

## **THE CURRENT STATE OF THE SPRING MIGRATION STOPOVER OF GEESE IN OLONETS, REPUBLIC OF KARELIA, RUSSIAN FEDERATION**

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The monitoring of bird number dynamics and its determining factors were provided in the Olonets migration stopover, the largest bird stopover in North-Western Russia, in 1997–2017. During these years, the forage base improved, but the bird number has not increased, and flocks have become less stable.

The number of white-fronted geese and bean geese changed significantly from year to year with no apparent trend. Annually, about 18 000 white-fronted geese and 6 000 bean geese fed in the fields on the day of the peak of migration. Flocks of barnacle geese have been steadily growing; the number of birds on the day of its peak has annually increased by an average of 920 individuals. In 1997–2010, about 79 % of birds in flocks were white-fronted geese, 15 % were bean geese, and only 6 % were barnacle geese. In 2011–2017, the proportion of the white-fronted geese declined to 56 %, the barnacle gees took the second place (28 %), and the third place belonged to the bean geese (16 %).

The time of migration varied depending on the spring weather. The dates of peaks in numbers of bean geese and barnacle geese annually varied with no apparent trend. Most numerous concentrations of bean geese in the fields were recorded on average on April 26, the second – on May 16. The peak of abundance of white-fronted geese shifted to the earlier dates, on average it shifted for 3 days every 4 years.

Earlier it was shown that the spring weather, food supply, human disturbance and the level of protection of birds have the most significant impact on the dynamics of geese flocks. These factors have been contributing to bird number in recent years too. Since 2013, the frequency of agricultural fires and the area of burned fields have

decreased, which has had a positive impact on the dynamics of bird number. However, the poaching continues to be a destabilizing factor in the number of birds. The legal spring hunting at bird overnight places or on flight routes also negatively contributes to the bird number. The result of this is the significant daily population changes associated with the departure of some birds from the area of migration stopovers. There are also new factors of birds' disturbance, for example, quadcopters and small aircraft. All these factors prevent the growth of the bird number at the migration stopovers and lead to the destabilization of geese flocks and disintegration of the spring migration stopover in the Olonets fields.

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## **ANTIOXIDANT SYSTEM OF CANIDS IN DIFFERENT SEASONS**

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In the European North, the influence of environmental factors, among which photoperiod and ambient temperature are the most important, results in physiological changes in the mammalian organism. At the same time, the optimal functioning of the systems supporting the body's homeostasis is due to the presence of certain biochemical mechanisms. The purpose of this work was to study the indices of the antioxidant system (the activity of superoxide dismutase and catalase, the content of reduced glutathione, vitamins A and E) in the tissues (liver, kidney, heart, lung, spleen, skeletal muscle) of blue fox (*Vulpes lagopus*), silver fox (*V. vulpes*), raccoon dog (*Nyctereutes procyonoides*) and gray wolf (*Canis lupus*) in the autumn-winter and spring seasons. In the liver and kidney of all species in the autumn-winter season the activity of antioxidant enzymes and the level of glutathione were relatively high,