

EUROPEAN ATLAS NEWS

The first comprehensive Moscow bird atlas

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Abstract. The Atlas of the birds of Moscow City was published in 2014. The main body of the atlas consists of the distribution maps for each of the 226 species found in Moscow during 2006–2011. These are accompanied by brief species accounts in both Russian and English. The texts should add, not duplicate the information contained in the maps. The map pages contain one larger and two smaller maps. The first of the three maps presents information on the distribution and abundance of the species during the breeding season, colours are used to indicate the level of evidence for breeding. Abundance of breeding pairs is indicated by varying diameters of the black dots inside the tetrads. The upper of the two smaller maps shows the tetrads (marked in blue) in which the species was found at least once during the winter period. The lower map shows the maximum estimates of the number of individuals of a species recorded in a tetrad during the year, regardless of the season.

Introduction

With a population of over 12 million, Moscow is the largest city in Russia and the northernmost megalopolis in the world. Only within the boundaries of the Moscow ring road it occupies around 887 km². Even though the birds of Moscow have been the subject of various studies for almost two centuries, a comprehensive atlas of the city's avifauna has never been published.

However, an important new project started in 1999 with the kick-off of the 'Birds of Moscow and the Moscow Region' (BMMR) programme. The programme brings together both birdwatchers and professional ornithologists, joining forces for the study of the birds of Moscow and the surrounding Moscow province, by sending in records of birds to a central data base and taking part in various projects. The data collected were summarized in the first bilingual (Russian/English) atlas of birds of Moscow and the Moscow region (Kalyakin & Voltzit 2006), a landmark publication and the first of its kind in Russia. The book presents maps for all species recorded, using dots

for all individual records (including confirmed breeding) received during 1999–2004 from participants in the project.

These data, however, were largely collected during more or less casual trips to various parts of the city and the Moscow region, and they were not the result of any systematic research efforts. It was obvious that the maps were far from complete. To fill in the gaps it was decided to launch a new and more ambitious project, this time aimed at producing a complete and detailed atlas of the birds of Moscow city, within the limits of the Moscow ring road.

Methods

Field work was carried out during 2006–2011 by 67 participants. For the first time, the participants were asked to stick to a certain methodology for observing birds and reporting the results of these observations. The territory of Moscow inside the ring road was divided into 2×2 km squares, on the basis of the UTM (Universal Transverse Mercator)

grid. All 242 squares were visited and described in detail, most of them throughout the year, with special emphasis on the breeding season: at least 25–30 hours of observations in each square were carried out from May to July. In the initial stages of the project taking part was a mere pleasure, since most observers focused on the more ‘interesting’ and ‘promising’ habitats, such as lush city parks, lakes and river valleys. As field work progressed, however, and more and more of the ‘better’ squares had already been sufficiently investigated, extra efforts were required from the observers to take on even the most unattractive parts of the city, like seemingly endless industrial ‘deserts’, car parks and what appeared to be boring and monotonous apartment blocks. Still, even these less pleasant corners of the city often turned out to be quite rewarding and surprisingly rich in birdlife. That said, exploring these parts of Moscow sometimes proved a real challenge, not in the least because of roaming packs of street dogs, or simply because access to many areas is limited.

During the survey the observer kept a list of the species encountered and indicated their status with the help of criteria commonly used for this kind of work (e.g. Friednieks et al. 1989). Since during the course of the project all species were recorded throughout the year, in addition to the ‘breeding’ categories we have included the categories ‘migrant’, ‘wintering bird’ and ‘accidental’, the last one for birds that are very rarely and irregularly found both in Moscow and the Moscow Region.

Preliminary results of the ongoing field work were published annually in the course of the project in the *Proceedings* of the programme, under the title *Birds of Moscow, square after square* (Kalyakin & Voltzit 2007–2012), with detailed descriptions of progress in individual squares.

After the completion of field work in 2012, the data base was supplemented by other observations and published data from the same six year period. On the basis of the combined records, distribution maps for all 226 species found in the city during the project were compiled, based on their presence in the tetrads, and with brief species accounts.

The atlas

The main body of the atlas is made up of the distribution maps for each of the 226 species found



in Moscow during 2006–2011, together with brief species accounts in both Russian and English. The texts should add, not duplicate the information contained in the maps. They also provide information on the status of each species in the Moscow Region, which frequently differs from the status in Moscow. The map pages contain one larger (in 1 cm 286 m) and two smaller maps, which are half as large. The first of the three maps presents information on the distribution and abundance of the species during the breeding season, as well as the likelihood (evidence) of breeding in each tetrad, including those tetrads which are only partially inside the Moscow ring road (MKAD). Colours are used to indicate the level of evidence for breeding.

