

Lesser Spotted Eagle *Clanga pomarina* Brehm, 1831 (Aves: Accipitridae) in Russia: Recent Data on Numbers and Distribution

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Abstract: New data on the numbers and distribution of the Lesser Spotted Eagle were obtained as a result of the authors' studies in Moscow, Novgorod and Ivanovo Regions. Based on a detailed analysis of published materials combined with own data, serious corrections of the breeding range in Russia were made. The results of the studies implemented in the western districts of Moscow Region and in Novgorod Region identified differences in numbers and spatial distribution determined by peculiarities of farmland use. We found out that relatively large areas of hay meadows, grasslands and forage crops cultivated and mown without application of pesticides and intensive technologies in the mosaic including woods, were optimal habitats for the Lesser Spotted Eagle in the forest zone of Russia. Very low numbers or absence of this bird were recorded during our surveys of the areas harbouring abandoned farmlands overgrown with bush and tall weeds. Possible underestimation of the total population numbers and probable reasons for wide dispersion of subadult birds are discussed below.

Key words: range, spatial distribution, used and abandoned farmlands, Lesser Spotted Eagle, Russia

Introduction

The breeding range of the Lesser Spotted Eagle (*Clanga pomarina* Brehm, 1831) in Russia consists of two isolated geographical populations. The first one occupies the zone of mixed and broad-leaved woods stretching from the western state boundary to the Upper Volga. The second population inhabits the North Caucasus and Ciscaucasia. The Lesser Spotted Eagle (LSE below) is the most common eagle species in the western part of European Russia, mainly inhabiting landscapes with mosaic of farmlands and woodlands which are quite accessible to ornithologists (GRISHANOV 2008, MELNIKOV et al. 2009, MISCHENKO 2015). However, there are many gaps in the study of the species' breeding range, spatial distribution and movements (MISCHENKO et al. 2001, BELIK et al. 2008). So, the main task of this paper is to combine the results of our own studies

on the LSE distribution and numbers carried out in Moscow, Novgorod and Ivanovo Regions, with compiled available scattered data, which can add information for better knowledge of this species in the recent Russian conditions.

Materials and Methods

Data on the LSE range, numbers and distribution were collected from various publications, scientific reports and questionnaires of colleagues doing raptor research, and then critically analyzed. Own studies of the LSE spatial distribution and numbers were carried out in different areas of Novgorod Region (Northwest Russia), together with faunistic research, during the period 1991-2017. The study of LSE in Ivanovo Region has been conducted

