

The image shows two freshwater pearl mussels resting on a bed of green moss. The mussels have dark, textured shells with a lighter, fibrous interior. The text is overlaid on the upper portion of the image.

North York Moors National Park Authority  
Freshwater pearl mussel  
Species action plan

North York Moors National Park  
Freshwater Pearl Mussel Species Action Plan  
2008 – 2012

## **Freshwater Pearl Mussel *Margaritifera margaritifera***

### **Our objective for the freshwater pearl mussel is:**

To halt the decline of the freshwater pearl mussel population in the River Esk.

### **Introduction**

Freshwater pearl mussels are found in fast running water with a mixture of sand and stones. They generally prefer watercourses that are nutrient-poor with low conductivity and a pH of less than 7.5. The species is very long-lived (reaching 100 years or more), but many populations may not have produced young for over 30 years. Site records are often based only on the discovery of empty shells. The species is dependent on the presence of salmon and trout as hosts for its larvae.

### **National status**

The British range of this species is to the north and west of a line running from Scarborough in North Yorkshire to Beer Head in Devon. Many of the populations are declining and much research and monitoring is being undertaken to try and determine the reasons for this.

### **Regional status**

Freshwater pearl mussels have been recorded in parts of the Tyne catchment and a small population is also known in the Esk catchment. These populations are considered to be senescent. The east coast populations are particularly important because they are believed to be genetically distinct from the majority of the UK populations, which are found on the west side of the country.

### **Local status**

Within the North York Moors National Park the freshwater pearl mussel is only found in the River Esk. The Esk population is found between Danby and Glaisdale and is extremely small. It has declined severely over recent years and is still in decline. Evidence for the decline comes from two recent surveys funded by the Environment Agency (EA) which were undertaken in 1995 and 1999.

The 1995 survey indicated that the population had severely declined since the 1970s (English Nature base data). In total only 130 individuals were recorded. The 1999 survey was undertaken to determine whether the status of the pearl mussel had declined further since 1995 and to survey sections of the river not

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covered then. Although a few additional pockets of mussels were found it was estimated that the entire population of the Esk consisted of no more than 200 or so individuals. All of the mussels were large, elderly, (40–50 years +) adults. The lack of juveniles suggests that recruitment has not taken place for several decades. It is likely that the Esk population will become extinct in the next 25 years unless action is taken to halt this decline.

### Legal status

This mussel is classed as Vulnerable on the IUCN/WCMC Red Data List. It is listed on Annexes II and IV of the EC Habitats Directive and Appendix II of the Bern Convention and is protected under Schedule 5 of the Wildlife and Countryside Act 1981. As a result this species has full protection; it is illegal intentionally to kill, injure, take or disturb freshwater pearl mussel, and illegal intentionally to damage or destroy any structure or place which the freshwater pearl mussel use for shelter/protection. It is also an offence to possess or trade in freshwater pearl mussels including pearls as their derivative.

### Links to other action plans

Habitat Action Plans	Species Action Plans
Rivers and Streams*#	Esk salmon action plan+
Woodland*#	Otter#
* = Local Species Action Plan	Water vole*#
+ = Environment Agency Plan	
# = UK Species Action Plan(s)	

### Threats

- Poor water quality, including nutrient enrichment and higher levels of suspended solids, which mainly affects the survival of any juvenile mussels in the gravels (as well as the emergence rates of host fish)
- Habitat removal and alteration through development, drainage schemes, flow regulation and fisheries management
- Poor land management in the catchment (eg overgrazing leading to sedimentation from soil erosion)
- A decline in populations of host fish
- Illegal pearl fishing

### Requirements

Freshwater pearl mussels are found in moderate to fast running water with a mixture of sand and stones. They generally prefer watercourses that are nutrient poor with a pH of less than 7.5 and low conductivity. The juvenile mussels require well-oxygenated gravels in which to grow to a size where they can start to feed from the open watercourse. They are particularly

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susceptible to siltation. Pearl mussels rely entirely on host fish, salmon and sea trout to complete their lifecycle.

### **Local action**

The North York Moors National Park Authority (NYMNPA) and its partners have initiated the following projects on the Esk over the last ten years.

- The Objective 5b River Esk Regeneration Programme (RERP), 1997–2001
- Rural Enterprise Scheme, 2002–03
- Associate Catchment Sensitive Farming (CSF) Project, 2007

These projects have made significant improvements to the Esk by raising awareness (eg through CSF farm walks) and initiating physical improvements to the river (13km of riverbank fenced by RERP). However, it has become clear that to save the freshwater pearl mussel more targeted action is essential.

The EA, NYMNPA and Natural England (NE) are partners in the Esk Pearl Mussel and Salmon Recovery Project, which is encouraging action to reduce sediment input into the River Esk by engaging local landowners and managers. This will include measures such as reducing erosion by fencing off riverbanks and creating buffer strips.

### **Opportunities**

- Encouraging Catchment Sensitive Farming throughout the Esk, but especially upstream of known freshwater pearl mussel habitat.
- Raising awareness about the importance of riverside habitats for wildlife and for preventing siltation.

### **What you can do to help**

- If you see any pearl mussel shells on the Esk or its tributaries, please note the location and tell National Park ecology staff on 01439 770657 or using the online recording form on the National Park's website: [www.moors.uk.net/recording](http://www.moors.uk.net/recording)
- Join the National Park Volunteers and assist with riverside habitat management and monitoring siltation. Phone the Volunteers Service on 01439 770657 details.
- Landowners and managers adjacent to the Esk or its tributaries can contact EA or NPA staff for advice and assistance to develop buffer zones along waterways to prevent soil erosion and subsequent siltation of the river.
- Follow local fishing bylaws to protect populations of salmon and trout.