Abundance of breeding pairs (or ‘breeding pairs’, for those species which are not monogamous and do not form pairs) is indicated by varying diameters of the black dots inside the tetrads. Each map goes with a legend (two examples of atlas pages). The upper of the two smaller maps shows the tetrads (marked in blue) in which the species was found at least once during the winter period (from December to February). The lower map shows the maximum estimates of the number of individuals of a species recorded in a tetrad during the year, regardless of the season. Some

species were most abundant during the migration period or in winter. Where necessary, this is indicated in the species texts.

Results

During 2006–2011 226 species were recorded inside the MKAD ring road. For half of these 113 species breeding was confirmed, seven species were considered probable breeders and another seven possible breeders. During the breeding season 43 species were recorded that showed no breeding indication. In comparison, during 200 years of ornithological observations in the whole of the Moscow Region, 318 species were recorded (judging from the literature and the data base of the BMMR programme), 210 of which have nested in the area (Varlygina *et al.* 2008).

The species list does not include species which have been deliberately introduced in the city (Barnacle Goose *Branta leucopsis* and Canada Goose *B. canadensis*) or its immediate surroundings (Common Pheasant *Phasianus colchicus*). Exotic species recorded during the atlas period like Mandarin Duck *Aix galericulata*, Rose-ringed Parakeet *Psittacula krameri* and Budgerigar *Melopsittacus undulatus* and several other escaped or released cage birds have also been omitted from the list, as they can hardly be considered part of the city's avifauna. Moscow's harsh winters significantly reduce any chances of survival of a free-flying population of Rose-ringed Parakeets. It is therefore unlikely that a fast population increase, as has been observed in several other European cities, will occur in Moscow.

In some cases, the origin of the birds was unclear, e.g. of Whooper *Cygnus cygnus* and Mute Swans *C. olor* occurring on some of the city's ponds. They may have been either released from captivity or wild visitors from the surrounding region. During the past decade both species have been observed in Moscow province on migration as well as breeding. Records of Gyr Falcon *Falco rusticolus* and Eagle Owl *Bubo bubo* may also refer to either escapes or genuine wild birds. Various exotic and, for the Moscow area, very rare ducks like Red-crested Pochard *Netta rufina*, Ferruginous Duck *Aythya nyroca* and Common Shelduck *Tadorna tadorna* recorded in the city may originate from the Moscow Zoo, though here, too, their wild occurrence cannot be excluded.

As elsewhere in Europe, the Peregrine Falcon *Falco peregrinus* population is also increasing in European Russia. During the atlas period three pairs were found nesting on high buildings in Moscow city. These may be birds released here earlier from captivity as part of a reintroduction scheme. Another species, Ruddy Shelduck *T. ferruginea*, has recently become a typical element of the city's avifauna. It has a free flying population which has gradually colonized the city's parks and ponds from the population present in the Moscow Zoo. Common Goldeneye *Bucephala clangula* is back as a breeding bird, thanks to the availability of artificial nest sites in appropriate places.

The special observation efforts during the atlas period have led to a marked increase of the species list of Moscow. The following rarities were found during 2006–2011 some of them first observations not only for Moscow but also for the region as a whole: Dalmatian Pelican *Pelecanus crispus*, Yellow-legged Gull *Larus michahellis*, Little Auk *Alle alle*, Syrian Woodpecker *Dendrocopos syriacus* and Serin *Serinus serinus*. All belong to the category vagrants, though new data show that Serin now appears to breed in Moscow. Vagrants like Pallas's Gull *Larus ichthyæetus*, Great Black-backed Gull *L. marinus* and other rare migrants were already on the list of the Moscow Region, but have now been added to the list of the birds of Moscow.

Some species have seen a change in status. For Ural Owl *Strix uralensis* and Middle Spotted Woodpecker *D. medius* breeding was confirmed for the first time (Morozov 2009a, Morozov 2009b). Common Teal *Anas crecca* bred again in Moscow after a long absence, as did Common Sandpiper *Actitis hypoleucos*, European Nightjar *Caprimulgus europæus*, Barred Warbler *Sylvia nisoria* and Azure Tit *Parus cyanus*.

