Introduction

Eurasian woodcock (*Scolopax rusticola*) is a popular game species in Hungary and in several European countries. As it is a migratory species, its capturing, hunting, or other activities can only be allowed if they are in accordance with EU Birds Directive (79/409 EEC).

Spring woodcock hunting is a long tradition in Hungary. The annual bag was always less than 10,000 individuals in the last decades (Csányi et al, 2009; http://vmi.info.hu/adattar/index.htm) but the open season was not in agreement with the provisions of the Birds Directive, because it coincides with the migration to breeding areas. An autumn hunting season seems to be a legal solution, but it could cause difficulties in hunting organization and increase the risk of accidents because it coincides with big game hunting seasons. So the maintenance of spring hunting season still seems to be the best solution.

According to the Guidance document on hunting under Council Directive 79/409/EEC on the conservation of wild birds (http://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/guide_en.htm) derogations are allowed under controlled conditions and only for a small number of birds (1% of total-natural + hunting – mortality at maximum). In order to fulfill the requirements of the EU Birds Directive it is essential to maintain a country-wide monitoring system.

Several migration routes are known among the wintering areas in France and the Mediterranean region and breeding areas from Scandinavia to Ural Mountains. As Hungary lies near the middle of the European continent, it is likely that two or more flyways cross each other in our country (Fluck, 2009). Although there are many former observations about the migration, there is still a lack of information. Until now basically biological data have been collected, and the information about the size and dynamics of the population is scarce. The lack of information is a problem in itself, but it can cause many other difficulties indirectly.

To broaden our knowledge about the species and to estimate the size of the migrating population in Hungary, a monitoring program was initiated by the Ministry of Agriculture and Rural Development and the Hungarian National Chamber of Hunters (HNCH) in 2009. Data collection and evaluation of the results have been designed and carried out by Szent István University, Institute for Wildlife Conservation (IWC).

The main goal of the program is to collect and evaluate reliable data in order to maintain an adaptive harvesting of woodcock. This paper presents the organization and the first steps of the program, and also the first basic data collected.

Methods

The base of the monitoring program is roding survey performed by participating observers weekly: every Saturday night from 28th February- 2nd May in spring 2009, 15th September – 15th December in autumn 2009, 13th February – 1st May in spring 2010, 14th September – 14th December in autumn 2010, 12th February – 30th April in Spring 2011. Roding survey is an internationally accepted census method which is used in several European countries (Bibby et al., 1997; Ferrand et al., 2008; Machado et al., 2008). During spring and summer evenings, male woodcocks perform song flights (roding) (Ferrand, 1993). The survey is based on a census of roding males. As several birds may be counted at the same listening point where it is not possible to distinguish them, the counting unit is the number of sightings – also called number of contacts.

The observers recorded data on standardized forms about the

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number of contacts, the estimated size of the visible area, the duration of the observation and the landcover types surrounding the observation point.

We aimed to collect data from as many observation points as possible at the same period of time with synchronized censuses. These represent different states of the migration. With their comparison we can estimate its dynamics and extent.

The monitoring-network is divided into different levels: the county coordinators, the representatives of the game management units (GMU) and the observers maintained different tasks. Observation data that have been recorded by the observers were sent to the GMU representatives each week. Each week’s paper forms have been collected by the county coordinators who were HNCH members. They uploaded the observation data weekly to a web server created and maintained by IWC.

The total number of observation points was 856 in spring 2009, 922 in 2010, and 922 in 2011. In autumn 2009 it was 755, and 846 in 2010.

We calculated the descriptive statistics (sums, medians, minimums, maximums, and quartiles) from the number of contacts for each observation date. Their distribution represents the temporal dynamics and intensity of migration.

From spring 2010 there is a legal opportunity to collect data about the sex- and age composition of the population. Samples are collected by hunters under strictly regulated circumstances. The determination was carried out by the University of West-Hungary, Faculty of Forestry, Institute of Wildlife Management and Vertebrate Zoology (IWMVZ) that joined the program in 2010.

