

FRESHWATER PEARL MUSSEL *MARGARITIFERA MARGARITIFERA*: COVERAGE BY STUDIES AND WAYS TO CONSERVE THE SPECIES IN RIVERS OF NORTHERN EUROPE

A. Saano, T. Lindholm, I. Valovirta, E. Ieshko

The freshwater pearl mussel *Margaritifera margaritifera* (L.) used to be quite widespread in rivers and streams of Western and Central Europe, Baltic countries, Byelorussia, and the taiga zone of Northwest Russia, including waters in the White, Barents and Baltic Sea drainage basins. To people of the North, including the territory now belonging to Karelia, the pearl mussel was of great importance as the source of pearls, which were their favoured decoration applied to clothing, home utensils, cases of most venerated icons, and book binders. The biggest and most regular-shaped pearls were vigilantly kept in the national treasury.

Pearl fishing was the main source of income for many people in northern countries, and attempts have been made to start raising pearl mussels instead of fishing for them. For instance, pearl fishers, the Kelevaevs from Keret, successfully harvested pearls for centuries without killing the mussels, and even stocked them over to other streams on the Karelian Coast (Oparin, 1976). The importance of pearls for the local economy is stressed by the fact that a wreath of pearls is depicted in the coat of arms of the Karelian City of Kem.

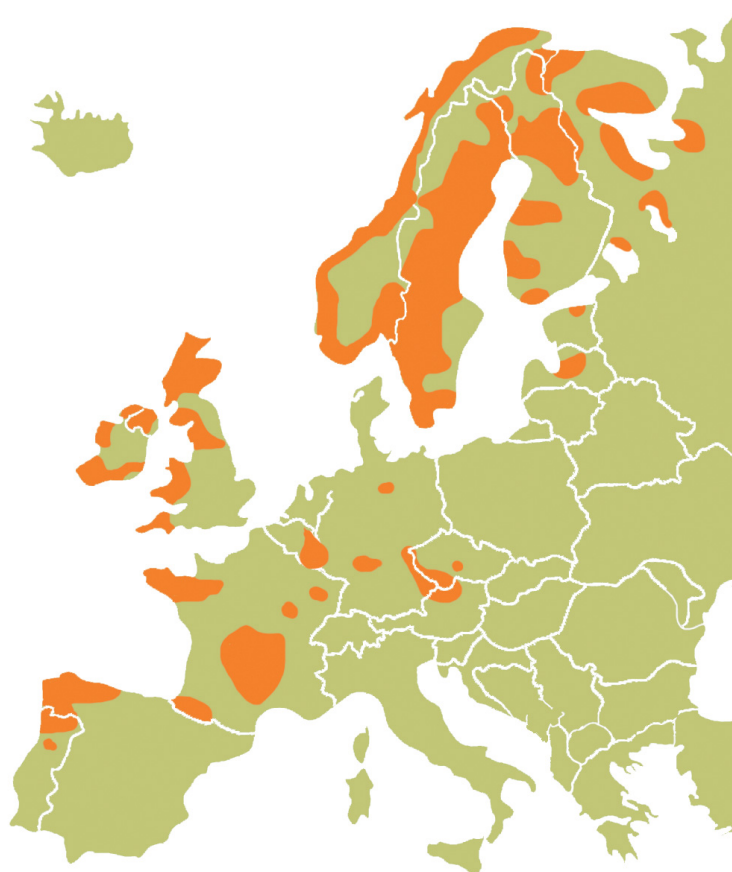


Fig. 1. Current distribution of the freshwater pearl mussel in Europe (Larsen, 2005).

The mollusk is protected under the Bern Convention (1979) and Annex II of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Furthermore, the species is listed in the 1996 IUCN Red Data Book as being endangered, as well as in Red Data Books of East Fennoscandia (1998), Russia (2001), and Karelia (2007).

