



Ptarmigan breeders occupies the margins of zonal vegetation types. In decline periods, the reproductive core of the population shifts towards the southern scrub tundra subzone. On such years, Willow Ptarmigan becomes rare in northern tundras. During the rise phase, the bulk of the breeders tend to move from southern scrub tundra to northern tundra.

In low abundance years (2009), East European tundras were found to contain local areas where the birds' abundance was ten times that of the mean for all tundras. Such areas feature high diversity of landscapes and vegetation, and sometimes stand out for geochemical peculiarities due to discharge of geothermal groundwater.

The trends in long-term dynamics of Willow Ptarmigan abundance in mainland tundras and on Barents Sea islands are unidirectional.



PATTERNS IN LONG-TERM ABUNDANCE DYNAMICS OF ANSER GEESE AT SPRING STOPOVERS IN THE ENVIRONS OF OLONETS (KARELIA, RUSSIA)

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Anser geese in Olonets area spring stopovers were monitored in 1997–2009 from April 16–26 to May 19–25. The bird numbers and the time of arrival varied widely among years depending on the spring weather, forage resources, and the nuisance factor. With these variations in the background, a weak trend for a rise in abundance was noted in two species. Maximal daily numbers varied among years from 783 to 14 220 birds in Bean Goose *A. fabalis*, and from 12 148 to 27 726 birds in White-fronted Goose *A. albifrons*. Bean Goose abundance peaked in different years from April 20 to May 3, and that of White-fronted Goose – from May 1 to May 17. In Bean Goose,



annual abundance parameters positively correlated with air temperature in April ($r_s=0.6$), and the duration of the birds' stay in the fields correlated with May temperatures ($r_s=-0.5$), decreasing notably in warmer seasons. White-fronted Goose demonstrated a stronger correlation between abundance and April temperatures ($r_s=0.8$). The time of massive arrival of the birds to the fields also correlated with the weather in April ($r_s=0.7$). White-fronted Goose always departed later than Bean Goose. The time when the species' congestions fell apart did not depend on air temperature in May, but rather on forage resources. Both extensive burning of last year's grass in the fields and poaching in the territory of the 'Goose Sanctuary' negatively influenced the birds' numbers.



SPRING STAGING AREAS IN UPPER VOLGA REGION: CONSERVATION PROBLEMS

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Field studies in the frames of the international "SPRING" project (MATRA, The Netherlands) are carried out in four regions of the Upper Volga area (Yaroslavl, Vladimir, Ivanovo and Kostroma Regions). The main aim of this project is to find key areas of spring concentration (MSA – major staging areas) of geese, as well as to explore more thoroughly their flyways. In the course of the project, new MSA were found and known ones were inspected. Weather conditions, food supply and disturbance, especially hunting, – are the main factors influencing MSA. Amateurishly organized hunting strongly damages