Figure 1. Number of contacts in spring 2009, 2010 and 2011
Results

Figure 1 shows the distributions calculated from 2009, 2010 and 2011 spring observation data. The distributions of spring season’s descriptives fit one-peak curves in each year, however there is temporal difference between the annual peaks. The distributions of the values are very similar in the consecutive years.

Beside the medians we also calculated minimums, maximums and quartiles. The results show us that there are great differences even between one date’s observation data. The minimums are 0 for each date, even in periods with the highest number of contacts. The maximum values not only show the highest numbers of contacts, but also that there were always detections for the whole period of the surveys.

For each day of the monitoring we created the contour lines of the observation points on which at least one woodcock has been seen (Figure 3.). These contours represent the areas where the possibility of the same result is 90%, 80%, 70% or 60% — calculated from the number and place of the points. In other words, the smaller numbers represent smaller areas. The density of the population is probably the highest in those smallest areas. With this method it is possible to represent the areas which are more important to woodcocks, and to estimate the directions of spring migration.

It is very important to continue the program in autumn, it helps us to find out more about woodcocks wintering and/or breeding in Hungary. The temporal dynamics of migration in autumn 2009 and 2010 can be seen on figure 2.

Figure 2. Number of contacts in autumn 2009 and 2010

Figure 3. Estimated migrating areas – 2009.03.28.
The distributions of the descriptives in autumn cannot be described with one-peak curves. They have long tail and seem more balanced, and the medians are 0 in most cases.

**Discussion**

One of the most important results of the program is the design of the methods. Testing the usefulness and further development of the methods were the most important goals in its first period. The program started successfully. The system of data collection and processing is functional, only minor modifications are needed. The participants work well together in cooperation. It is clear now that the Hungarian hunters are able to cooperate with each other and to solve a task of such a magnitude.

Although the program takes hard field work and complex organization, the series of spring surveys proved to be successful for the third time in 2011.

In spite of the unusual timing and other difficulties (for example, the incompatibility with big game hunting seasons) the observations carried out in autumn 2009 and 2010 ran also successfully. However, there are some questions that need further examinations:

What can be the reasons that fewer woodcocks can be seen in autumn than in spring? Should not the population returning from breeding areas be larger than the population that encountered only losses in winter? It is possible that the detectability of woodcock in autumn is significantly lower than in spring. Former experiences also agree to that. It is also possible that the woodcocks that cross the Carpathian basin in spring choose other flyways in autumn. Another possible explanation is that woodcocks’ habitat use is different in spring and in autumn. It is likely that the preference of woodlands decreases in autumn, or it also shifts to open fields (*photo 1*). This is also confirmed by the comments of several observers and by the experiences of Hungarian woodcock ringers. Ringing is not only great opportunity to learn about the behavior of the birds, but can also give valuable information about the migrating individuals (*photo 2*).

Only further studies can reveal which reasons can be acceptable. It is obvious, that there are differences between the characteristics of migration in spring and in autumn.

There was a relative quick and intensive travel in spring, which easily can be understandable from a biologist’s point of view. The
birds that reach the breeding areas faster can have the opportunity to occupy territories of a better quality. They can be more successful, they may have more time to raise second broods, may attempt to rear second broods and the young ones can start the migration to the wintering areas in a better condition.

Migration in autumn lasted relatively longer, and birds probably arrived in Hungary in several smaller waves. It is also possible that some of them stay in the Carpathian basin for the winter.

The season – especially the start – of roding surveys overlaps with big game hunting seasons in autumn (mainly red deer and wild boar), and several observations had to be cancelled for this reason. A hunting season of woodcock in autumn could cause difficulties in the organization of big game hunting, but the bigger problem is that it could increase the risk of accidents dramatically. Hunting of woodcock in autumn would be very hard to solve in Hungary, and it wouldn’t be an acceptable solution either.

Acknowledgements

We are very grateful to everyone who took sides with the woodcock monitoring, especially the ones who persist in collecting data from the beginning of the program.

References


