



Virtual Fisheries Forum 10/12/20 – Invasive Non-Native Species

Q&A Session with Dr Emily Smith

Q. Our fly-fishing club maintains 2 old reservoirs in the South of England. We have had intermittent reports of signal crayfish at these waters but have no idea how prolific they are. How can we go about monitoring the population?

A. Emily Smith: I would suggest there are a couple of measures. The key one would be to apply for an artificial refuge trap which you can monitor which will capture smaller individuals and females if they are present. Another option might be to try lamping for the crayfish at night if your water is clear enough – simply going out at night with a powerful torch and looking for movement should give an indication as to their presence.

Q. Has anyone done any work to determine if trapping near known chub/ barbel spawning sites on rivers can help mitigate the impact of crayfish, in terms of them eating eggs? Particularly during spawning time?

A. Emily Smith: Having a higher density of traps in those areas would be an effective way to protect those gravels as best you can. I would also suggest trying to expand the spawning areas available to the fish to provide with multiple locations to reduce the concentration of spawning in one location. With regards to specific research however I'm not sure – but happy to report back to the individual who raised this question.

Q. What is the best way of tackling Himalayan Balsam?

A. Emily Smith: We have management guide on our Angling Trust invasive species page which outlines different management options available to tackle Himalayan balsam.

If you are looking to undertake hand pulling, the best time of year to tackle Himalayan balsam is late spring/ early summer (March/April/May) when the plants are still growing and before the plant has flowered and seeds have formed. By late summer, there is the risk that if you are trying to manually remove Himalayan balsam, you might inadvertently trigger the seeds which will means these can spread over the area.

When clearing balsam, you may find that some new plants germinate later in the summer from the seedbank, so it is important to go back and remove these species. The key thing is to do this before the plants have flowered.

Care must be taken to remove the entire plant, best done by pulling from low down on the plant. Once the stems are removed, crunch up the stems and leave them in the sun, away from the edge of the water body to dry out.

Chemical control such as glyphosate can be used as outlined in the management guidance. You will need approval to use these near a water. This can be used to treat young plants in the spring, before the plants have flowered, but late enough that the plant has grown enough to be affected by the spray. There should be caution using this approach as it is non-target specific so will damage other plants if you spray them. This can be improved through the use of a weed wiper or spot treatment.

Whichever approach you choose there are some key things to follow to ensure that the activity doesn't spread Himalayan balsam further. The first is to always start your work upstream and move downstream to remove the risk of transferring any fragments to new areas upstream of its current distribution. The second is to always follow the Check, Clean, Dry measures, cleaning and drying your boots, clothing and any equipment that has been used that day before using them elsewhere. Himalayan balsam seeds could easily be in the mud in the treads of your boots, or get attached to your clothing so by following these three steps you will reduce the risk of them being transferred elsewhere.

Q. Has there been any success with the balsam rust trials?

Q. John Cheyne: Can you first explain what the rust is?

A. Emily Smith: The rust is a fungus which has been trialled as a biological control. It's present in the plants native range and acts as a kind of natural predator to Himalayan Balsam. It was first released around 2015 at locations around the UK with mixed success. It was known to overwinter, but it wasn't clear why it was affecting some areas and not others. After doing some genetic research however, it was found that we actually have 3 distinct strains of balsam in the UK which you can't tell apart by from the naked eye – each with their own rust. So at present they have released rust to combat the Indian & Pakistani balsams – the 3rd is from Kashmir which scientists are hoping to collect in future and release in the UK. At present, the trial does seem quite successful, damage to the plant's leaves from sun dieback being thought to help native plants come back through.

Q. What is the latest advice for dealing with New Zealand Pygmyweed?

A. Emily Smith: Crassula (also known as New Zealand pygmyweed or Australian swamp stonecrop) is an aquatic plant with white flowers that lives mostly beneath the waters surface, with an ability to grow up on to the bank as well. It's a particularly worrying species which is very hard to tackle and at present there is still no effective control method for the plant Crassula is very

tolerant of shade, extreme cold and to drying. Physical removal of stands presents a risk of further spread as more small plant fragments are produced. Covering vegetation in tarpaulin have been tried with little success. There is some work being done at the moment involving trials with hot foam. This has been semi successful – it might not get rid of all of it but areas treated do appear to have less of the plant than before. Trials are also being carried out in the South West and Yorkshire with biological controls in the form of a mite from the plants native range – this eats the crassula and when released will hopefully manage the species as it naturally spreads. At present it has been found to overwinter so there is the hope that this might present a more effective option to reducing the impact of this species.

