhere in Europe and in January, low temperatures were observed in Northern and Eastern Europe except in France. Consequently, a large proportion of woodcock probably stopped their migration in October and November in more northern sites than usual. In summary, weather conditions in the 2015/16 winter were very favourable for woodcock.

Ringing results

Quantitative ringing results

In total, 5 870 woodcocks were ringed during the 2015/16 season and 462 retrapped. The number of ringed woodcock is slightly higher than in 2014/15 but the geographical distribution is similar. During the 2 776 ringing trips carried out by French ringers, 23 909 woodcock were found. The success rate rose to 26.5 %.
The number of ringed birds was high in November, December, and January. These three months represented 73 % of the total (1 499, 1 544 and 1 257 resp.) After this period, numbers collapsed in February and March (782 and 713, resp.).

Proportion of juveniles

The proportion of juveniles among ringed birds was 56.2 %. As in 2014/15, this value is low. Again, we suppose that the weather conditions could explain this result. Indeed, juveniles could have shortened their migration route and wintered in larger numbers upstream of the usual wintering regions. As the weather conditions during the breeding period in Russia were rather favourable for woodcock, we cannot suspect a juvenile deficit.

<u>2013-2014 ringing season in numbers</u>

N. *départements*:	88
N. ringing sites:	1 450
N. ringers:	356
N. nocturnal trips (hours):	2 776 (5 425)
N. contacts:	23 909
N. ringed woodcocks:	5 870
Success rate:	26.5 %
N. direct retraps:	158
N. indirect retraps:	304
N. direct recoveries:	241
N. indirect recoveries:	520
Annual direct recovery rate:	4.1 %

Monitoring of abundance during the migratory and wintering period

Two indices allow the monitoring of woodcock migratory and wintering numbers in France: the mean number of contacts/hour (IAN) registered during ringing trips and a hunting index [ICA: number of seen woodcocks / standardized hunting trip (duration = 3.5 hours)] collected by the *Club national des bécassiers.*

In 2015/16, IAN was 4.37 (Figure 1). This value is the highest ever registered and very close to that of the 2009/10 season. ICA estimated from a sample of about 1 200 hunters amounted to 1.59 which is below the values of the last four seasons. The difference between the two indices could be explained by the data collection methods. Ringers can choose the sites where the density is the highest, then hunters are obliged to look for woodcocks in the territories they have rented, whatever the density of birds. This bias, well known from the beginning of the monitoring, could have been more important this season because of the geographical distribution linked to weather conditions. From this report, we are planning to build a unique index from IAN and ICA to provide a more reliable index of abundance. However, the results collected from 1996/97 show that the Woodcock population wintering in France has a good conservation status.

As in the last 13 seasons, a monitoring "in real time" was carried out in the course of the 2015/16 season.

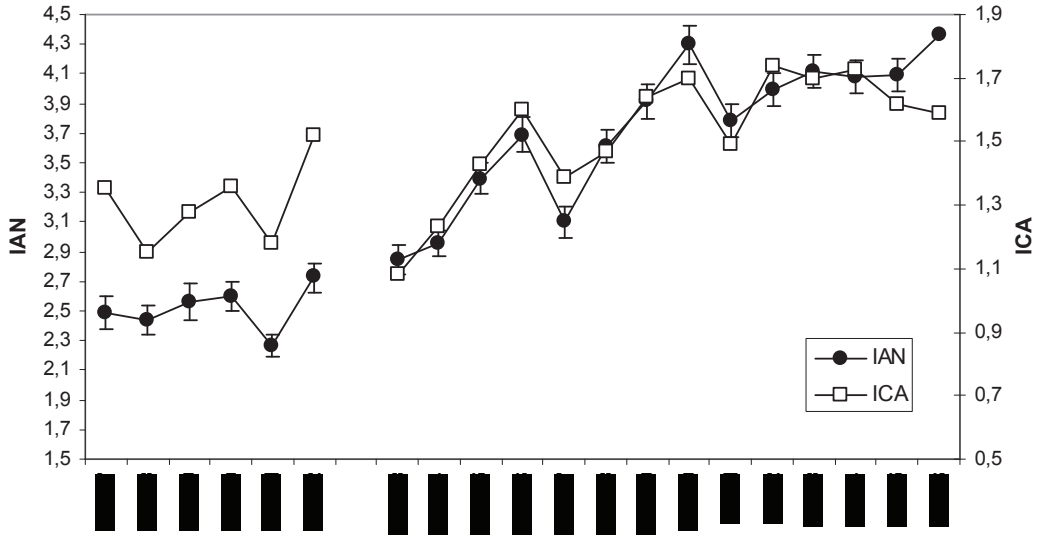

Figure 1. *Annual fluctuations of the number of contacts/h during ringing trips (IAN: nocturnal index of abundance) and hunting trips (ICA: hunting index of abundance; Source:* Club national des bécassiers*). The data were divided into two periods due to a change in the method of calculation of IAN in 2002/03(see Newsletter 34).*

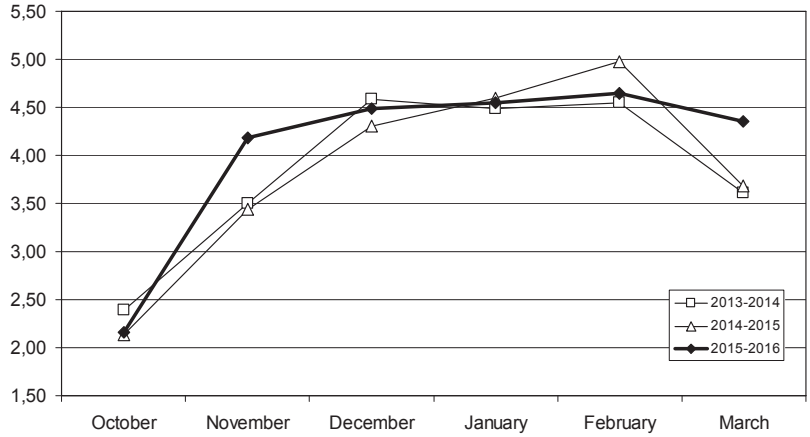

Figure 2. *Monthly fluctuations of IAN in 2013/14, 2014/15 and 2015/16.*

Roding results

The sampling design for roding censuses was revised in 2013 and spring 2016 was the third season under this new design aimed at optimizing the sampling effort while maintaining a good accuracy and taking into account ecological variables. The listening points are now chosen at random in 7 "large ecological regions" (GRECO) defined mainly on the basis of forest habitats. These GRECOs are themselves divided into classes of 1:50 000 maps. The number of randomly chosen points on every map is selected on the basis of historical data to weight the sample, but the reduction at a national level is about 30 %. Finally, the listening points are allocated to a French *département*.
In total, 600 listening points were selected at random for the spring 2016 census and 544 (90.1 %) were visited (Figure 3). The proportion of positive points (observation of at least one roding woodcock) leads us to estimate the probability of woodcock presence at a national level. In 2016, it is 17 % (CI: 14-19 %).
This value is similar to those registered since 2013 (Figure 4). In the same way, we estimate the proportion of high abundance points (≥ 5 roding woodcocks) beyond the positive points at 27 % (CI: 18-36 %) which is similar to the four previous years.

From data collected from 2013 to 2016 we are able to present the roding woodcock distribution in France during this period (Figure 5). Clearly, the large forests of the Centre of France and the mountainous regions are the main Woodcock breeding areas in our country.

