

# Freshwater pearl mussels in Scotland

Briefing Document – May 2013



## Background

The Freshwater pearl mussel (*Margaritifera margaritifera*) is one of the most critically endangered molluscs in the world. Up to a half of the world's remaining population are thought to be found in Angus, the Cairngorms and North West Scotland. As a nation, we therefore have an international responsibility to safeguard the future for this species. Over the last 100 years Freshwater pearl mussels have been lost from over one third of rivers where they once occurred. Of the remaining populations, a third have been unable to reproduce due to deterioration in the freshwater ecosystem. All but one of the remaining colonies are considered small and vulnerable and despite full legal protection, they continue to be threatened.

Freshwater pearl mussels can live for over 100 years, making them one of the longest living invertebrate species in the world. They live partially buried in the bed of clean, fast flowing rivers where they filter out organic material from the water. They have a fascinating and complex lifecycle. Larvae, called glochidia, are brooded by the females in their gills and released into the water between July and September. The larvae must then be inhaled by salmon or trout where they attach to their gills. During this time they will develop into young mussels, before detaching early the next summer, to live independently. They must burrow into the river bed to survive as adults.



Adult Freshwater pearl mussels (*Margaritifera margaritifera*) © Joel Berglund

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## Wildlife crime

Despite being fully protected under Schedule 5 of the Wildlife and Countryside (Scotland) Act 1981, since 1998, illegal pearl fishing and disturbance of their habitat has played the largest part in their decline. There have been 72 suspected criminal incidents involving damage to freshwater pearl mussels in the last 14 years. The Freshwater pearl mussel is however increasingly coming under threat from these illegal activities, with 45 of these incidents having occurred in the last four years. Despite the number of incidents reported only two of these incidents were taken to the Procurator Fiscal. One of these cases did not proceed due to insufficient evidence being available; the other resulted in fines totalling £15,000 being imposed on two individuals and a company.

## Other threats

Illegal pearl-fishing is not the only threat to pearl mussels in Scotland. Pollution related to the way that our land and soils are managed can play a major role in the suitability of a river system for freshwater pearl mussels and other invertebrate species. This pollution, often called diffuse pollution arises from a number of sources, and whilst many of these sources may be small, the collective impact of the pollution can be considerable. The main threats to pearl mussels from diffuse pollution are an increase in levels of silt and other sediments which clog the mussel beds and prevent the mussels from filter-feeding. Typical activities which can harm freshwater pearl mussel populations include: in-stream river engineering, including the removal or management of gravels, deepening of pools and creation of groynes and weirs; and agricultural intensification and farming practices undertaken too close to the river bank resulting in the run-off of soils, pesticides, fertilisers and other contaminants in to the river. The abstraction of water, whether for drinking water or for electricity generation can exacerbate the effects of diffuse pollution as contaminants are concentrated and oxygen levels in the water may decrease.

## What action is required?

- Further controls are required on illegal pearl fishing, through limiting the trade and encouraging the reporting of suspicious activity across Scotland
- Wider measures are required to conserve and restore clean, fast-flowing rivers and their associated ecosystems with SEPA through River Basin Management Planning activities and the Scottish Government through the Scotland Rural Development Programme
- Continuation of the current captive breeding and release programme
- Raising awareness of the importance of Freshwater pearl mussel and their conservation in Scotland

Many of these actions will be covered by a recent UK-wide project called '[Pearls in Peril](#)', funded by the LIFE+ programme and co-ordinated by Scottish Natural Heritage however there is a need for additional action to ensure that the conservation of Freshwater pearl mussels is integrated in to the work of Government agencies and departments.

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