

Short note

*Data on the Wintering of the Rook,
Corvus frugilegus Linnaeus, 1758 (Aves: Corvidae)
in Plovdiv, Bulgaria*

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Abstract: In the current study we report a short summary on the wintering of the Rook in the town of Plovdiv. During our field study we estimated that no less than $29\,706 \pm 8722$ Rooks are roosting in Plovdiv. Our findings revealed that the number of wintering individuals of this species has increased in a ten years period by 35 times in comparison to a previous study and reached a maximum in February when 59 280 Rooks were counted. Further investigation on that matter is needed so that the wintering pattern of the Rooks could be revealed entirely.

Key words: Rook, *Corvus frugilegus*, wintering, Plovdiv, Bulgaria.

The Rook is a widespread resident species across Europe where its population has been estimated at more than 10 000 000 of pairs. The Rook has an extremely large range. Although a decline in species population was registered in several countries, its European population is stable or slightly increasing BIRDLIFE INTERNATIONAL (2014). On the other hand the overall population trend appears to be decreasing, but the decline is not believed to be sufficiently rapid to approach the thresholds for "Vulnerable species" under the population trend criterion of IUCN and currently the species is listed as least concern. In Bulgaria the population is estimated to be stable with 15 000 - 25 000 breeding pairs VASILEV (2007). The Rook is unevenly distributed across the country, mainly concentrated in Northern Bulgaria, Tundzha river basin and Sofia district. The population development of the species in Bulgaria has been studied well and

numerous data on its distribution is available. In the period following 2000 decrease in colonies has been observed because of the devastation of the riverside forests and forest-shelter belts VASILEV (2007). However, usually in September the Rook is roosting in parks in the bigger settlements, like Sofia, where some 10 000 individuals were registered to overwinter NANKINOV (1982A). At the same time between 80 000 and 100 000 individuals were found to be wintering in the northeastern part of Bulgaria VASILEV, NANKINOV (2003). Another study carried out in the mid-90 in southern Bulgaria revealed a large congregation of roosting rooks in the town of Plovdiv - 1700 individuals were counted on a roosting site in a city park KASHEROV (1995). The recent study aimed at defining the numbers of wintering rooks in the town of Plovdiv. The census was carried out between November 2006 and March 2007 in Plovdiv as the rooks were counted

from minimum of two stationary viewpoints BIBBY ET AL. (1999). Observations were conducted between 16:00 and 19:00 at CET once per month in the duration of the study period from naturally elevated features of the landscape (town hills), so that there was always a clear visibility to the surroundings of the town. Binoculars Nikon 10x50 and Swarovski scope 60x were used for the count and identification of the birds. Species composition, numbers and meteorological conditions were registered as well.

In the studied period six counts were conducted altogether. Except for January 2007 when two counts were done, rooks were counted once per month. The maximum number of rooks was established in February when 59 280 individuals were counted, while the minimum number was established in March - only 5481 individuals. Our results revealed that the number of wintering rooks in Plovdiv has increased immensely in comparison to the previous study KASHEROV (1995). Wintering rooks in Plovdiv equal to 1 to 6 % of the wintering population of the species in Bulgaria KOSTADINOVA, GRAMATIKOV (2007). The mean number of birds during the study period was $29\,706 \pm 8722$. Bearing in mind the total number of the birds, this is the largest known roosting congregation of rooks wintering in a settlement in Bulgaria. More, although the species is listed as resident to Bulgaria and most of Europe BIRDLIFE INTERNATIONAL (2014) individuals from neighboring countries could be wintering in the inner part of Bulgaria as well NANKINOV, DOBRININA (2002). Another contradiction considering the numbers is the large increase of the wintering rooks in only 10 years period (35 times), while an overall decrease of the population in Bulgaria after 2000 was registered VASILEV (2007). The higher numbers could be due to the juvenile birds as the species often occurs with much higher numbers after the breeding season PATEFF (1950) and/or to birds coming from Ukraine and Russia NANKINOV, DOBRININA (2002). In the current study the initial number of birds in

the late November was 7542. Afterwards rooks' numbers gradually increased to a maximum of 59 280 individuals in February and then in only 20 days the numbers went to a minimum - 5481 birds in Mid-March. Our findings confirm the results of the previous study of the pattern of presence of the Rooks with peak numbers in February and decrease in March VASILEV, NANKINOV (2003), although the current study consisted of only 6 counts in comparison to the 15 counts from the previous one KASHEROV (1995). This could be explained by the worse weather conditions in the coldest months of the year and the snow coverage in northern latitudes when rooks are pushed to find food resources in the lowlands and at lesser latitudes. Additionally, inner parts of the towns have specific micro climate and could shelter species from the harsh weather conditions KASHEROV (1995). Rooks were flying mainly from two directions onward their roosts - western and eastern as the birds were almost equally distributed between these two directions. Quite often their flocks were mixed with the European jackdaw (*Corvus monedula* Linnaeus, 1758) which sometimes consisted of up to 50% of the flock. As the previous study has reported when the weather conditions were mild the birds were flying higher and arriving sometimes when completely dark at the roosting sites and the opposite scenario happened when the weather conditions were worse. Rooks were mainly roosting at Lauta Park and the surrounding space. Our observations seem to confirm that there is dependence between the duration of the day and the time of arrival of the rooks at the roosting site - in longer days the rooks were arriving later in time than in the short winter days when the light intensity was decreased SWINGLAND (1976); KASHEROV (1995). Although the breeding biology and distribution of the Rook in Bulgaria is well studied a little is known considering species wintering pattern. Wintering congregation of the Rook are known from other sites in Bulgaria VASILEV, NANKINOV (2003); (authors unpublished data), but until recently there is no detailed data about the

pattern of wintering presence of the species at the roosting sites in the settlements and their surroundings. Due to the flock structure of the Rook our study could have even underestimated the number of the birds as more than 85 000 birds have been established in a stranded count (authors' unpublished data). If it appears that the whole breeding population congregates at a very few wintering and roosting sites, then it is of vital importance such sites to be identified and a number of measures to be taken in order to ensure suitable protection status of the species during wintering congregations.

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