COMPASS

ALIEN SPECIES OF ANIMALS, FUNGI AND PLANTS IN BELARUS AND NEIGHBORING COUNTRIES

Book of Abstracts

of the 1st International Scientific Conference

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The scientists' materials presented are devoted to modern aspects of faunal research, and monitoring and ecology of alien and invasive species in Belarus and neighboring countries.

The materials are intended for researchers, university lecturers, graduate students, and students of specialized educational fields. The authors of each paper are solely responsible for the accuracy of the information presented, correctness of the citation sources, statistical, personal and other data given in the articles.

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ALIEN SPECIES OF HYDROPHILIDAE (INSECTA: COLEOPTERA) IN THE BELARUSSIAN FAUNA

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Introduction. Natural successional processes in the biosphere and individual ecosystems are associated primarily with changes in climatic conditions. A number of insect species are expanding their ranges, both northward and southward. In some cases, the expansion of the boundaries of the species range is natural, in others, the dispersal of the species is facilitated by humans. Some species, being included in the regional fauna, can be considered not only alien, but also invasive species. Among Hydrophilidae both terrestrial and water species, there are some species that expand their range.

Materials and methods. Species composition studies of hydrophilids have been carried out since 1987 and are ongoing. Standard methods of entomology and zoogeography have been used for this study.

Results. The fauna of Belarus includes 57 species of Hydrophilidae (Ryndevich et al., 2014). Among the representatives of the family there are both water and terrestrial species of beetles. Seven of them can have the status of alien species for the Belarusian fauna.

Two other species of hydrobiont hydrophilids were recorded only once in Belarus. Beetles were collected at light.

Berosus (Enoplurus) bispina Reiche & Saulcy, 1856 (Minsk reg., Nesvizh distr., Gorodeya, at Uf-light, 16.VII.1998, leg. Ryndevich S.K., 2 specimens). This species has a West Palaearctic-Central Asian subboreal-subtropical range, located in the temperate (south of the taiga zone) and subtropical zones of Europe, North Africa, Southwest and Central Asia.

Berosus (Enoplurus) spinosus (Steven, 1808) (Minsk reg., Pukhovichi distr., Kopeynoe, Uf-trap, 26.VII.1997, leg. Prishchepchik O.V., 2 specimens). The species has a Trans-Eurasian subboreal range, covering Eurasia south of the taiga zone, and can penetrate the mountains into the subtropical belt.

Enochrus (Lumetus) bicolor (Fabricius, 1792). At the moment, the range of this species is greatly expanding both to the north and to the south. It includes Europe, southern Siberia, Central and Eastern Asia south of the taiga, as well as the subtropical belt of the Palaearctic (North Africa, etc.), extending through the mountains of Central Asia into the subequatorial belt to the north of Hindustan. The coenorange (part of the range where the species is most abundant) of *Enochrus bicolor* is located in the subboreal (steppes and deserts) and subtropical regions of Eurasia and North Africa. On the territory of Belarus, it was recorded in 1988 (Vileika district), then for a long time it was not recorded, despite constant studies of the fauna of water beetles in Belarus. Only in 2012 and 2014, single finds were made already in the south of Vitebsk region (Ushachi and Lepel districts). The finding of *Enochrus bicolor* in Pripyat (Zhitkovichi district) in 2017 indicates a stable population in Belarus. The spread of this species in Belarus is probably associated with climate warming and is the result of self-dispersal.

Laccobius (*Microlaccobius*) *gracilis gracilis* Motschulsky, 1855. This species has a West Palaearctic subboreal-subtropical range located in North Africa, Southwest Asia and in the south of the taiga zone in Europe. The only specimen was collected in the Pripyat River near Pinsk in 2013.

Perhaps it was a single settling of heat-loving species (*Berosus bispina*, *B. spinosus* and *Laccobius gracilis gracilis*) into the territory of Belarus. Permanent populations have not formed here, or they are quite local and have not been found yet as in the case of *Enochrus bicolor*, beetles have not been discovered for over 20 years. Probably, the penetration of alien species into the territory of Belarus occurred from the western and southwestern directions, in particular along the Pripyat river basin.

Among alien species, three species are polysaprobiont hydrophilids, being mainly inhabitants of bird and mammalian excrement. Two species of *Cercyon* have cosmopolitan polyzonal ranges.

Cercyon (Cercyon) nigriceps (Marsham, 1802). In Eastern Europe, this species is rare and local. This species is common and most abundant in tropical regions (Oriental and Afrotropical), which indicates its probable origin from one of these zoogeographic regions. This is also indicated by the finding of the ranges of a larger number of *Cercyon nigriceps* species group from the Oriental Region. In Belarus, it was first recorded in Baranovichi district in 1999. In neighboring countries, it was registered much earlier (Yaroslavl region in 1894, Estonia – 1903, the Crimea in 1920). Recorded in Brest and Gomel regions.

Cercyon (Paracycreon) laminatus Sharp, 1873. The primary range is in East Asia. In Belarus it was first collected in Verkhnedvinsk district in 1995. Recorded in Brest, Minsk, Vitebsk and Gomel regions. This species is not rare in Belarus and has a stable population.

Cryptopleurum subtile Sharp, 1844. Currently, the species has Circum-Holarctic-Southeast Asian polyzonal range (it covers the entire Holarctic from the subarctic to the subtropical belt, as well as the north of the Oriental region (in the subequatorial belt of Southeast Asia). The species, probably, originally inhabited Southeast Asia, but later spread through wide areas of the Holarctic and Oriental regions. In Belarus, it was first recorded in Zhitkovichi district in 1987, the species was collected in Brest, Minsk, Vitebsk and Gomel regions. *Cryptopleurum subtile* is not rare in Belarus. The reasons for the expansion of the range of this, like the two previous species, are anthropogenic in nature.

In the European part of Russia, *Cercyon (Cercyon) castaneipennis* Vorst, 2009 is listed as an alien species (Orlova-Bienkowskaja, 2019). The range includes Western and Eastern Europe, the southwest of Northern Europe and the Canary Islands. The species has been known from the territory of Belarus (Nesvizh district) since 1988. *Cercyon castaneipennis* was collected in Brest, Grodno, Vitebsk and Minsk regions. A stable population of this species has fixed in Berezinskiy Biosphere Reserve since 1994. It is impossible to reliably classify it as an alien species for Belarus because its initial range is not known yet. The fact is that it has not been previously recorded in certain territories, so it does not mean its absence there. Indeed, even in well-studied territories, new species of insects for the fauna and for science are found, which were not previously known due to their rarity or lack of knowledge of the biology of these species.

Conclusion. The expansion of the ranges of Hydrophilidae can be both natural and anthropogenic. The Belarusian fauna includes seven alien species of hydrophilids.

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