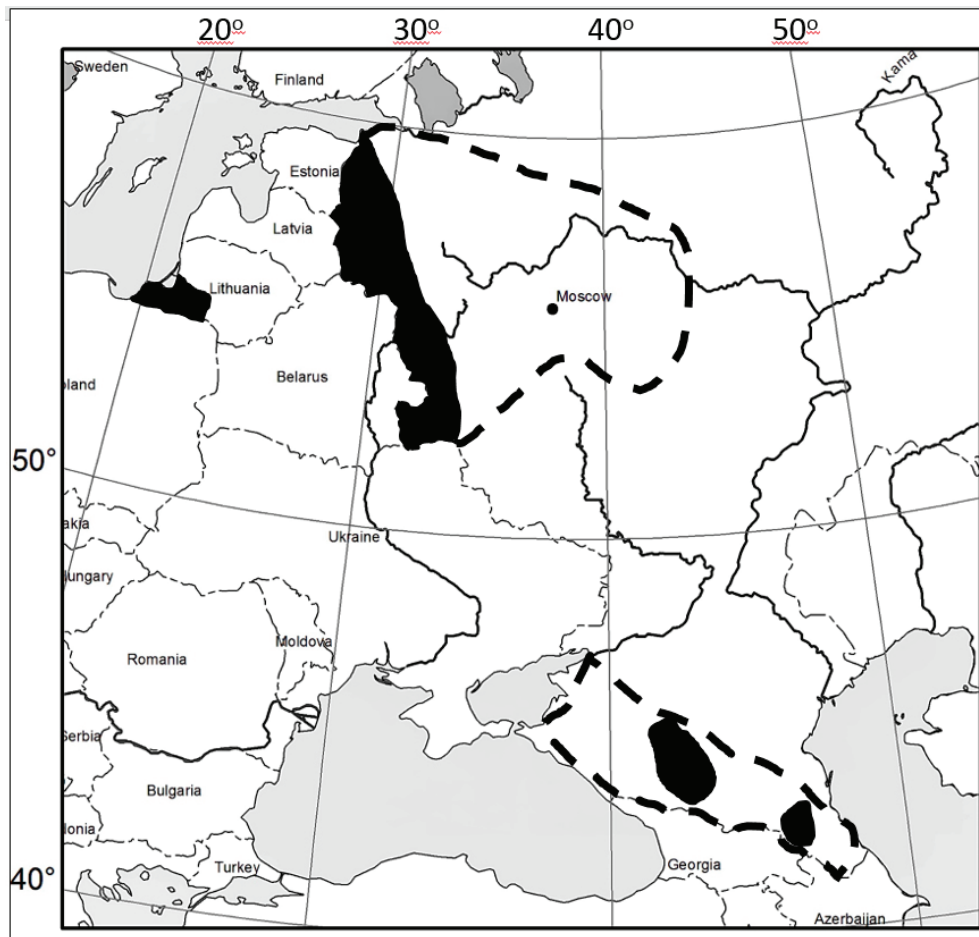


Fig.1. Breeding range of the Lesser Spotted Eagle in Russia. Black filling – the range based on the obsolete data (SNOW & PERRINS 1998). Black dash line – accurate border of the range

since the first breeding record in the Klyazminsky Regional Nature Reserve in 1999 (MELNIKOV et al. 2001). In 2016-2017, during surveys implemented under the project “Atlas of Breeding Birds of European Russia”, LSE breeding localities in Kostroma Region were found and surveyed. For the purpose of gathering data on the numbers and the post-breeding spatial distribution of the LSE, we covered three car transects of a total length of 213 km in the western districts of Moscow Region: on 6–7 August 2016 (60 km), on 14 July 2017 (18 km) and on 24–26 July 2017 (135 km). All open habitats located along the routes and potentially suitable as LSE feeding habitats (farmlands nowadays or in the recent past) were carefully inspected from observation viewpoints. The total area of surveyed open habitats was 96 km², of which 25 km² in 2016, 8 km² and 63 km² in 2017, in accordance with the above-mentioned car routes. Hay meadows and grasslands of hampered visibility (cross-country terrain, groves etc.) were examined through shuttle movements of the car or on-foot transects. 10-x

binoculars and 20–75X telescope was used for observations. Linear distances and the areas of mown farmlands were determined with GPS and processed with the software OziExplorer 3.95.

Results

Breeding range updated on the basis of available data

The range of the LSE in Russia presented in the bird handbooks and websites (e.g. SNOW & PERRINS 1998: 365, BIRDLIFE INTERNATIONAL 2016) is based on the obsolete data (STEPANYAN 2003: 112). We carried out a thorough analysis of the Russian publications and the results of our own studies in Novgorod and Ivanovo Regions (MELNIKOV et al. 2001, BABUSHKIN & KUZNETSOV 2008, BELIK et al. 2008, GRINCHENKO et al. 2008, ILYUKH 2008, MISCHENKO 2015), which allowed us to specify the recent breeding range of the LSE and to represent it on a map not published before (Fig. 1). It is obvious that the eastern border of the range is located further eastward.

Contemporary assessment of numbers

The studies recorded relatively large numbers in the regions where the species was considered rare (GALUSHIN 2006). The total abundance of the LSE in Novgorod Region was estimated at 120–140 breeding pairs (MISCHENKO 2015); in Moscow Region – 30–40 breeding pairs.

New data obtained from the results of the BirdLife project “European Red List of Birds” in Russia and the regional Red Data Books allowed for correction of the LSE numbers (MISCHENKO 2017). The current Russian population was estimated at 1,000–1,300 breeding pairs: 800–1,000 in the forest zone and 200–300 in the Northern Caucasus. It is difficult to estimate the population trend in the forest zone because of redistribution of breeding groups, but growth probably proceeds. A slight increase in numbers was recorded in the Northern Caucasus (BELIK et al. 2003).

The nesting density appreciably decreases from the west to the eastern border of the range: 1.1 pairs/100km² of the general area in Kaliningrad (GRISHANOV 2008); 0.25 – in Novgorod; 0.09 – in Moscow and 0.02 – in Ivanovo Regions. Very high breeding density was reported for North Caucasus: ten breeding territories within the 55 km² of the study area, equivalent to a breeding density of 18 pairs/100 km² (VÄLI et al. 2009). It should be noted that this high density was recorded in the area near Kislovodsk, along with a combination of optimal breeding and foraging conditions for the LSE. However, this density significantly exceeded the density in the optimal areas in the Kaliningrad Region (7 pairs/100 km²), where the diversity of habitats was not so high (GRISHANOV 2008).