Q. Our Club is in the Norfolk Broads and has successfully battled otter predation. We are now under siege from Floating Pennywort (spotted in River Ant) and Killer Shrimp (spotted in Trinity Broads) How can we guard against these new threats to our Club lake?

A. Emily Smith: Encouraging and adopting Check Clean Dry measures and best practice biosecurity is the key thing that you can all do within the club – this is something especially true of enclosed waterbodies. Put Check clean dry signs at the entrance to your site so that any visiting anglers are reminded to follow these steps whenever they visit or leave your site. You could also add these measures to your club rules. A further step you would be purchasing nets for exclusive use on that water only, but this depends on your resources. There are also free guides on Floating Pennywort and Killer shrimp ID available on our website which you could send out to your members so they know what they are looking for when they are fishing. However, the key messages are encouraging Check Clean Dry practice to ensure any fishing gear is clean and dry before it is used at your site.

Q. What are the pros and cons of using dyafix as weed control?

A. Emily Smith: I'm not entirely up to speed on the ins and outs of dyafix, but the basic principle of is limiting light penetration in order to deter plant growth. The immediate problem with this is that it's not target specific, so you could inadvertently impact 'good' aquatic plants which wouldn't cause your fishery problems. It's also worth noting that dyafix will have no impact on surface growing plants. The benefit of using dyafix will likely depend on the site you are thinking of, for example how deep it is, whether you have inflows that will dilute the concentration.

John Cheyne: The Institute of Fisheries Management have been running annual courses about dealing with weed problems which are worth keeping an eye out for.

Q. Why have mitten crabs been such a problem on the Trent this year?

A. Emily Smith: That's an interesting one, but I'd guess the warm season this year had a big impact – mitten crabs love warm, steadily flowing water. It's also possible that last year was a very successful time for their breeding. It's ultimately a very complex picture however, but interesting to hear that you're experiencing such a big surge up there.

Q. Post Brexit, do you see the potential licenced return of aquatic herbicides that will work in the water column such as they still use in the USA? Glyphosate only works on emergent vegetation?

A. Emily Smith: I think at this stage it's hard to know – the reasons they were banned were due to concerns about the aquatic environment, and in any review these things are important to consider. INNS certainly need to be controlled by whatever tools we have at our disposal, but the environment always needs to come first in any management approaches. This is probably not the most helpful answer but discussions are still ongoing - there is lots of uncertainty but I'm hoping they can go through this review process to determine what we can use that is both effective and environmentally friendly.

Q. We have a 2 acre fly fishing trout lake, with ongoing weekly trapping, but is there a coarse fish which could help with control ie would Chub help reduce infant cray fish without muddying the water?

A. John Cheyne: From my point of view, I've caught a lot of chub and perch which have clearly been predated on crayfish – coughing them up. So for sure chub and perch eat crayfish. Trout do too however, and I've personally witnessed big brown trout pinning crayfish to the bottom as they try and munch them. Chub tend not to have the same impact on water turbidity as carp etc so they might not do any harm – stocking fish however is a key time for invasives to enter your water so it's vital the fish are health checked and come from a reliable/ respected source.

Q. What is the current position on the introduction of wels catfish?

A. Emily Smith: If you want to stock catfish you will require a permit from the EA which you'll need to obtain before proceeding. This permit will only allow you to keep or introduce catfish in enclosed inland waters. The water will be carefully assessed to make sure it meets these requirements before a permit will be authorised. The Environment Agency are very careful as to the waters where they will allow catfish to be stocked.

Q. Any view about crassula growing from seeds and how persistent are those seeds?

A. Emily Smith: The most common way I come across Crassula being spread is via vegetative fragments. In terms of seeds, Crassula can germinate from the seed bank present in the soil. This means if you have treated or remove Crassula from an area, it can quickly recolonise. There is uncertainty on how long Crassula seeds can last, but under the right conditions seed banks can persist for quite a while.. In their native range in Australia, they have been found to germinate from seeds after at least four years, but with the different climate and habitat conditions in the UK it is uncertain how this might impact this.