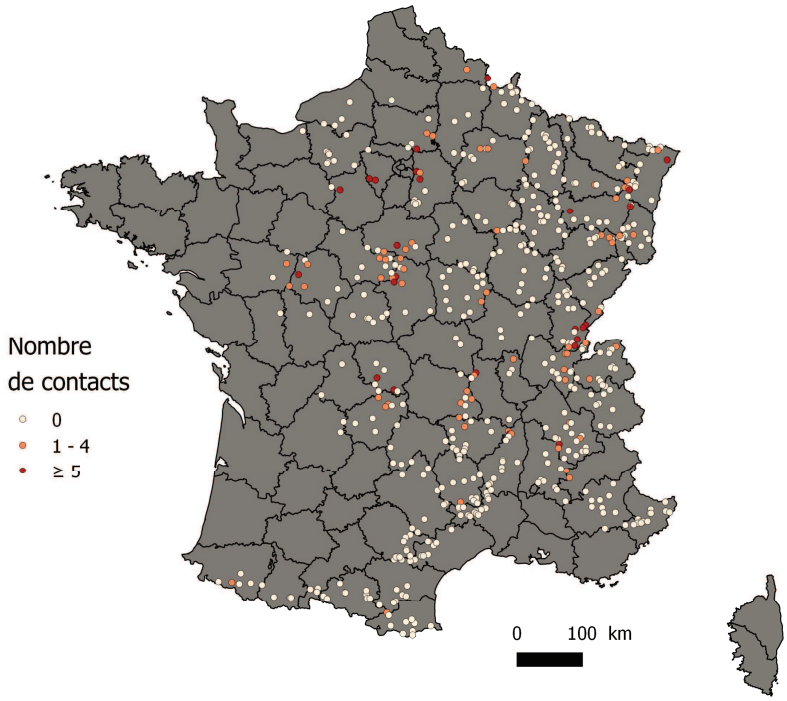

Figure 3. *Location of randomly chosen listening points for the 2016 roding census in France and number of contacts registered.*

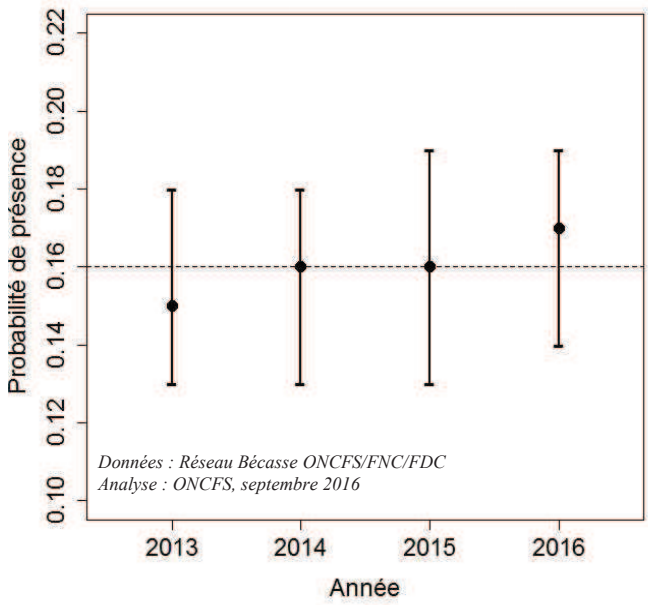

Figure 4. *Probability of presence of roding woodcocks (Proportion of positive points) since 2013.*

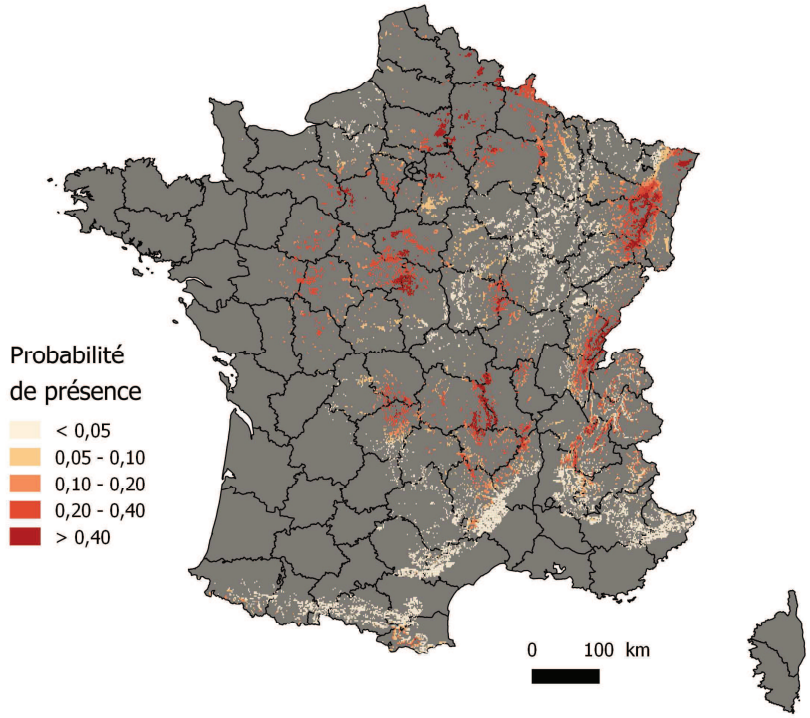

Figure 5. *Probability of presence predicted for the 2013-2016 period. Every point corresponds to a predicted value of the probability of presence. Uncertainty can be estimated but is not presented on the map; it can be high in the low sampled areas (till ± 0.25)*

Argos program

A Woodcock Argos program started in France in 2015. Twelve birds were fitted in February 2015 and twelve in March 2016 with 9.5 g Solar PTT tags. Three capture sites were defined: one in Brittany, one in Landes (South-West) and one in Ardèche (South-East) corresponding to 3 different types of habitats. Every bird equipped in 2016 was tracked during its prenuptial migration and all of them reached their breeding site before the 1st of May. Four birds equipped in 2015 were followed again during their prenuptial migration. Among these 16 birds, 10 reached European Russia and the other 6 bred in Germany , Poland, Ukraine, Belarus, Estonia, and Finland. Details are available at http://www.becassesmigration.fr/

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This report is the result of an important field work carried out by members of the ONCFS/FNC Woodcock network. We thank all of them: professionals of ONCFS, *Fédérations départementales des chasseurs* and volunteers. We also thank the *Club national des bécassiers* for allowing us to use the data collected by Club members.

2015-2016 French Snipe Report

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Ringing results

The French Snipe ONCFS/FNC network gathers about 130 active snipe ringers spread over the major part of French *départements* where snipe can be observed in migration and wintering. During the 2015/16 season, 1 963 snipes were caught by the network: 1 479 common snipes (*Gallinago gallinago)* and 484 jack snipes (*Lymnocryptes minimus*).
In total, 130 recoveries (from hunting) were registered: 96 common snipes and 34 jack snipes. In detail, 74 common snipe recoveries came from France, 6 from Poland, 4 from Belarus, 4 from Germany, 3 from Finland and 5 from other countries [Spain (1), Latvia (1), The Netherlands (1), Belgium (1), and Great-Britain (1)]. Likewise, 33 jack snipe recoveries came from France and 1 from Poland. Moreover, 1 jack snipe ringed in France was recovered in Portugal and 1 common snipe in Great-Britain.

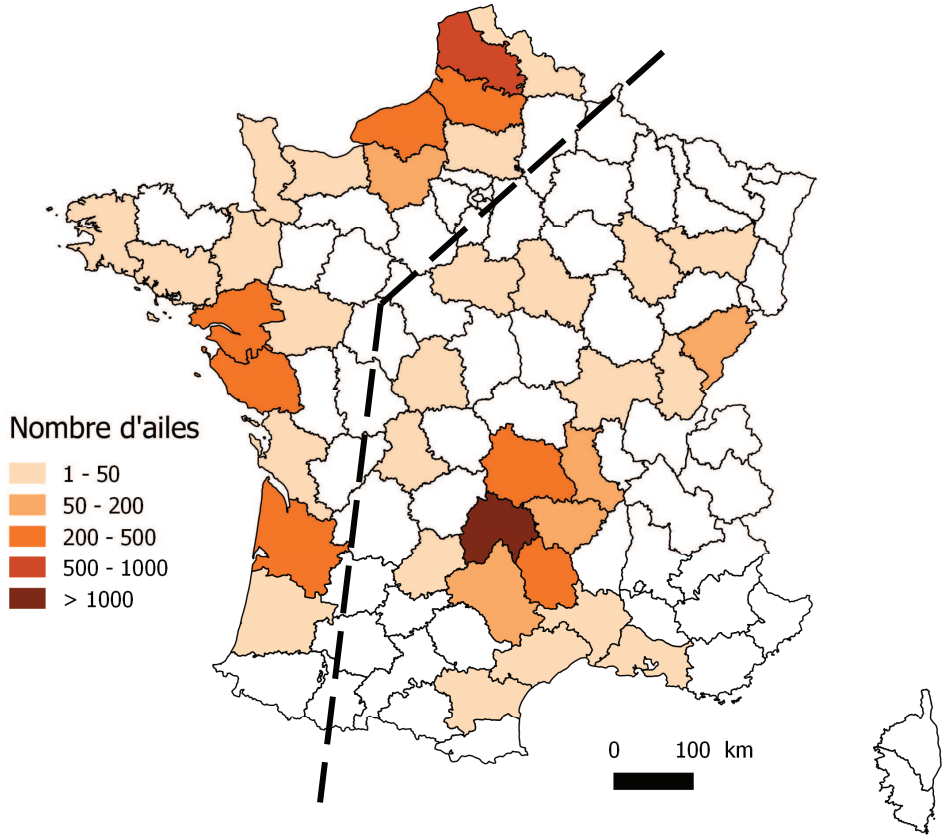

Figure 1. *Geographical distribution of numbers of common snipe whose plumage was collected in 2015/16 and limit between the two sub-samples corresponding to a distinct migratory flyway.*

