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THE INVASION OF THE AMERICAN MINK (*NEOVISON VISON*) – THE EXAMPLE OF OVERADAPTATIONS

Y.N. Tsvetkova[1], O.A. Kolobova[2], N.P. Kolomiytsev[1], N.Ya. Poddubnaya[1], D.A. Senina[1], M.O. Bistrovskaya[1]

[1]Cherepovets State University

[2]State Agricultural Academy VNIISB

Russia, 162600, Vologda region, Cherepovets, e-mail: biologiacher@yandex.ru

The problem of biological invasions of alien species has become one of the most important in the study of ecosystems in the last 50 years. Intentional introduction, accidental transfer, moving animals and plants lead to the serious disturbances in ecosystems and poor performance in the agriculture, forestry and animal-breeding farms, the recreational and sporting appeal of regions and require focusing on solving the problem in the Russia. One of these require attention species is the American mink. Its introduction in the Russia was intentional and unintentional. The American mink resides in the most part of Russian territory and has now been recognized as invasive species (Khlyap et al., 2008). American mink can cause significant damage to muskrats and birds (Geptner et al, 1967; Kolomiytsev, 1985; Poddubnaya, 1995; Chaschuchin, 2009; Kauhala, 1996), compete for food and habitat with mustelids (Kiseleva, 2011; Sidorovich et al. 2007). It is believed that the introduction of American mink has become the main reason of the decline of European mink numbers (Maran, 2007), and today European mink included in the IUCN Red List as a critically endangered species. The current range of European mink includes only a few percent of its historical distribution range. In the 1980s the main Russian population of European mink was in Pskov, Novgorod, Tver, Vologda, Kostroma, Yaroslavl, Kirov, Arkhangelsk, Perm, Komi regions. At the same time, the Vologda region is one of the few areas where the special issues of American mink was never performed, and where the species entered appear only in the early 1980s (Tumanov, 2009). Therefore, one would expect the preservation of its indigenous counterpart in slightly better condition. Our studies conducted in 2004-2012 showed that the American mink inhabits almost all the rivers, lakes and reservoirs (Poddubnaya et al., 2013; Senina et al., 2012). Why American mink is successful in colonizing new ecosystems? It is known that species inherit a huge quantity of structural elements that are formed based on "outdated" information (Kolomiitsev, Poddubnaya, 2010), and among them with high probability may be present and those that are able to improve individual fitness with respect to the new state of the environment and even contain elements of 'overadaptations' or anticipatory adaptation. ‘In periods of rapid changes in the environment – that takes place during the invasions also, the rapid expansion of areas and introductions – the importance of such structural features may be comparable with the value of mutations, but unlike the latter, which mostly are lethal, they are the products of the long biological selection and therefore they do not disturb the harmonious epistatic gene interaction (Kolomiytsev, Poddubnaya, 2010, p. 819). The importance of the latter was pointed by Ernst Mayr (1968). The successful acclimatization of American mink in South America and Eurasia is one of the clearest examples of overadaptations species.