We compared the present breeding bird species richness inside the MKAD ring road with the period before 1961, when this territory officially became part of the expanding city, even though many peripheral areas along the ring remained undeveloped for a long time after that. Some twenty species that were present as breeding bird at that time) have not been detected as breeding (or suspected breeding) during 2006–2011. These are Gadwall *Anas strepera*, Hazel Grouse *Tetrastes bonasia*, Redshank *Tringa totanus*, Marsh Sandpiper *T. stagnatilis*, Terek Sand-

piper *Xenus cinereus*, possibly Ruff *Philomachus pugnax*, Common Snipe *Gallinago gallinago*, Little Gull *Larus minutus*, Wood Pigeon *Columba palumbus*, Collared Dove *Streptopelia decaocto*, Laughing Dove *S. senegalensis*, Short-eared Owl *Asio flammeus*, Little Owl *Athene noctua*, Hoopoe *Upupa epops*, Green Woodpecker *Picus viridis*, Grey-headed Woodpecker *P. canus*, Meadow Pipit *Anthus pratensis*, Common Myna *Acridotheres tristis*, Common Stonechat *Saxicola torquata*, Crested Tit *Parus cristatus* and Brambling *Fringilla montifringilla*. Some of them disappeared as a breeding bird from the city in the 1990s, as a result of the development of residential areas at the site of a sewage area at Lyublino. This sewage works provided ideal conditions for aquatic and semi-aquatic species as well as birds preferring ruderal habitats. The majority of the species mentioned here were already rare in Moscow in the past. A decline in numbers of Crested Tit has been noted in the whole of the Moscow region during the past two or three decades.

Trends

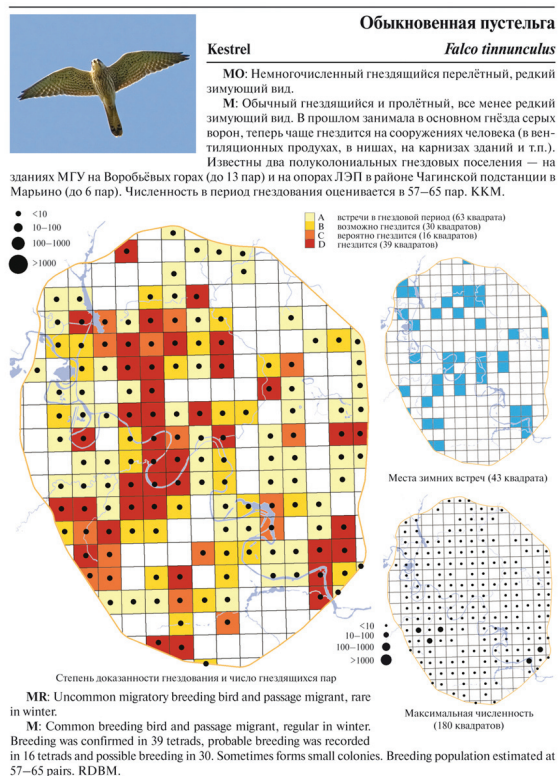
For some species, a comparison of published data with the results from six years of atlas work allows

us to put forward some general population trends. An increase is apparent in the breeding populations of Ruddy Shelduck, Common Kestrel, Black Woodpecker *Dryocopus martius*, Blackcap *Sylvia atricapilla*, Black Redstart *Phoenicurus ochruros*, Robin, Thrush Nightingale *Luscinia luscinia*, Penduline Tit *Remiz pendulinus*, Blue Tit *Parus caeruleus*, European Greenfinch *Chloris chloris* and European Goldfinch *Carduelis carduelis*. On the other hand, Corncrake *Crex crex*, Sand Martin *Riparia riparia*, Common Redstart *Phoenicurus phoenicurus*, House Sparrow *Passer domesticus* and Eurasian Tree Sparrow *P. montanus* appear to have declined.

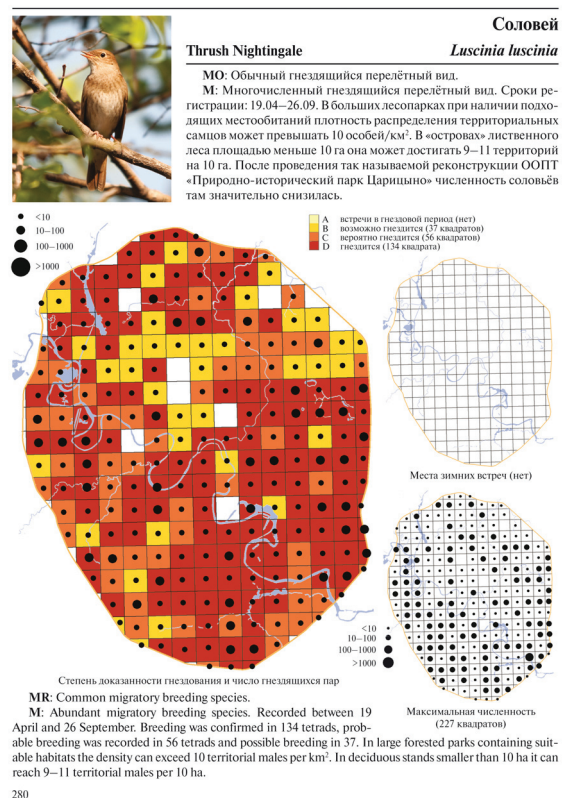
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Examples of pages



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