Plumage collection

As in the previous years, an analysis of common snipe and jack snipe plumages (wing and/or tail feathers) collected during the 2015/16 hunting season, was carried out.
In total, the plumages of 5 121 common snipes and 1 312 jack snipes were gathered mainly by the CICB (International Club of Snipe Hunters) members and by the *Fédérations départementales des chasseurs* of *Aveyron*, *Cantal*, *Gironde, Haute-Loire, Indre, Lozère* and *Puy-de-Dôme*. This collection is in the average for common snipe. However, for the jack snipe it is the best of the last 12 seasons. This suggests that the jack snipe breeding success was excellent in spring 2015 probably in relation with good weather conditions in the Russian subarctic area. Conversely, the weather conditions in Scandinavia and Eastern Europe were bad for waders (cold and dry) which could have impacted the breeding success of common snipe.

Common Snipe

Geographical distribution of analyzed plumage

The plumages were collected in 38 French *départements*. As in the past, the total sample was divided in two parts (Figure 1): one corresponding to the Fennoscandian flyway (n = 2 741), the other to the Continental flyway (n = 2 380).

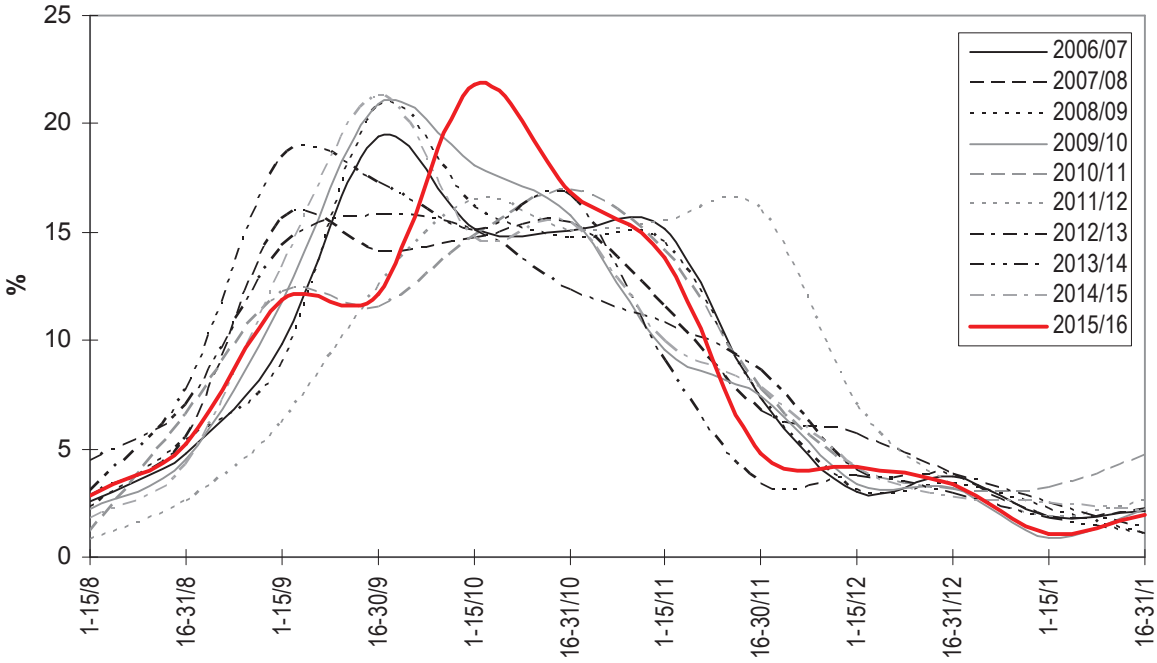

Figure 2. *Intra-annual variations of the proportion of common snipe plumages collected from 2006/07 to 2015/16.*

Temporal distribution of analyzed plumage

Under the same assumption as in the previous reports (i.e. the number of collected plumages is positively correlated with real numbers), the post-nuptial migration was characterised by a marked peak of abundance in the first half of October (Figure 2). The postnuptial migration seemed to take place in a well-balanced way on each side of the peak. However, a rapid decrease was observed in the second half of November, after which the level remained low.

This migration pattern occurred both in Fennoscandian and Continental flyways. However, the decrease in the second half of November was more pronounced in the Continental flyway than in the Fennoscandian one for which the numbers steadily decreased till the end of the season. Consequently, the migration period was concentrated on one month and a half in the Continental flyway, then it spread over more than 2 months in the Fennoscandian one.

The weather conditions probably played a role in these migration patterns. In October, temperatures were rather cold from Central Europe to France which contributed to push the birds to our country. After this period, temperatures were extremely warm during two months and the birds were not encouraged to move to the West, especially those of the Continental flyway.

Proportion of juveniles

In total, 5 113 plumages were separated in 2 age classes: juvenile and adult. The proportion of juveniles among them was 61.6 % (age-ratio = 1.6). Without the data collected in August for which almost 100 % of birds were juveniles, this proportion was 58.8 %. These values are under the average of the last 10 years (69.5 % and 67.5 %, resp; Figure 3).
Juveniles represented 62.6 % of birds in the Fennoscandian flyway (n = 2 733) and 60.4% in the Continental flyway (n = 2 380). The difference is significant both with and without August data (Fisher exact test; p = 0.006 and p = 0.002, resp.). This result showed that the breeding success was probably better for the Fennoscandian part of the breeding area than for the Central Europe and Russia breeding area.

In the Fennoscandian flyway, the migration followed a usual pattern: predominance of juveniles in August, then a quick decrease till the end of September to reach a more or less

stable value till the end of January. For the Continental flyway, juveniles represented the major part of numbers in the second half of August but adults were proportionally more numerous than in the Fennoscandian flyway. The proportion of juveniles quickly stabilized in September and decreased only in the second half of January.

The evolution of the proportion of juveniles during the 2015/16 season showed an original pattern: the adult arrival was earlier than in the previous 9 seasons (Figure 4).

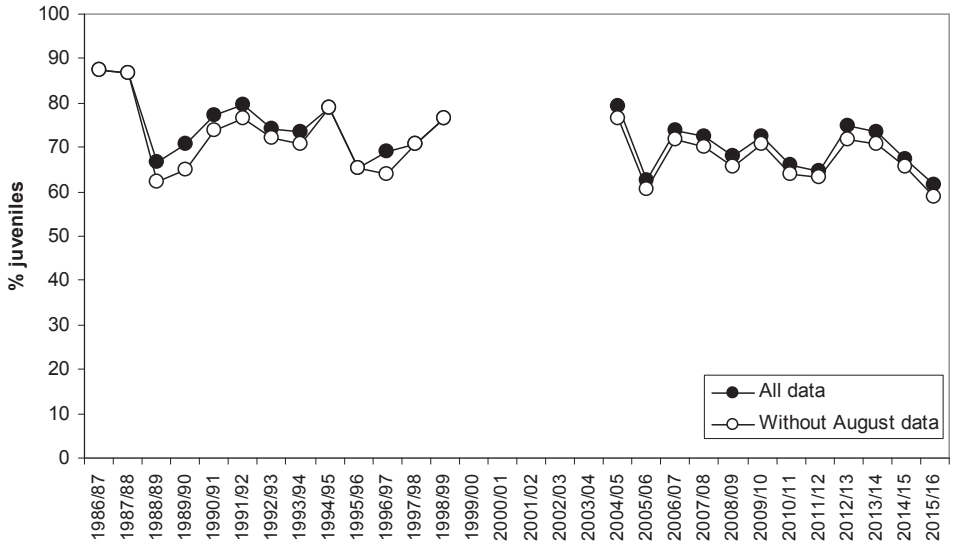

Figure 3. *Inter-annual variations of the proportion of juveniles among common snipe plumages collected in the 1986/87 - 2015/16 period for all data and for a sub-sample without August data (No collection in the 1999/00 - 2003/04 period).*