Peculiarities of recent spatial distribution

In Novgorod Region, the LSE is common in the Ilmen Lake area where the large territory of used farmland is still kept. At the same time, in the eastern districts of the region the species is common enough only in the vicinities of the city of Borovichi, harbouring rather big areas of feeding crops and hay meadows. However, in other areas of the east of Novgorod Region, where abandoned farmlands dominate, the abundance of the LSE is low. According to the data from the long-term monitoring in the control area (ca. 120 km²), the nesting pair has disappeared during plant succession in a former hay meadow.

Data of the LSE censuses in the west districts of Moscow Region collected at the beginning of August 2016 and in July 2017 have shown the following figures: 1.5 individuals per 10 km of car route

in territories where used farmlands dominate, and 0.2 individuals per 10 km of car route in territories, where abandoned farmlands dominate (MISCHENKO & SUKHANOVA 2017).

LSEs can concentrate in meadows and grasslands with recently mown grass since within the forest zone such territories with easily accessible food usually have a rather small area compared to abandoned farmlands. For example, on 25 July 2016, in the beginning of haymaking in Volokolamsk District (west of the Moscow Region), no less than 20 LSE individuals were observed at the same time (KONOVALOV, MOISEJKIN & DAVYDOV, unpublished data). Considering the date, most of them were adult birds coming from nearby nesting sites, as well as non-breeding subadult eagles.

The summer of 2016 was marked by a record-breaking number of LSE sightings in the Yaroslavl Region, which was probably related to invasion from the western part of the range (SIMONOV 2017: 32). On 28 and 29 July 2016 in Volokolamsk District of the Moscow Region two LSEs, marked with colour plastic rings, were observed and photographed. It was found out that both birds were 1 year old and had been marked simultaneously on 21 July 2015 in the nests, shortly before fledging: in the east of Germany (Mecklenburg-Western Pomerania) and in a southern region of Estonia. The distances between the places of ringing and sighting locations were 1460 and 616 km, respectively. This was evidence of a wide eastward dispersion of non-adult LSEs.

Discussion

The total abundance of the LSE population was possibly underestimated, as the species is still poorly studied in Russia. But how severe is this underestimation? According to KRUMENACKER (2012), based on a census of LSEs migrating through the bottleneck in Israel: “These are between 2300 and 13500 pairs more than estimated by the experts in the respective breeding grounds”. Probably the underestimation can be attributed to all – Russia, Belarus, Ukraine and possibly Poland. Such significant underestimation could hardly be attributed to Russia alone, since the overall area of the habitats suitable for nesting is limited. But this is only authors’ hypothesis.

The eastward range expansion in the LSE population inhabited forest zone is not so evident as reported in some publications (EGOROVA 2008, SAPELNIKOV et al. 2008), because the extremely rare cases of nesting far from the estimated eastern border

in Yaroslavl, Kostroma and Tula Regions, north-east and south of Moscow, were known already in the first half of the 20th Century (PTUSHENKO & GLADKOV 1933, PUZANOV et al. 1942: 185, LIKHACHEV 1957). Yet, these data were ignored in the regional lists of bird fauna. However, it is obvious that considerable expansion of the occupied area takes place simultaneously with an increase in the species numbers in the eastern part of the range. The same processes were also observed in the North-Caucasian population, where northward movements of breeding pairs along wood plantations were recorded in the Azov Sea area (BELIK 1994, TILBA & MNATSEKANOV 2004).

The distribution pattern varies from west to east. In Kaliningrad and Novgorod Regions, the LSE is distributed in most of the territory, in Moscow Region – basically in the western areas, and in Ivanovo Region – the species is represented by sporadic pairs, mainly in the southern part. Extremely non-uniform spatial distribution is typical of the LSE in the conditions of current agriculture in Russia. In the forest zone, the eagle is absent in large areas dominated by abandoned farmlands, despite the availability of favourable nesting habitats. At the same time, in territories harbouring significant areas of used hay meadows and grasslands, the LSE breeds at rather high density and can form nesting groups, sometimes occupying even fragmentary woodlands.

Relatively large areas of hay meadows, grasslands and forage crops cultivated and mown without application of pesticides and intensive technologies in mosaic patterns including woods, are optimal habitats for the Lesser Spotted Eagle in the forest zone of Russia. Probably, such features of agriculture are the reasons for the appearance here LSEs from the EU countries, e.g. from Germany, where farmland areas with constantly increasing share of cultures cultivated for biofuel production (FLADE 2012) become much less favourable for the LSE. The tendency for restoration of farming in the central regions of European Russia can further result into the increase in the LSE numbers and the eastward expansion of the breeding range.

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