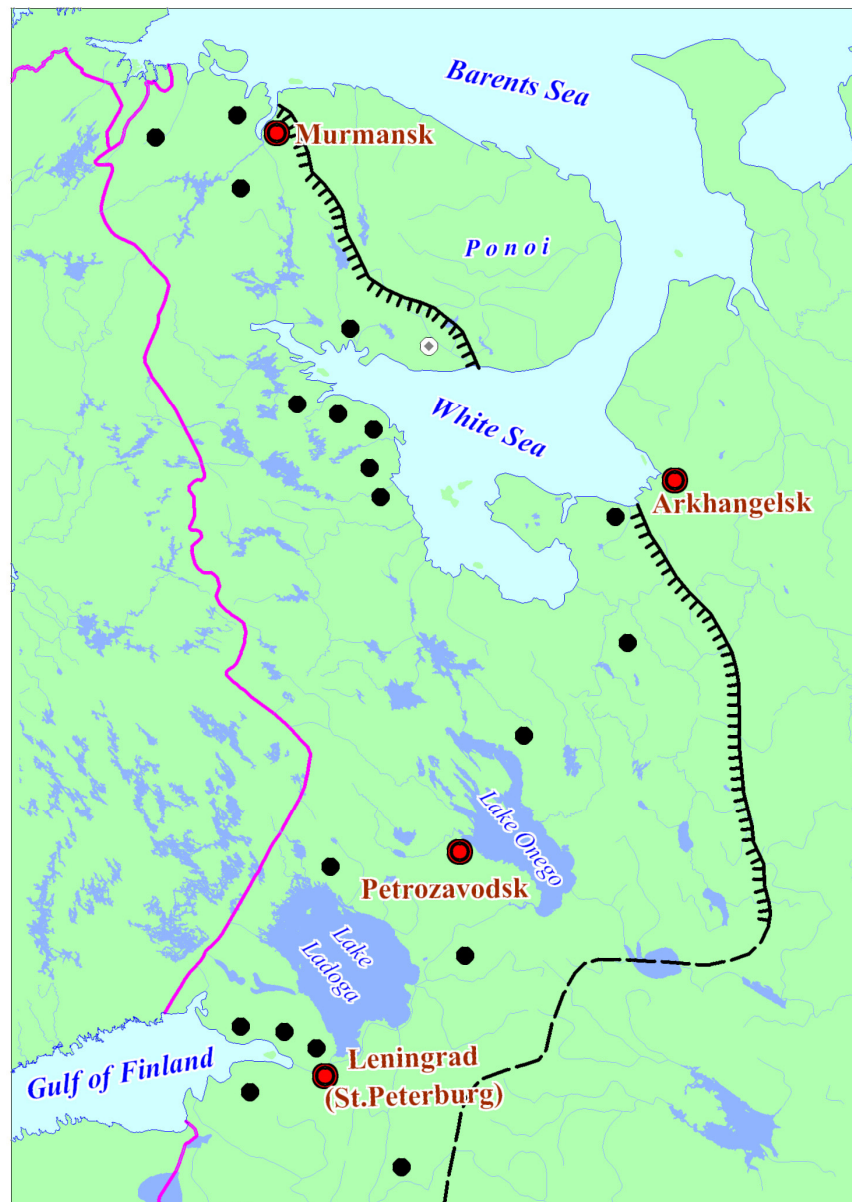


Fig. 2. Area of pearl harvesting (16th-20th centuries) in Russia. Dots mark rivers with surviving *Margaritifera margaritifera* populations (21st century) (Makhrov, ibid.)

In spite of all the protection measures, the pearl mussel *M. margaritifera* has over the past century gone nearly extinct from many regions of Central Europe (Araujo & Ramos, 2000). Numerous studies show the mussel abundance and occurrence have dropped abruptly in other regions as well, leaving fragmented declining populations behind (Fig. 1). The map below is a rather sketchy representation of the current distribution range of the pearl mussel in North European countries. However, even rough estimates of the mussel numbers (Geist, 2005; Larsen, 2005) lead to the conclusion that the principal role in the conservation of this endangered species in the near future would belong to rivers of the White and Barents Sea drainage basins (Fig. 2).

In view of this, the Finnish side of the Finnish-Russian Working Group on Nature Conservation and the Institute of Biology, Karelian Research Centre of the Russian Academy of Science have resolved to organize the international conference “State of freshwater pearl mussel *Margaritifera margaritifera* populations in Northern Europe” (Petrozavodsk, Russia, April 28-30, 2009). Specialists from Russia,

Sweden, Norway and Finland assessed the current situation with the pearl mussel populations in rivers of Northern Europe, and outlined the ways to conserve this declining species.

The presentations made by invited specialists provided an insight into present-day problems and the results of the work for conservation of the pearl mussel in North European countries (Sweden, Norway, Finland, Russia). Special focus was on the human impact on communities in the northern rivers that play a crucial part in maintaining the mussel populations in Europe. Scientists from Russia reported the information characterizing the current state of the populations in Northwest Russia (Murmansk, Arkhangelsk, Vologda, Leningrad Regions, and Republic of Karelia). The trend there is for a heavy reduction in the pearl mussel numbers as the result of hydropower construction projects and declining populations of salmon, which is an essential part of the mussel's life cycle.

The participants have stressed in particular that the conference promoted Russian interregional and international integration, helped establish and strengthen scientific contacts between specialists and organizations from different countries aimed at conserving the unique natural heritage in northern rivers.

It was decided to publish the conference proceedings in the form of a volume of collected papers, which may help in the efforts for conservation and restoration of the pearl mussel populations in rivers of Northern Europe and Northwest Russia. The volume can also be used as the basis for developing joint research programmes, and working out practical guidelines on designation of new protected areas.