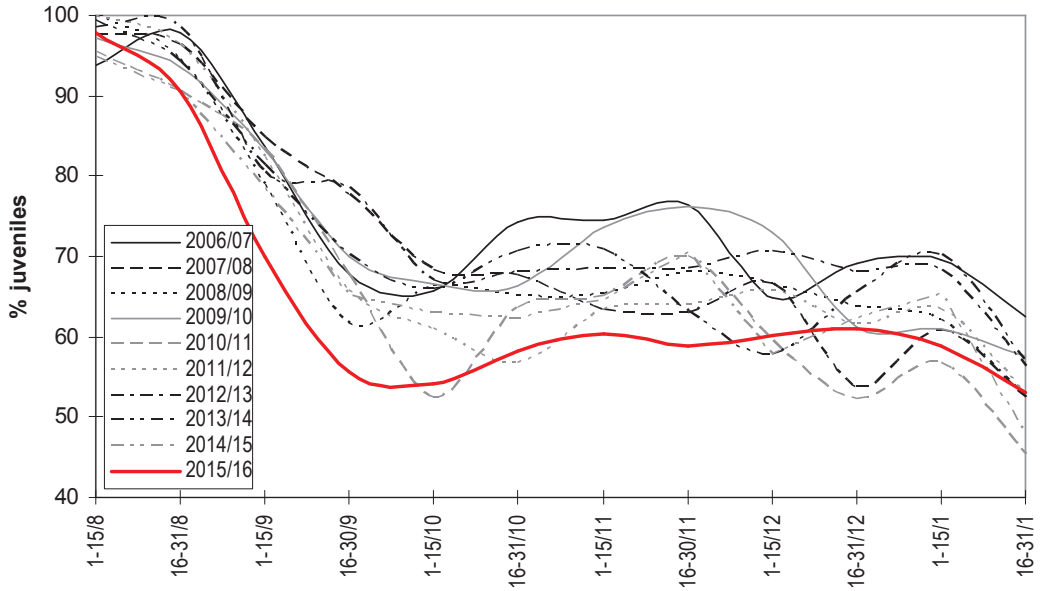

Figure 4. *Intra-annual variations of the proportion of juveniles for the common snipe from 2006/07 to 2015/16.*

Under the assumption that the analysed sample is representative of the breeding success, we can consider that spring 2015 was the worst of the last 10 years. The weather conditions in spring and summer were rather cold and dry and probably had an effect on the clutch survival and/or limited the potential breeding sites. These assumptions are strengthened by the results of common snipe monitoring in European Russia where the densities of singing males were lower than the previous years in a major part of the reference sites.

Proportion of males/females

Sex was defined for 1 641 adult birds and the proportion of males was 46.6 %. If we take into account all birds (juveniles + adults) for which sex determination was possible (n = 4 465), the proportion of males reached 46.0 %. As for the previous seasons, the deficit in males remains clear though less pronounced in 2015/16. However, a statistical difference appeared between the flyways, taking into account all birds or only adults (Fisher exact test; $p < 0.0001$). The deficit in males was higher in the Fennoscandian flyway (< 40 %) than in the Continental one (> 50 %).

Jack Snipe

Geographical distribution of analyzed plumage

In 2015/16, the jack snipe plumages were collected in 34 *départements* (Figure 5). As for every season, we defined a Coastal flyway and an Inland flyway for which the sample sizes were 1 201 and 1 004, respectively.

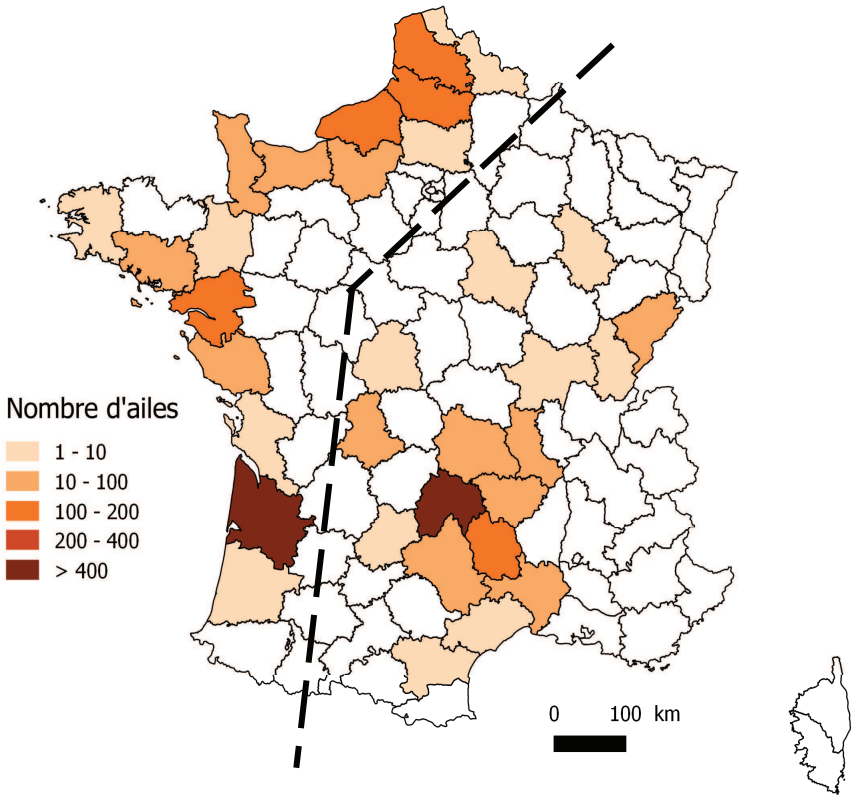

Figure 5. *Geographical distribution of numbers of jack snipe whose plumage was collected in 2015/16 and limit between the two sub-samples.*

Temporal distribution of analyzed plumage

As for common snipe, the analysis was made under the assumption that the number of plumages is positively correlated with the abundance of birds in the field. In 2015/16, a unique peak was observed from the beginning f October to mid-November. As in 2014/15, migration spread over one and a half month which is again unusual in so far as the peak of migration of jack snipe is generally narrower. After mid-November, the numbers rapidly decreased till the end of January.

The spreading of the peak at a national level seemed to be driven by the Inland flyway migration pattern. In the Coastal flyway, the first jack snipe were observed very early (beginning of September) and a clear unique peak appeared.

Again, the 2015 migration phenology recorded from the plumage collection appeared different from the classic pattern registered till 2013/14. Two features characterized it: early arrival of birds and spreading of migratory run.

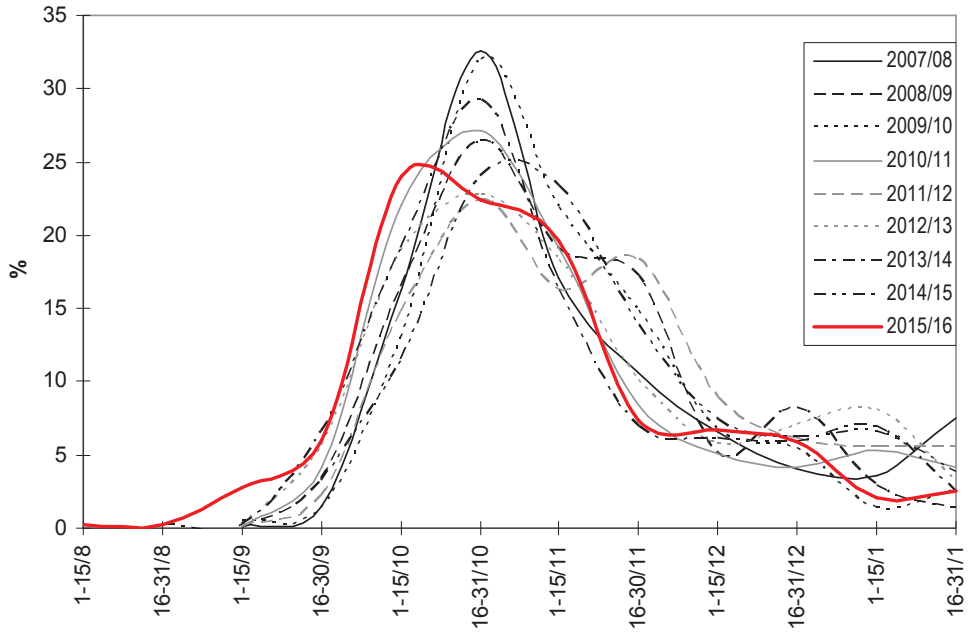

Figure 6. *Intra-annual variations of the proportion of jack snipe plumages collected from 2006/07 to 2015/16.*

Proportion of juveniles

The proportion of juveniles (estimated from examination of tail feathers) in 2015/16 rose to 62.2 % (Figure 7). This value is above the average of the last 10 years (65.3 %). This leads us to consider that the breeding success in spring 2015 was lower than in the previous years. Considering the good weather conditions in the European part of the breeding range, this result appears strange. Unless the jack snipe population breeding out of Europe makes up an important part of birds wintering in France and encountered bad weather conditions during their breeding period.

