

PE1558/A

Petition PE01558: American signal crayfish

Joint briefing from SEPA and SNH

Scottish Environment Protection Agency (SEPA) is lead organisation for non-native species in freshwaters and Scottish Natural Heritage (SNH) is the licensing authority for non-native species in Scotland. . There are details in the petition background information which SNH and SEPA believe are incorrect or lack supporting evidence.

This briefing has been prepared by Jo Long (Senior Conservation Policy Officer, SEPA) and Prof. Colin Bean (Policy and Advice Manager, SNH)

‘At the moment, trapping of this invasive species is only allowed under a scientific licence.’

- SNH only issues licences to catch crayfish under exceptional circumstances because the risk of encouraging their spread is so great.

SNH only issues licences for trapping signal crayfish for surveys to monitor their spread or for specific research projects. SNH does not issue licences for catching signal crayfish to eat or to sell because this creates incentives for people to move them to new areas.

It has been suggested that the signal crayfish in Loch Ken can be controlled by establishing a commercial fishery. This view is not supported by SNH and SEPA because we believe it will encourage the spread of crayfish to new areas. A number of studies have demonstrated that the establishment of crayfish fisheries has led to an increased spread to new areas.

‘The agencies mentioned above are all in agreement that trapping is the only way of dealing with this invasive species. This view is also supported by the scientific research that has been carried out.’

- SNH and SEPA are in agreement that trapping is not an appropriate method for controlling signal crayfish.
- Long-term studies in Scotland and elsewhere in the UK have shown that trapping has failed to eradicate signal crayfish or prevent their further spread.
- Where trapping attracts a financial gain, this creates an incentive for people to move animals to new locations.

There have been no reported instances where trapping has eradicated crayfish of any species and it is exceedingly unlikely that trapping would ever do so. This is primarily because trapping is highly size-selective, but trap effectiveness also varies with crayfish sex, life history stage and temperature. Signal crayfish are capable of breeding at sizes as small as 25 mm long in Britain, which means that a large proportion of the population is too small to be readily caught in standard traps, but still capable of reproducing.

Any control measure which does not eradicate the entire population of an invasive non-native species needs to benefit native species and habitats, or mitigate economic impacts. Scientific research suggests that trapping of crayfish does not do this in a long-term sustainable way. One consequence of removing larger individuals by trapping is that the remaining crayfish can breed at an earlier age. This is because more resources are available to remaining crayfish due to reduced competition from larger individuals. The number of eggs a female crayfish produces is related to body size, so the harvesting pressure has the potential to reduce the number of eggs and hence juvenile crayfish produced. However, this is at least partially counteracted by the remaining crayfish growing faster and breeding at an earlier age. A recent review of signal crayfish invasions in the UK concluded that although trapping can reduce the abundance of trappable animals, it does not necessarily reduce their total number or the biomass.

In Scotland, long-term trapping as a means of eradication has been shown to be ineffective in the River Clyde and the River Nairn. Intensive trapping in Loch Ken (funded by the Scottish Government) in 2009 was also shown to be an ineffective means of eradication. An external reviewer for this project concluded that: whilst providing some valuable scientific data, the trapping project has not provided a clear justification for continued trapping effort as a means of control. Elsewhere in the UK, intensive trapping in the rivers Stour, Evenlode and Thame has also failed to either eradicate signal crayfish or prevent their further spread.

In addition, where trapping attracts a financial gain SNH and SEPA believe that this creates an incentive for people to move animals to new locations in order to take advantage of this. Because of this, commercial exploitation of this species is deemed wholly inappropriate in Scotland, where crayfish are still confined to a relatively small number of locations.

'Over the last 20 years, the population of this invasive species has grown out of control causing many on-going problems. The costs in carrying out a large trapping and control are prohibitively high for the said agency to commit to funding it. At the moment, the cost to Dumfries and Galloway is in the region of £1.2m per year in lost revenue and 130 jobs.'

The number of reported crayfish populations continues to increase. In recent years this species has been found in a small number of new locations, which they could not have reached without human assistance. Trapping has been discounted as a management tool for the reasons given above; should it be employed as a means to control crayfish in standing or running waters the costs would be prohibitive and its efficacy limited.

SEPA and SNH are not aware of any evidence to support the claims of lost revenue or lost jobs in Dumfries and Galloway. However, once published estimate put the total annual cost of signal crayfish to angling in Scotland at £325,000.

'Other costs include the destruction of salmon, sea trout and brown trout spawning beds, the loss of river walks, farm land, dragonfly's nesting areas, wild fowl and the complete destruction of the marine biosphere in the affected areas.'

- Signal crayfish are an aggressive predator which have a serious impact on native wildlife such as salmon and trout and amphibians.

Signal crayfish feed on fish and amphibian eggs, tadpoles, juvenile fish, aquatic invertebrates, detritus and aquatic vegetation. They reduce native salmon and trout populations and are partly blamed for amphibian declines in England. The diversity of aquatic invertebrates is reduced and food webs are altered in sites containing signal crayfish, which may affect food availability for dragonflies and wildfowl. Signal crayfish burrow into river banks and can cause bank erosion, but no evidence of impacts on river walks or farm land in Scotland has been brought to SEPA's attention.

Crayfish are a freshwater species and so would not be expected to affect the marine environment.

At the last survey carried out, the contaminated area has increased from 35 square km to 87 square km and will eventually cover the whole of Scotland's inland waters if left unchecked.'

- The best way to manage signal crayfish in Scotland is to raise people's awareness of the threat and prevent them from spreading to new areas.

The first confirmed report of signal crayfish in Scotland was from the Kirkcudbrightshire Dee catchment in 1995, although it is likely that they had been present there for some time before this. Signal crayfish have since spread or been introduced (either accidentally or intentionally) to 20 additional sites, and in 2010 it was estimated that 174 km of river length was infested. A number of standing waters, including Loch Ken, are also affected.

The methods by which signal crayfish are being spread to new locations within Scotland are coming under increased scrutiny. Populations of signal crayfish are becoming established in isolated ponds and still-water fisheries. This suggests that these animals have been deliberately introduced or have been moved accidentally by other means.

Juvenile signal crayfish can be accidentally spread by attachment to equipment such as angling nets, waders and boats. Moving any non-native species from one place to another is illegal, even though it may be accidental. SEPA and SNH are tackling the spread of crayfish through the Check, Clean Dry awareness campaign for anglers and boat users:

- Check equipment and clothing for live plants and animals
- Clean and wash all equipment, footwear and clothing thoroughly
- Dry all equipment and clothing, as signal crayfish larvae can live for many days in moist conditions

16 February 2015