

INFLUENCE OF DISTANCES TO LAKES AND RIVERS ON THE STRUCTURAL ORGANIZATION OF NESTED AREAS OF THE SCOPE IN BESHENKOVICHI AND SHUMILINO DISTRICTS

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Osprey (*Pandion haliaetus*) belongs to the species included in the Red Book of the Republic of Belarus [1]. The main nesting places for birds are raised bogs. One of the main factors influencing the choice of a nest site is the distance to the hunting grounds. The osprey is a fish-eating bird and its hunting grounds are lakes, rivers and fish-breeding ponds of fish farms. In search of food, the bird can cover a maximum distance of 8 km. Determining the optimal distance for osprey from raised bogs to lakes and rivers makes it possible to search for potential nesting territories, to create a park of artificial nests, as well as to discover previously unknown nesting sites.

The purpose of this work is to determine the influence of water bodies on the structure of nesting areas of the osprey, as a factor affecting its abundance.

Material and methods. In these areas, 7 nest sites were found (4 in Shumilino and 3 in Beshenkovichi), information on which was contained in the cards describing nests for the period from 1996 to 2021, provided by the professor of the Department of Ecology and Geography of Vitebsk State University named after P.M. Masherov Vladimir Ivanovsky.

The cartographic basis for the work was formed by digital electronic maps created earlier by students and teachers of our university, materials from Shumilino and Beshenkovichi forestry enterprises on the vegetation cover and the nature of the studied biotopes, as well as data from remote sensing of the Earth. Based on this information, we have concretized the topography of water bodies.

To obtain an accurate result, the work was carried out on the basis of the MapInfo Professional GIS platform. When determining the exact distance, the built-in *Distance Calculator* program is used, which calculates and saves the result directly to the table.

Findings and their discussion. The lakes are the main hunting ground for birds. In their absence, or inability to hunt due to weather conditions, the osprey flies to hunt rivers. It is customary to distinguish between the main river and its tributaries of various orders. The Zapdanaya Dvina will be the main river flowing through these areas.

Beshenkovichi district. In this area, 34 eutrophic and mesotrophic lakes and 18 rivers of the first and second orders have been identified. There are three nests here (numbers 48, 51, 71). From nest 48 the bird can hunt on 3 lakes (Moshno - 0.51 km, Dobrino - 6.45 km, Ostrovno - 7.51 km). The average dis-

tance covered by a bird to lakes is 4.82 ± 2.18 km. The bird flies a distance of 7.97 km from this nest to the main river. The distance to the tributary of the first order (the Ostrovitsa River) is 9.94 km, the bird is definitely not here to hunt. Birds from nest 51 are subject to 6 lakes, the distance to which is as follows: to Lake Sosno - 6.32 km, to Lake Soro - 4.36 km, to Lake Ostrovenskoe - 3.49 km, to Lake Beloe - 2.90 km, to Lake Biklozha - 2.59 km. The average distance to these lakes was 4.21 ± 0.61 km. The main river is located at a distance of 10.44 km. The first-order tributary for this nest will be the Berezka River, the distance to which is 4.92 km. In this nest, birds cannot hunt on the main river. Nest 71 also has 6 lakes allowing you to hunt them. Distance to Lake Leshno - 6.56 km, to Lake Platishno - 5.18 km, to Lake Garnosvechye - 2.75 km, to Lake Kolodno - 7.32 km, to Lake Slobodskoe - 4.20 km, to Lake Chernoe - 7.11 km. The average distance here will be 5.52 ± 0.74 km. Among other nests, 71 are located closest to the Zapadnaya Dvina, the distance to it is 4.25 km. To the tributary of the first order (Svechanka river), distance 1.01 km.

Shumilinsky district. This territory includes 31 rivers of the first and second order and the Zapadnaya Dvina, as well as 42 eutrophic and mesotrophic lakes. There are four nesting territories, the numbers of which are 42, 66, 67, 69. Birds from nest 42 hunt on 3 lakes, the distance to which: Lake Krasomai - 5.64 km, to Lake Moshnya - 5.67 km, to Lake Donets - 4, 73 km. The distance to the main river is very distant, 32.04 km. To the tributary of the first order, and this is the Obol River, the distance is 1.60 km. Near nest 66 there are 5 lakes that can be used by birds. To Lake Laktovskoe - 4.27 km, to Lake Dolgoe - 6.81 km, to Lake Bochevo - 3.41 km, to Lake Voknishche - 1.61 km, to Lake Bubolskoe - 3.94 km. The average distance was 3.95 ± 0.85 km. The distance to the main river is 9.62 km. Before the tributary of the first order, the Obol River - 5.25 km. Nest 67, unlike birds from other nests, here the osprey can fly only to one Lake Olshanskoye - 2.57 km. Another feature of this nest is its close location to the main river, the distance to it is 2.79 km. The distance to the first order tributary is 1.06 km. Nest 69, its location is similar to Nest 67, there is only one Lake Glukhoe, the distance to which is 6.35 km. The distance to the main river is 6.31 km. Before the tributary of the first order, the Obol River - 3.64 km. This means that birds from this nest can use all reservoirs as hunting grounds.

Conclusion. Thus, in Beshenkovichi and Shumilino districts, using a GIS platform, the distances to lakes and rivers from known nesting territories were calculated. The average distance to eutrophic and mesotrophic lakes was 4.70 ± 0.38 km. The average distance to the main river was 5.33 ± 1.13 km. To the rivers, which are tributaries of the first order, the average distance was 3.28 ± 0.85 km. The obtained average distances at the next stage of the study will be used as the radii of the buffer zones to search for potential nesting territories and places suitable for the construction of artificial nests.

1. Dombrovsky V.Ch. Skopa / V.Ch. Dombrovsky, V.V. Ivanovsky // Red Book of the Republic of Belarus. Animals: rare and endangered species of wild animals. – 4th ed. – Minsk: Belarus. Entsykl. name P. Brovki, 2015. – P. 67-68.