

Freshwater mollusc can't be reintroduced to historic habitat, scientists reveal

Julia Horton
Environment Correspondent

HOPES of saving Scotland's freshwater pearl mussels from extinction have floundered after experts found their natural habitat has been virtually wiped out.

Ecologists working to reintroduce the endangered mussels have found the Scottish rivers and burns where the species once thrived are now strewn with loose boulders, which would smash the molluscs' shells in high water. None of the waterways assessed had been dredged or dammed, leading scientists to conclude that the changes are another unwelcome result of global warming, with heavier rains increasing the flow in small tributaries and disturbing riverbeds.

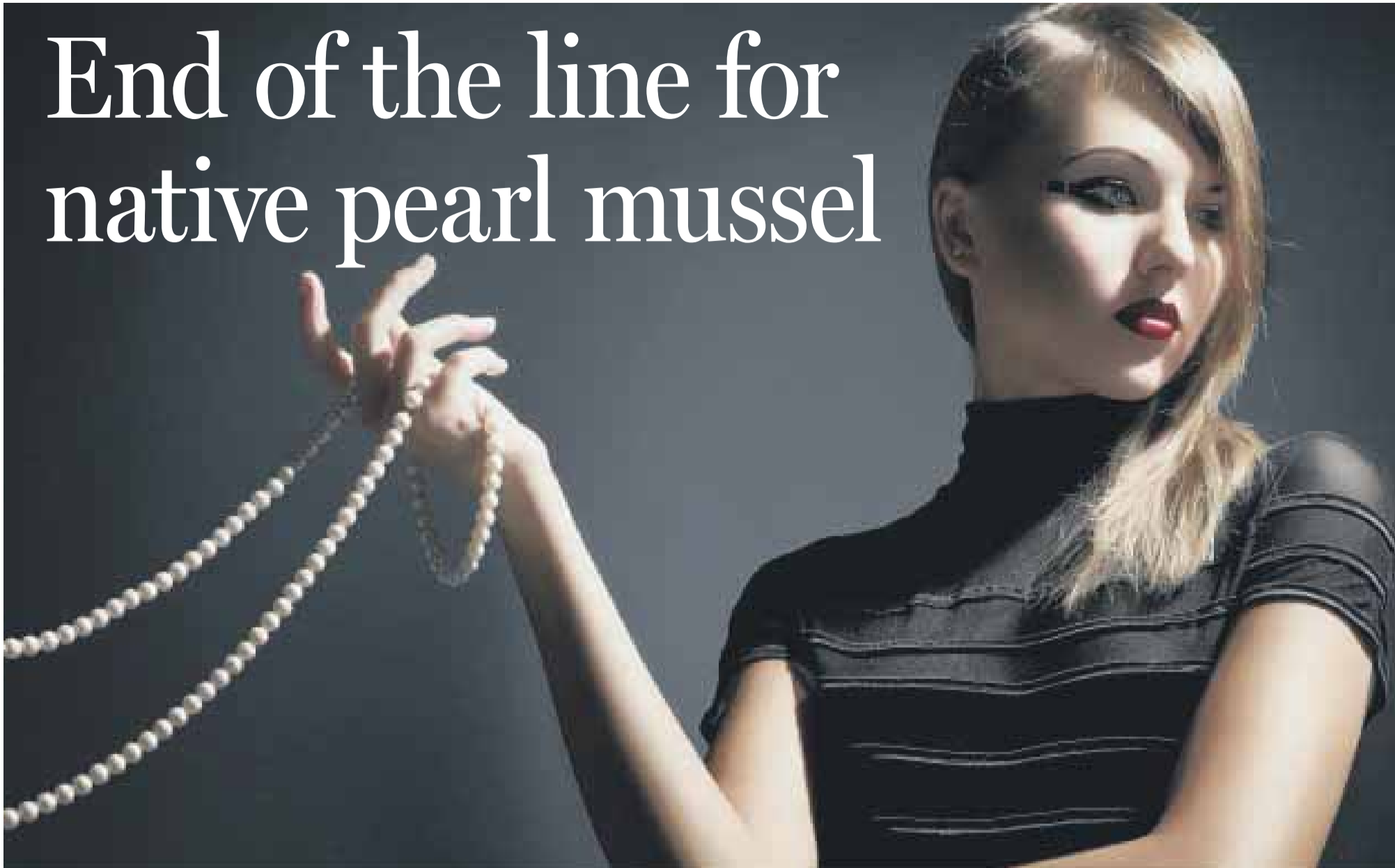
The loss of habitat is of serious concern given that half of the world population of the species is in Scotland.

The worrying findings were revealed at a Scottish Natural Heritage conference on conservation, marking the end of a five-year, £9 million action programme to help protect 32 species, including the mussels.

