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# IMPACT OF HUNTING AND AGRICULTURAL ACTIVITY ON GOOSE SPRING MIGRATION IN EUROPEAN RUSSIA

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Spring migration is a stage of the annual cycle when the maintenance of energetic reserves is critical. Therefore, geese have to make stopovers during their migration from the wintering grounds to the breeding area at places with high-energy food resources. Agricultural land and wetlands are key stopover sites for geese during spring migration. Especially, the distribution of agricultural lands plays a pivotal role in the formation of their migratory flyways.

Hunting pressure furthermore influences the choice of stopover sites. The dates of the hunting period differ in different regions of Russia. Moreover, illegal hunting has a big impact on goose behavior. As resting places geese very often choose protected areas.

We study two of the most numerous goose species migrating through the central part of European Russia, the Greater White-fronted goose and the Bean goose. More intensive agricultural activity in the regions of Chernozem resulted in the choice of protected areas as stopover sites whereas in the regions of Noncernozem the distribution of agricultural lands is more important.

We used data of satellite tracked Greater White-fronted and Bean geese to analyze the distribution of geese in different habitats. The degradation of agricultural landscapes in the last 30 years seems to have resulted in a change of the migratory routes and stopover sites. Thus, existing protected areas are no more efficient for the protection of the goose populations during migration. Geese more often choose agricultural lands close to big cities for their stopovers, where hunting pressure is high. We have also shown that during the hunting period geese move around more often and need more time for refueling.

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