The proportion of juveniles was 59.3 % (n = 1 128) in the Coastal flyway and 65.7 % (n = 941) in the Inland flyway. The difference is statistically significant (Fisher exact test; p = 0.0017) which tends to suggest that the breeding success was different between the populations of the 2 flyways.

The temporal distribution of the proportion of juveniles in the course of the season presented no particular pattern (Figure 8). The proportion of juveniles was statically stable in the Coastal and Inland flyways (Cochran-Armitage test; p = 0.642 and 0.540, resp.).

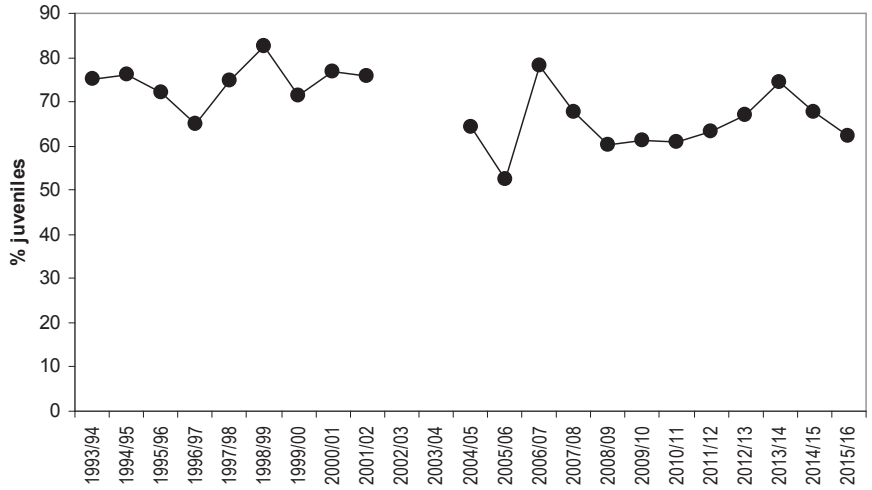

Figure 7. *Inter-annual variations of the proportion of juveniles among jack snipe plumages collected in the 1993/94 - 2015/16 period (No collection in 2002/03 and 2003/04).*

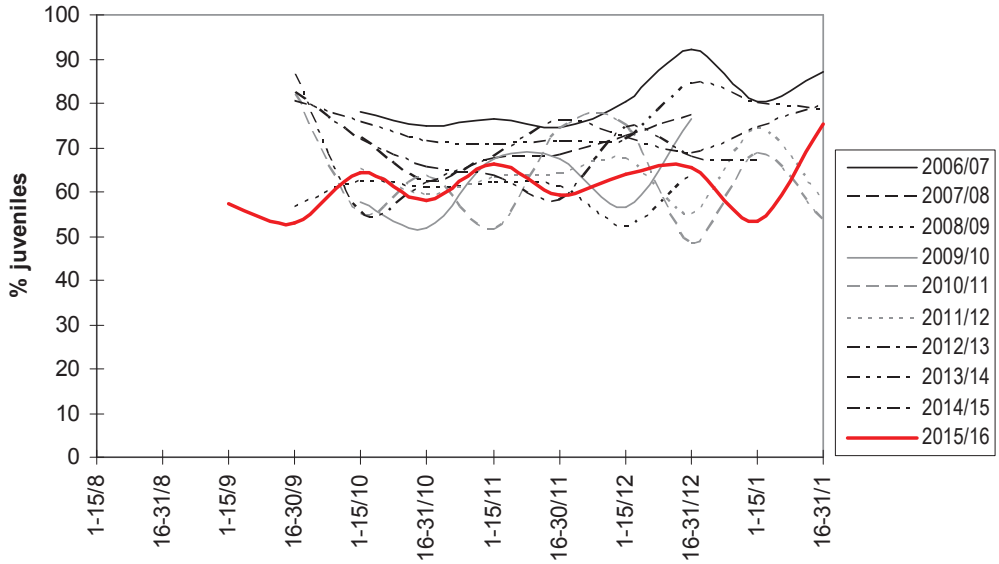

Figure 8. *Intra-annual variations of the proportion of juveniles for the jack snipe from 2006/07 to 2015/16.*

Proportion of males/females

According to criteria used in the past year (wing length < 115 mm = female; wing length > 117 mm = male; correction of 1.7 mm because of wing drying), the proportion of males in the whole sample was 40.6 %. Again, females were more numerous than males, which can be supported by 2 hypotheses: unsteadiness in the population structure or a differential distribution in relation to sex in the wintering range.

Males appeared more numerous in the Inland flyway than in the Coastal flyway (45.8 % *vs* 36.4 %) and the difference was significant (Fisher exact test; $p < 0.0001$).

Monitoring of hunting bags

This monitoring aims to define a trend in the common snipe and jack snipe populations wintering in France from hunting bags collected in reference territories. The assumption is that the hunting bags are directly

positively correlated with actual numbers. It is complementary to ringing data, the objective of which is to provide demographic parameters, such as survival rate, to feed mathematical models.

Season	*Common Snipe*	*Jack Snipe*	Total
2000/01	3 836	703	4 539
2001/02	3 594	1 194	4 788
2002/03	4 285	992	5 277
2003/04	5 384	1 460	6 844
2004/05	5 584	1 137	6 721
2005/06	5 582	1 239	6 821
2006/07	4 306	947	5 253
2007/08	4 576	793	5 369
2008/09	4 701	855	5 556
2009/10	4 591	784	5 375
2010/11	3 881	714	4 595
2011/12	4 363	938	5 301
2012/13	3 585	739	4 324
2013/14	5 217	1 493	6 710
2014/15	4 589	841	5 430
2015/16	4 618	1 495	6 113
Mean and total	**4 543,25**	**1 020,25**	**89 016**

Table 1. *Details of hunting bags per season for 24 reference sites.*

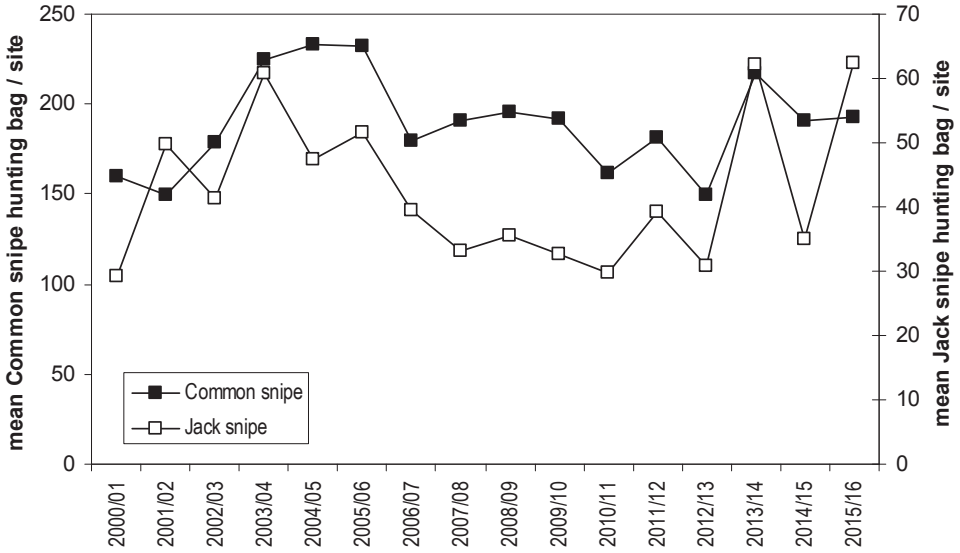

Figure 9*. Average of common snipe and jack snipe hunting bags for a reference site for the period 2000/01 - 2015/16.*

The data are collected through a network of reference territories based on the activity of the members of the *Club international des chasseurs de bécassines* (CICB).

