

whereas in spring these parameters were decreased. In spring, there was a tendency to increase the role of low-molecular weight antioxidants (glutathione, vitamins A and E) in antioxidant defense of the heart, which was most clearly manifested in foxes. In foxes and raccoon dog, an increase in the activity of antioxidant enzymes, as well as the level of vitamins in silver fox, and a decrease in the content of glutathione in the lung, spleen and skeletal muscle were found in spring that characterizes the intensification of oxidative processes in these organs. Perhaps the increase in day length and the activation of metabolic processes affect the system of antioxidant protection of the spleen, as an organ of the immune system, as well as lung and skeletal muscle, which functioning is related to the locomotor activity of animals. Thus, seasonal changes in the level of endogenous antioxidants in the animals studied were mostly similar, whereas for vitamins A and E there were some differences, probably related to the ecological characteristics of the species. Seasonal factor has a greater effect on the antioxidants in the spleen and skeletal muscle. The research was carried out under state order (projects number 0221–2017–0052 and 0221–2017–0046) using the equipment of the Core Facility of the Karelian Research Centre of the Russian Academy of Sciences.

FATTENING FOODS OF THE BROWN BEAR AND ITS DIET IN THE EUROPEAN TAIGA

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The materials of phenological observations (Nature Chronicles of strict nature reserves) in taiga subzones of North European Russia related to the biology and ecology of the brown bear (*Ursus arctos*) are analyzed. The characteristics of fruiting in berry sites (timing, periodicity, yield), as well as indirect evidence of the completion dates of the fattening period (last dates of bear track sightings in autumn, dates of steady

snow cover establishment) are considered. The method of recording the abundance of fruit-bearing rowan trees along permanent transects (pcs./km) is substantiated, and the results of such counts are reported. The trophic links of the brown bear with berry yields and the sequence of their seasonal ripening are demonstrated. The diet and feeding habits of young-of-the-year cubs and bears of other age classes during the fattening period in the middle taiga subzone are characterized.

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THE ENVIRONMENTAL IMPACT OF THE SEMI-FREE RANGING OF UNGULATES IN THE CONDITIONS OF THE EUROPEAN NORTH OF RUSSIA

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The study was carried out in the Republic of Karelia, in the middle taiga subzone, within the Green Belt of Fennoscandia, which features well-preserved expanses of old-growth forest. In 2010–2018, we monitored the impacts of ungulates (wild boar, red deer, Siberian wapiti, Siberian roe deer) ranging in 700, 750, and 3000 ha enclosures in the game and hunting farm “Chyornye Kamni”. We studied the features of the species’ biology and ecology, including breeding and rooting activity in boars, status of the natural food resources and foraging habits of native species, the effect of their activities on plant communities. The possibility of competition between the cohabitant species, potential genetic risks of red deer – Siberian wapiti and Siberian – European roe deer hybridization are considered. The effectiveness and prospects of ungulate ranging in large enclosures are assessed; measures to minimize their negative environmental impact are suggested. The activities of the “Chyornye Kamni” hunting farm in maintaining a large