

## CHANGES IN THE NUMBER OF WILD UNGULATES IN THE SOUTHWEST PRIMORSKIY PROVINCE, RUSSIA

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**Abstract.** Management of populations of rare predators is impossible without knowledge of the number and density of their main prey species. In the Southwest Primorskiy Province, the world's only wild population of the Far Eastern leopard has been preserved, and the area is also part of the range of the Amur tiger. The main hunting objects of these rare predators are ungulates: sika deer, roe deer, wild boar. In 2019, a new ungulate species for Primorskiy Krai and Russia – the water deer – was discovered here. The aim of the work is to study the number and density of wild ungulates in the range of the Far Eastern leopard, to assess the dynamics of changes that have occurred in the populations over 3 years. Materials from two full-scale aerial surveys conducted in 2019 and 2023 were used to estimate the number and density of wild ungulates in the Southwest of Primorskiy Province. The survey routes covered the entire Russian part of the range of the Far Eastern leopard with an area of 571,000 ha, including hunting grounds and protected areas of national and provincial levels. Both surveys were conducted using the same methodology and under as identical conditions as possible. In 2019, the total length of the routes was 1104.8 km and 1298 sika deer, 264 roe deer, 301 wild boar and 11 water deer were encountered. In 2023, 1666 sika deer, 151 roe deer, 71 wild boar and 19 water deer were registered along 999.6 km. Since 2019, sika deer numbers have increased by 25 % to 28.9 thousand individuals at a density of 50.5 ind/1000 ha. Favorable conditions for population growth are created by highly productive oak-broadleaf forests, lack of stable snow cover in winter, as well as additional winter foraging and improvement of anti-poaching work on protected areas. At the same time, the roe deer number and density declined twofold, and by 2023 here was 2.8 thousand individuals at a density of 4.8 ind/1000 ha. The main reasons for the population decline are competitive relationships with sika deer, as well as hunting and poaching pressure outside the specially protected natural areas. As a result of the outbreak of African swine fever, the number of wild boar in the Southwest Primorskiy Province has decreased more than 4 times in three years to 1.3 thousand individuals at a density of 2.3 ind/1000 ha. Water deer population in the south part of the study area was doubled in three years and totaled about 300 individuals at a density of 2.8 ind/1000 ha. Despite the depression of wild boar and roe deer populations, due to the growth of sika deer numbers, the total population of wild ungulates in 2023 remained at the level of 33 thousand animals, which provides prey for the growing populations of the Far Eastern leopard and Amur tiger. The number of sika deer in the study area reached a historical maximum. The population growth indicates that the south-west of Primorskiy Province has the most favorable conditions for this species. With the increasing population of sika deer, roe deer will continue to be displaced from forested areas into open habitats. It is likely that the core roe deer population will remain in rare forests and meadow habitats in the south of Khasanskiy District. It is not known whether the ban on wild boar hunting announced in Primorskiy Province will affect the recovery of the population of this species. The prognosis for the outcome of the disease and the recovery of animal numbers is currently unclear. The rapid growth of the water deer population in the Russian part of its range is not surprising. The combination of favourable environmental factors is complemented by early puberty and high fertility of animals.

**Keywords:** sika deer, roe deer, wild boar, water deer, aerial survey

**Financing:** the aerial survey was carried out using extra-budgetary funds from the N.N. Vorontsov Federal State Budgetary Institution "Land of the Leopard".

**For citation:** Petrov T.A., Darman Yu.A., Titov A.S., Storozhuk V.B., Sonin P.L., Marchenkova T.V. Changes in the number of wild ungulates in the southwest Primorskiy province, Russia. *Russian Journal of Ecosystem Ecology*. 2025;10(1). (In Russ.). Available from: <https://doi.org/10.21685/2500-0578-2025-1-2>