For the 2000/01-2015/16 period, the analysis covered 24 sites. Details of annual hunting bags are shown in Table 1. The annual mean total hunting bag in the 24 sites was about 4 540 common snipe and 1 020 jack snipe.

In 2015/16, the total bags were in the average for common snipe but clearly above the average for jack snipe (Figure 9). The mean bag per site was 192 for common snipe and 62 for jack snipe (35 in 2014/15). These values are in the average of the 2000/01 – 2014/15

period for common snipe (189.1) but 20 points above the average for jack snipe (41.2). For this species, the 2013/14 and 2015/16 seasons appear to be the best of the last 15 ones. These results confirm those obtained from plumage analysis.

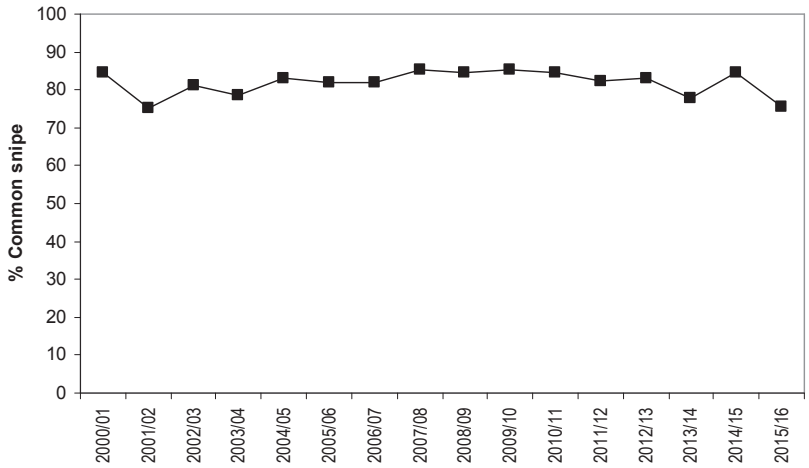

Figure 10. *Proportion of common snipe in the total snipe hunting bag (common snipe + jack snipe) collected on 26 reference sites from 2000/01 to 2015/16.*

The synchrony observed in the evolution of hunting bags observed till 2013/14 is a bit called into question because of large variations for jack snipe. After several years of a decrease trend for the two species, statistical tests now estimate that the trend is stable when including the 2015/16 season (Page test; p = 0.126 for common snipe; p = 0.472 for jack snipe). This result shows the importance of long time series to estimate a population trend and encourages the continuation of such a monitoring.
The common snipe/jack snipe ratio was slightly under the average for the 2000/01 – 2014/15 period (75.5 % *vs* 82.2 %; Figure 10) but in the range of this period (75.1 % - 85.4 %).

Conclusion

The 2015/16 snipe season was marked by jack snipe for which an early arrival and a long migratory run was observed. By contrast, this season was in the average for common snipe.
A rather bad breeding success and a very mild winter could explain a part of the common snipe situation. Indeed, the birds were not pushed by cold and probably wintered more upstream than usual. In addition, the water level was not optimal during winter in France, and especially in the South-West part. However, we can expect a good survival rate for wintering numbers which should have preserved the breeders.Another positive point is a trend to stability of wintering numbers in 2000s based on data collected on 24 territories.

All these results underline the importance of collecting data from different sources and during a time period as long as possible. This monitoring clearly appears essential to provide information on common and jack snipe migrating and wintering in France that is as reliable as possible.

Acknowledgements

This report is the result of an important field work carried out by members of CICB and by the ONCFS/FNC Snipes network. We thank all of them: volunteers, *Fédérations départementales des chasseurs* and professionals of ONCFS.

Evaluation of the 2015/16 Woodcock hunting season in France

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This report is carried out by the *Club national des bécassiers* (CNB), a French Woodcock Hunter Association. It is based on the same protocol as in the previous years.
In 2015/16, 1 361 CNB members sent information on their hunting trips and 1 230 participated in the wing collection. In total, 9 791 wings were analysed. 9 032 birds were weighed and 1 359 were sexed. The data were collected in the major part of the woodcock wintering area in France (Figure 1).

Hunting index of abundance (ICA)

The hunting index of abundance (ICA) used by CNB has been defined as the number of different woodcock seen during a hunting trip, the standardized duration of which was 3.5 hours.
In 2015/16, ICA was estimated from 36 732 hunting trips. Its national annual value is 1.59.

This value is clearly above the average registered in the 1996/97 – 2014/15 period (1.46). The monthly variations of ICA show stability from November to February (Figure 2). In 2015/16, a "mean" French woodcock hunter made 27 hunting trips, saw 43 woodcock and shot 9 of them.

Juvenile/adult ratio

For 2015/16, the proportion of juveniles in the French woodcock hunting bags was estimated at 63 %, i.e. 3 points under the average of the last 20 years.

Male/female ratio

In 2015/16, the proportion of woodcock males in the CNB members' hunting bags was 37.4 %. This value continues to be more or less stable from one year to another.

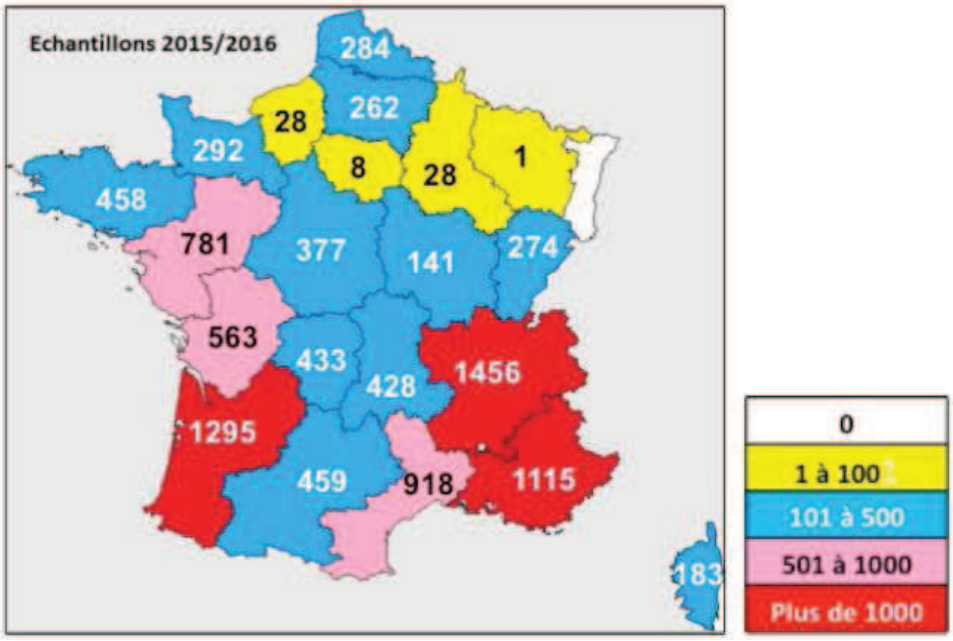

Figure 1. *Distribution of the number of Woodcock wings collected in different French regions during the 2015/16 survey.*

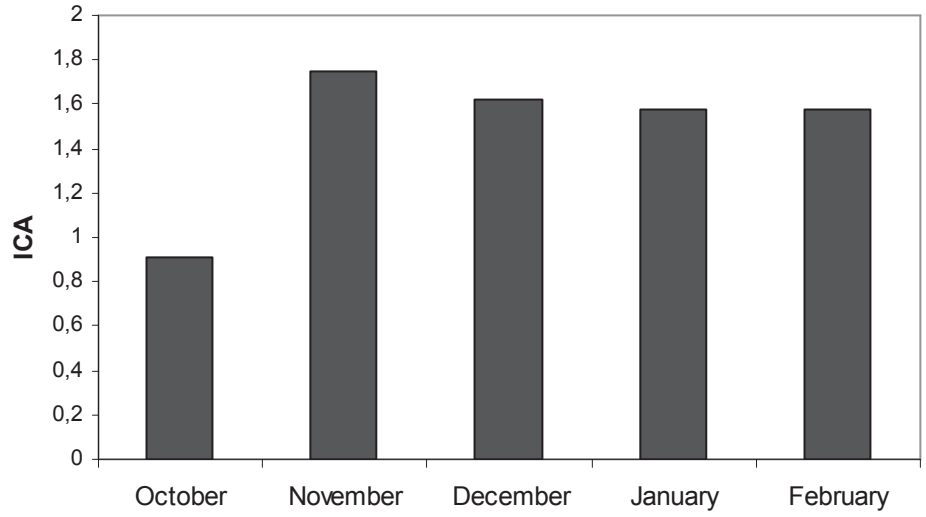

Figure 2. *ICA monthly variation in France for the 2015/16 hunting season.*

Variations in weight

The mean weight of a woodcock shot in 2015/16 was 312 g (314 g in 2014/15). As usual, the weight of adults was slightly higher than that of juveniles (310 g *vs* 314 g).
Adult females were the heaviest, 317 g in average. The mean weight of juvenile females was 312 g and adult males 311 g. The mean weight of juvenile males reached 310 g.

