



REPUBLIC OF ESTONIA  
ENVIRONMENTAL BOARD

# Estonian Freshwater Pearl Mussel Action Plan – an insight into the past and present of the species



Katrin Kaldma  
Aquatic Life Expert  
CoastNetLIFE  
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# 2nd Freshwater Pearl Mussel Action Plan

KINNITATUD  
Keskkonnaameti  
peadirektori xx.xx.xxxx  
käskkirjaga nr

Ebapärlikarbi  
(*Margaritifera margaritifera*)  
kaitse tegevuskava



1st Estonian FPM action plan was drafted in 2011, then revised and is valid from 2014 (until new version is signed)

Draft version of 2nd Estonian FPM action plan is currently pending and will (hopefully) be approved by the end of the year

# Protection - background

- **Estonian Red List (2017)**
  - FMP is *Critically endangered*:

The species has survived in one river basin in Estonia

Although mussels reproduce every year, nearly all juveniles perish

Old specimens have survived due to longevity

The population has decreased by more than 80 per cent, the extent of the species distribution and the inhabited area is small, and the number of individuals is small and decreasing

# Protection - background

## Conservation status in Estonia (Nature Conservation Act)

> protected category I: protection of all known habitats

Middle and lower reaches of the river and mouth of the river are located in the national park, Lahemaa NP



Lahemaa

SiteCode: EE0010173

Source and upstream of the river are located in a nature conservation area; North-Kõrvemaa NCA;

Põhja-Kõrvemaa

SiteCode:  
EE0010106

Both are Natura 2000 sites

# Long-term protection goals (in a 15-year term) are:

- Preserving the FPM as a species living in the wild i.e Pudisoo River
- Improving and maintaining the habitat quality of the Pudisoo River to an extent that would enable the survival of the juveniles of the FPM
- Raising public awareness and arousing interest in the protection of FPM
- (Re)Introduction of FPM into a several separate watercourses in order to reduce the accidental risks on survival of the species

# The short-term objective of protection (2021-2025):

- Maintaining the number of adult specimens at the current level
- The improvement of the habitat, which would enable the survival of juveniles
- Creation of competence for breeding in an artificial environment and repopulating of specimens into the Pudisoo River
- Catching beavers
- Ensuring a stable and sufficient number of the host species

# Risks and impact

<b>RISK FACTORS AND THEIR IMPACT IN ESTONIA IN COMPARISON TO THE PREVIOUS (2014) ACTION PLAN</b>		
<b>RISK FACTORS</b>	<b>ACTION PLAN 2014</b>	<b>CURRENTLY</b>
<b>Immediate threats to the population</b>		
• Risk of extinction of an individual population due to unpredictable random factors	critical	critical
• The number of hosts falls below the critical limit for the FPM	critical	great importance
• Immediate disturbance and capture	great importance	minor to meedium importance
• Emptying of ponds (sediment ponds and beaver dams) - one-off large-scale impact	great importance	great importance
<b>Habitat damage</b>		
• Habitat conversion activities of beavers	great importance	critical
• Habitat damage due to human activities	critical	great importance to critical
• Catchment background pollution	critical	critical
<b>Indirect threats to habitat and population</b>		
• Lack of information and awareness	great importance	great importance

Half of the river and river banks in the FPM habitat remain in the conservation zones and the other half in the limited management zone

About half of the fpm habitat remains in conservation zones- with a stricter protection regime and the other half in limited management zone – with a more lenient protection regime

The river is predominantly in the limited management zone and other watercourses flowing into the river are mostly in the limited management zone or outside of the protected areas

> And this means that may be we don't really know what's going on in the catchment area?