Dr Peter Cosgrove, principal ecologist at Moray environmental consultancy, Alba Ecology, said: "We were looking for possible sites for a reintroduction programme and - looked at more than 20 different rivers where pearl mussels thrived in the past, but in almost every one there was only a tiny patch of suitable habitat for the molluscs. The rivers were filled with boulders which would crush them."

"No-one has dammed or dredged them, or done anything else, and yet these rivers are now wholly unsuitable. If there is no suitable habitat we can't reintroduce them. I think it is a sign that climate change is already happening now and is causing rivers to become unstable."

The discovery is double blow for mussels because unstable rivers are no longer suitable habitat either for trout and salmon to spawn. They produce the young fish which mussel larvae must latch onto



» A string of pearls is still an evocative fashion statement. Below: thousands of freshwater mussels are killed illegally in Scottish rivers each year in search of pearls, which form in their guts. Photographs: Rex Features/Peter Jolly

in their first year of life to survive before dropping off at new locations to grow and require gravel beds in slow moving water to lay their eggs.

Populations of both fish species are already in severe decline, putting mussels in even greater danger.

Global warming is the latest threat to pearl mussels, which

It is a sign that climate change is causing rivers to become unstable

were abundant in Scottish rivers for centuries until overfishing forced them to near extinction. The Romans are said to have plundered Scotland's waterways for freshwater pearls, formed by the mollusc in response to irritation in its gut.

The earliest reference to Scottish pearls is understood to have been made in a letter dated 1120 to the then Bishop

of St Andrews in which the writer, Nicholas, asked the cleric to obtain some pearls, if necessary from King Alexander I "who in this commodity, is richer than any man". Pearls were subsequently exported across Europe.

Pearlfishing was banned in 1998 in a bid to save the species but illegal fishing contin-

ues to threaten its survival. In 2010, a survey suggested about 75 per cent of 21 internationally-important pearl mussel sites in Scotland had been criminally damaged.

Last year, Scotland's pearl mussels were classified alongside China's giant pandas and Javan rhinos as among the "most endangered species in the world".

The Species on the Edge of Survival guide by the International Union for Conservation IUCN included mussels because of the combined threat of poaching and habitat loss.

Although many habitats are beyond natural repair, a £3.5 million project was launched earlier this year aimed at protecting surviving colonies in Scotland, England, and Wales.

The four-year project will centre around 21 British conservation sites and will involve a crackdown on wildlife crime, with riverwatch schemes helping to prevent the illegal exploitation of the mollusc.

The warning over the impact of climate change on mussels comes just days after European scientists forecast that Scotland's fishing and farming industries could be radically changed by global warming in as little as ten years. A European Environ-



ment Agency report said extreme weather across Europe in recent years was expected to become increasingly intense and frequent.

Executive director Jacqueline McGlade said: "Increased rainfall and flooding in Scot-

land will cause more problems, like waterlogged fields [which destroyed root crops such as potatoes this summer] which might mean that within a decade farmers need to look at new varieties of key crops like barley, or at different

crops altogether. Fishermen will also face challenges as waters warm and coldwater species like cod and pollock move north, potentially out of traditional fishing grounds, while new species like plaice move up from the south."

Fears of floods as rain hits Scotland

Daniel Sanderson

HEAVY rain which has caused chaos in England and Wales is expected to hit parts of Scotland today.

The Met Office has issued rain alerts in the Lothian and Borders, Central, Tayside and Fife and South-West Scotland areas, and warned of persistent and heavy downpours causing a risk of flooding.

But the Scottish Environment Protection Agency (Sepa) said it was confident that rivers had the capacity to cope with the expected deluge, and that a repeat of the scenes last week which saw scores of residents rescued from their flood-hit homes was not anticipated.

A spokesperson for Sepa said last night: "On Sunday we will have rain coming up from England. It looks like it's heading towards the east of the country, and Edinburgh and Lothian, Fife and possibly the Borders are probably going to get most of it."

"But we are seeing that the water levels in rivers have fallen back since Thursday. There may be a danger of flooding in some little burns and the smaller watercourses but we think the rivers have the capacity to take the rainfall that we are looking at."

"Earlier in the week, Dumfries and Galloway and Tayside got a lot of rainfall, but it looks like it's going to largely miss those areas this time - they may still get rain but it won't be a heavy downpour. On Monday it looks like it will be dry again, so hopefully the worst of it is over for now. But we would still advise people to check the flood page on the Sepa website for up-to-date information."

On Monday, a major incident was declared as more than 100 homes in the Perthshire village of Comrie were severely affected by extreme weather, as the River Ruchill burst its banks.

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