Conclusion

Because of i) drought located in the South-West of France and ii) mild temperatures in December, the Woodcock distribution during the autumn-winter 2015/16 in France was mainly focused on the northern half of the country. Two short cold periods in mid-November and end of December/beginning of January were not sufficiently strong to make woodcocks move to South and Mediterranean regions.
In spite of a heterogeneous distribution, the 2015/16 season can be considered as "good" at a national level and the annual ICA value is the 8th for the last 20 seasons.

These results, as the previous ones, tend to show that the species is in a rather good conservation status even if the hunting pressure is high in France and in other countries such as Italy and Spain. ICAs estimated from data provided by woodcock hunters since the beginning of the 1990s does not highlight a decrease of the population. Let us recall that a bag limit has been set up in France (30 woodcocks/season/hunter) since the 2011/12 hunting season which appears to maintain the hunting bags within limits compatible with a sustainable use.

Acknowledgements

We thank all volunteers who contributed to help us in the wing analysis and also the members of CNB scientific and technical commissions or report writers: J.C. Blanchard, P. Launay, Gérard Aurousseau, J.P. Lepetit and J.L. Cazenave.

2015-2016 Woodcock hunting season in mainland Portugal

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This report presents the results gathered by the *Associação Nacional de Caçadores de Galinholas* (ANCG; National Association of Woodcock Hunters) during the 2015-2016 Woodcock (*Scolopax rusticola*) hunting season in mainland Portugal. Hunting was allowed from November 1, 2015 to February 10, 2016, on Sundays, Thursdays and national holidays, with a bag limit of three birds/hunter/day. These regulations are the same since the 2009-2010 hunting season, when ANCG started to collect information to evaluate the Woodcock hunting season in mainland Portugal.

Hunting trips

We analysed 351 hunting trip reports, performed by 29 different collaborators in 15 districts (Figure 1a). One hunting trip corresponds to one morning or one afternoon of hunting, with pointing dogs. Only six of the 15 districts represented had more than 10 hunting trips reported. The mean (± SE) time spent per hunting trip was 3.33 ± 0.06 hours (n=351), and the majority of the hunting trips (66.1%) was performed by hunters hunting alone.

We estimated a hunting index of abundance (ICA – *Indice Cynégétique d'Abondance*) which corresponds to the number of different Woodcock seen, per hunter, during a standard hunting trip of 3.5 hours. The ICA mean value (± SE) for the 2015-2016 season was 1.10 ± 0.06 (Figure 2). Despite a significant variation in Woodcock abundance since the 2009-2010 hunting season (Figure 2; K-W χ^2 = 34.072, d.f. = 6; $p < 0.001$), the values observed in the 2015-2016 season were not different from those registered in any of the previous seasons (Dunn's test, $p > 0.275$ for all comparisons).

The analysis of the variation in abundance in the last five hunting seasons (2010-2011 to 2014-2015) reveals the following inter-annual general pattern (Figure 3, black line). Each year, at the beginning of the hunting season, in the first decade of November, the Woodcock is already present in mainland Portugal; roughly, the abundance increases during November, reaching maximum values between late November and the second decade of December, and remains relatively stable until February, when a new increase is observed.

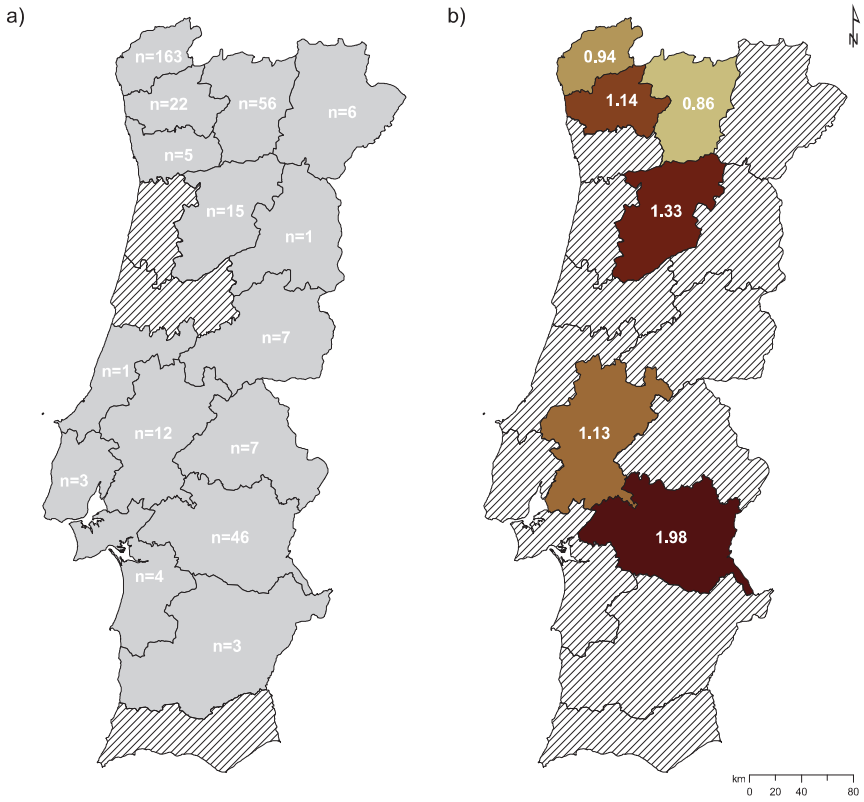

Figure 1. *Results for the Woodcock hunting trip reports in mainland Portugal, by district, in the 2015-2016 hunting season:* ***a)*** *Distribution of the hunting trip reports analysed (in grey).* ***b)*** *Variation in the mean value of Woodcock abundance (hunting index of abundance = number of different Woodcock seen, per hunter, during a standard hunting trip of 3.5 hours); (only districts with 10 or more reports were considered).*

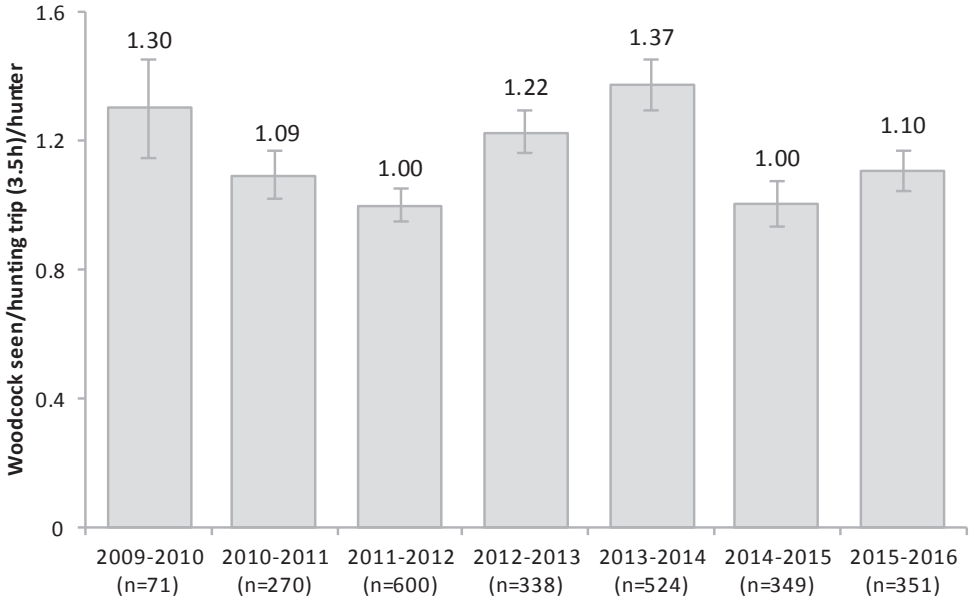

Figure 2. *Variation, by hunting season, of the mean (±SE) value of Woodcock abundance (hunting index of abundance = number of different Woodcock seen, per hunter, during a standard hunting trip of 3.5 hours), in mainland Portugal; n = number of hunting trips analysed.*

The movements/migration of the Woodcock influence the intra-seasonal variation of the abundance through the hunting season, generating different patterns of variation, mostly during the first month, when birds are still migrating. The 2015-2016 hunting season started with levels of abundance above those usually observed in the early part of the season (Figure 3, red line). The abundance increased between the first two decades of November, and then remained relatively stable until the beginning of December. After a new increase, the maximum was reached in the second decade of December, and then the abundance decreased until the end of the season (the increase registered in the second decade of February is the result of a single hunting trip being reported).