# Grey areas in FPM protection

## Concerns:

- Many activities affecting the quality of water in the limited management zone of the protected area are not in the jurisdiction of the Environmental Board. For example, maintenance and renewal of drainage systems
- Cutting of trees and shrubs in the water protection zone of water bodies is prohibited without the consent of the Environmental Board (according to the Water Act), but an exception is made for the construction and maintenance of drainage systems
- FPM's habitat in the environmental register has so far been limited to the presence of living specimens in the river section. As a result of which, for example, grazing on the shore has been allowed, for example, upstream and also on the banks of streams flowing into the habitat

*The existing protection does not guarantee the survival of the species, as only the FPM localities are protected, but the quality of the water depends on the quality of the water coming from the catchment area. It is necessary to protect the entire habitat of the species*

## Conditions for ensuring the most favourable status of the species

Achieving favourable status for the Estonian FPM population is not realistic in the next 15 years (coincides with the time of sexual maturity) and as of today there are no FPM juveniles in the Pudisoo River

- The FPM is located in a section of about 12 km long, but the catchment area affecting it is approximately 140 km<sup>2</sup>. In other words, **the whole impact area** must be dealt with
- During the identification and elimination of adverse factors, the cultivation of the species under artificial or semi-artificial conditions must be started as a precautionary principle in order to maintain the population and restore it to a favorable status

# Measures

- Stopping of the construction of new ditches and coordination of the maintenance of existing drainage systems in the sensitive part of the catchment area, ie on sections directly and indirectly affecting the habitat of the FPM
- Discharge of sediment from the bed with various flow deflectors (wood etc), if necessary pumping out sediment in larger collection areas
- Continued hunting of beavers, which prevents the construction of beaver dams
- Closing unnecessary drainage systems
- Closure of stream and ditch estuaries with flow-slowing obstacles or dispersal into the landscape
- Launching FPM cultivation to maintain the local population and/or provide start-up acceleration as habitat conditions improve
- Study of the suitability of other rivers and (re)introduction of juveniles into at least several separate sites

# Conservation management activities and their priority

ACTIVITIES	PRIORITY
<b>Restoration of the Pudasoo river and the catchment area</b>	
Restoration of the river habitat	I
An implementation project for catchment restoration and installation of a monitoring network for the restoration period	I
Catchment restoration	I
Restoration of Kõnnu Suursoo (bog) and streams	I
Maintenance of semi-natural habitats	II
<b>Direct protection of the Pudasoo population and conservation of the species by ex-situ rearing</b>	
FPM ex-situ rearing and international collaboration	I
Control of the beaver population	I
Opening beaver dams and removing flow barriers	I
<b>Monitoring, inventories and studies</b>	
Inventory	I
National monitoring of FPM	II
Study of flow parameters	II
Analyzis of sediments	II
Installation of new monitoring stations (hydrological and chemical) on the Pudasoo River	II
Genetic study of the population and international collaboration in this field	II
<b>Raising awareness</b>	
International collaboration	II
Seminars, materials and meetings with stakeholders, landowners and land users	II
<b>Planning future protection</b>	
Preparation of a cross-catchment expert assessment	II
Updating the action plan	II
Adjustment of the habitat in the Environmental Register, revision of protection rules, formulation of internal considerations	II
<b>Supervision</b>	
Preventing predatory fishing of host fish	II

# Assessing the effectiveness of protection

- The protection of the FPM can be considered effective if the number of individuals and the length of the inhabited river section does not decrease significantly (ie compared to the latest monitoring data and / or inventory at the beginning of the period), the proportion of river sections suitable for juveniles increases and resettlement of specimens in the Pudisoo River will begin
- Controlling the beaver in the FPM habitat is critical. The protection can be assessed as effective if the beavers are hunted regularly so that the flood areas are kept to a minimum and periods of flooding as short as possible.  
It is estimated that it is necessary to hunt about 70 beavers per year
- It is important to ensure a suitable population density of juveniles (0+) of trout, which should be (*CEN Standard*) at least over 5-10/100 m<sup>2</sup> in the habitat of the FPM of the Pudisoo River
- The organization of protection can be considered effective once the activities provided in the action plan have been carried out



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# Thank you for your attention!

