

Latvijas Universitātes 70. zinātniskā konference
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MONITORING OF THE NATURA 2000 SITES FRESHWATER PEARL MUSSEL
MARGARITIFERA MARGARITIFERA RESERVES IN RIVER BASIN PALSA.

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There are 3 NATURA 2000 sites in river basin Palsa funded in 2004 as nature reserves for freshwater pearl mussel *Margaritifera margaritifera* (Linnaeus, 1758) and the thick shelled river mussel *Unio crassus* Philipsson, 1788, and water courses biotope. These are nature reserves Launkalne, Rauza and Šepka, situated on eastern part of Latvia, Smiltene municipality.

In river basin Palsa lies the most part of Latvia *Margaritifera margaritifera* population (Rudzīte 2004). *Unio crassus* is distributed on all territory but most populations are overaged and decaying. In river basin Palsa this species have obvious, but fragmented population.

The purpose of study was to estimate surviving possibilities on river basin Palsa of freshwater pearl mussel and thick shelled river mussel.

The task of work is 1) To count mussels of populations of both species according the NATURA 2000 site methodology, 2) determine and estimate the density of both species, 3) to recognize the main sources of pollution.

In the 2009 and 2011 according the NATURA 2000 site methodology, on nature reserves Launkalne, Rauza and Šepka both species were counted on transects 1 m x 50 m, one transect on every 1 km of river. Some planed transects were imposible due the high water level upward the beaver dams. On 32 transects were found and counted 3268 specimens of *Margaritifera margaritifera* and 4207 specimens of *Unio crassus*.

Main density of *Margaritifera margaritifera* population estimated 2.04 specimens/m², maximal – 10.1 /m², but main density of population *Unio crassus* 2.63 /m², maximal – 15.98 /m².

As recognized in 2001, all *Margaritifera margaritifera* populations are overaged (Rudzīte 2001). On river basin Palsa in 2004 was studied mussel population and found that on beaver influenced stretches of river young speciamens are wery rare and mussel population are more overaged.

In 2011 the age structure of populations was studied in addition to monitoring countings. The length classes aproximately serving as the age classes were used to study the age structure of populations (Erikson et al. 1998). The age structure of *Unio crassus* population indicates that all classes of age are present and tthere are normal ability of recruitment. Population of *Margaritifera margaritifera* are overaged and survival possibility is endangered. In river basin Palsa population have more chances to survive

than in nature reserve Melturu sils where results of monitoring in 2008 showed that population is near extinction (Rudzīte M., Rudzītis M. 2011).

The main treats for both species are 1) river pollution with organic from insufficient cleared wastes, 2) beaver activities – degradation of watercourses habitats, decreased water quality, influence on habitat below dams.

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