The Woodcock was reported for 15 districts but, unlike what was observed for previous hunting seasons (Rodrigues *et al*. 2013), there was no clear geographic pattern of variation in the 2015-2016 hunting season (Figure 1b).

Wing collection

We analysed 97 wings, collected by 10 different collaborators in six districts (Figure 4), but only for three of these regions the number of wings was equal to or greater than 10.

The age class [young (< year old) or adult (> 1 year old)] was determined by wing examination, according to Ferrand & Gossmann (2009), and hunters were asked to determine the birds' sex by gonad examination (Table 1). The percentage of young birds was 69.1 %, the highest observed among the seven hunting seasons studied. The proportion of young and adults varied significantly between seasons (χ^2 = 16.500, d.f. = 6, p = 0.011). The percentage of males was 60.1 %. The proportion of males and females showed no significant variations between seasons (χ^2 = 7.298, d.f. = 6, p = 0.294); the sex ratio of the Woodcock in mainland Portugal remains close to one (Rodrigues *et al*. 2013).

Additionally, the hunters determined the weight of the Woodcock shot. The mean body weight (± SE) of the birds in the 2015-2016 hunting season was 298.6 ± 2.1 g (Table 2). Males were significantly heavier than females ($F_{1,89}$ = 7.901, p = 0.006), and adult birds were also heavier than juveniles ($F_{1,89}$ = 6.055, p = 0.016). Weight varied between hunting seasons ($F_{6,768}$ = 5.683, p < 0.001), but it remained relatively constant during the last three seasons.

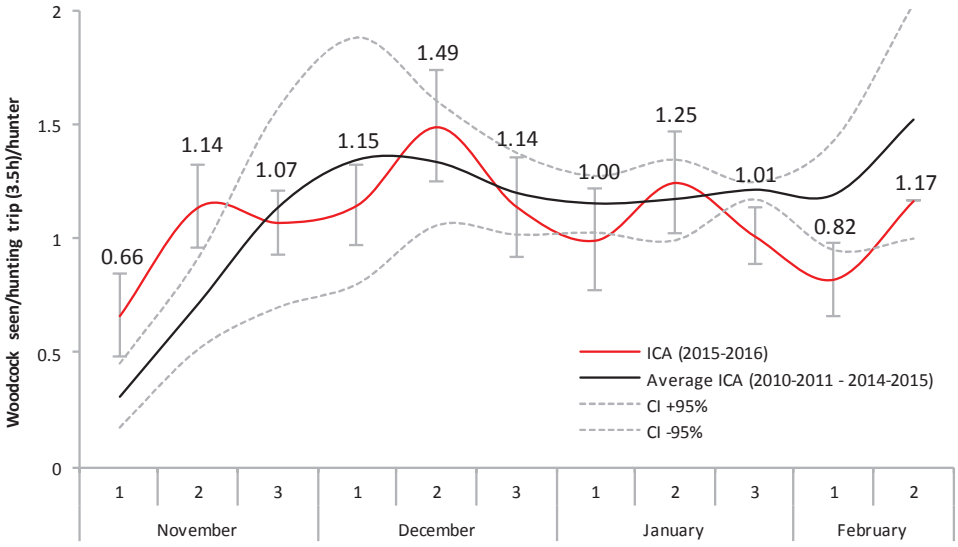

Figure 3. *Variation, by decade (period of ten days), of the mean value of Woodcock abundance (hunting index of abundance, ICA = number of different Woodcock seen, per hunter, during a standard hunting trip of 3.5 hours), in the hunting season 2015-2016 (red line; vertical lines: ± CI 95%), and the average for the seasons 2010-2011 to 2014-2015 (dark line; dashed line: ± CI 95%) in mainland Portugal.*

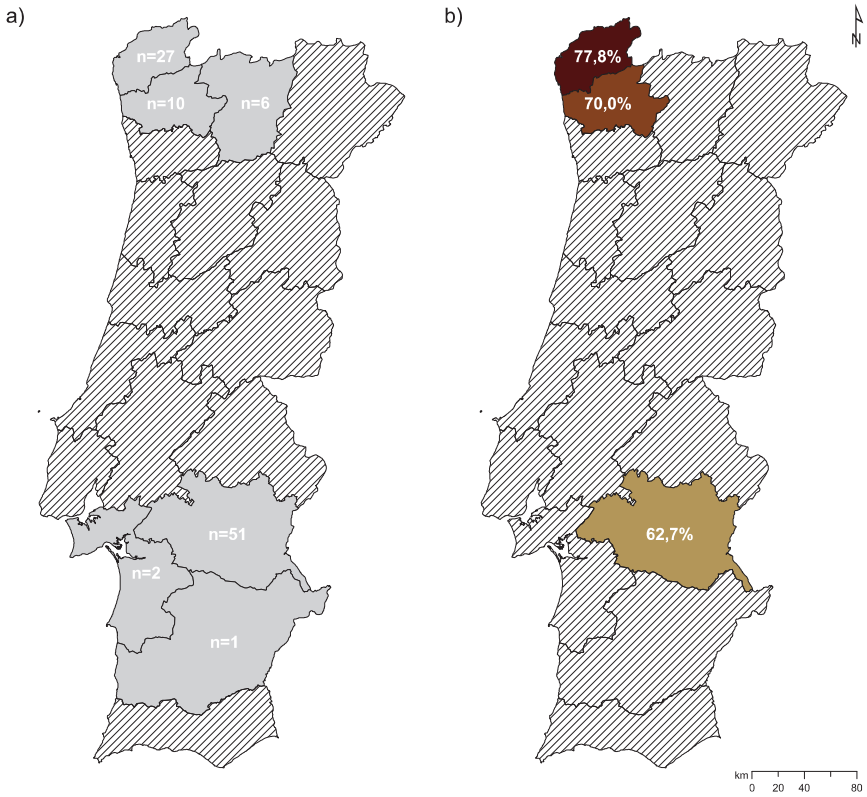

Figure 4. *Results for the Woodcock wings collected in mainland Portugal, by district, in the 2015-2016 hunting season:* ***a)*** *Distribution of the number of Woodcock wings collected (in grey).* ***b)*** *Variation in the percentage of young Woodcock (only districts with 10 or more wings were considered).*

		Age		
		Adults	Young	Total
Sex	Females	11	26	37
	Males	17	39	56
	Undetermined	2	2	4
	Total	30	67	97

Table 1. *Frequencies of age and sex classes among the Woodcock analysed in the 2015-2016 hunting season.*

	Weight (g)				
	Mean	Median	Minimum	Maximum	SE
Adult females (n=11)	296.6	305.0	270.0	310.0	4.1
Young females (n=26)	290.0	292.5	256.0	340.0	3.9
Adult males (n=17)	313.2	309.0	290.0	382.0	5.4
Young males (n=39)	299.5	300.0	258.0	330.0	6.3
Total (n=97)	298.6	300.0	256.0	382.0	2.1

Table 2. *Weight of the Woodcock analysed in the 2015-2016 hunting season by age/sex class.*

Conclusions

In the 2015-2016 hunting season in mainland Portugal, the ICA mean value was 1.10 (Woodcock seen/hunter/hunting trip), which is not different from other seasons. The ICA maximum value, as in 2014-2015, was reached in the second decade of December, a decade later than the average of all previous periods studied. The small size of the sample per district made it impossible to interpret the geographic variation of Woodcock abundance in Portugal.

In relation to previous seasons the number of wings received in 2015-2016 was reduced: 93 wings, sent by 10 hunters; only six districts were represented. The percentage of young birds was the highest among all the seasons studied: 69.1%. Between sexes, the percentage of males (60.2%) reached the highest relative value, but did not represent a statistically significant difference in relation to the other hunting seasons. The birds had a body weight similar to that of the previous season.

Acknowledgements

We would like to thank all the hunters who provided the data used in this study.

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