# Paddle Scotland Invasive Non-Native Species and Biosecurity

## Invasive non-native species

Non-native species are plants or animals that have been introduced (deliberately or accidentally) by human activities into an area outside of their natural range. Over 2,000 plants and animals have been introduced to Britain from all over the world by people.

Many of the plants we grow for food or to decorate our gardens, and many of the animals we farm or keep as pets are non-native and can provide a positive value to our lives.

However, around 10-15% of non-native species have the ability to spread and become dominant. They cause to harm wildlife and the environment, are costly to the economy and can even impact on our health and way of life – these are invasive non-native species (INNS).

## INNS that are already present in Scotland

These are examples of species recorded in Scotland. In some cases they are established locally, but none are widespread across Scotland so it is possible to protect uninvaded waters. We need to take care not to spread them to other parts of Scotland.

### New Zealand pygmyweed (*Crassula helmsii*)

New Zealand pygmyweed grows in freshwater ponds, lochs, reservoirs, canals and ditches and can spread out onto damp ground.

It can cover small ponds to a depth of 0.5m or cover the margins and bed of larger deeper waterbodies over many square metres. It can prevent recreational and commercial activities and may cause extensive declines in native plants.

New Zealand pygmyweed:

• has yellowish-green opposite succulent leaves that are < 20mm long • has solitary white or pale pink flowers

Find out more about New Zealand pygmyweed

Record sightings

## Zebra mussel (*Dreissena polymorpha*)

Zebra mussels are found in freshwater rivers, canals and lochs. They can block pipe-work and affect loch gates. They can also smother native species and rapidly take nutrients from the water, altering ecosystems.

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Zebra mussels:

- Are very small – usually about 30mm in length but can grow up to 50mm
- Have light and dark bands of colour, usually blue or brown and yellow-white
- Are a distinctive 'D' shape
- Attach, usually in groups, to anything solid underwater, like masonry, stones or tree roots

Find out more about zebra mussel

Record sightings

## North American signal crayfish (*Pacifastacus leniusculus*)

Signal crayfish are found in freshwater streams, canals, rivers and lochs and ponds, and are also able to survive in brackish water. They cause declines in diversity and richness of aquatic communities. Commercial fisheries have been affected by predation of fish eggs and competitions between crayfish and salmonids for refuges. Burrowing by crayfish can cause erosion of riverbanks and destabilise structures built at the edges of rivers.

Signal crayfish:

- Is lobster-like in appearance
- Reaches a maximum size of 16-18cm
- Have red undersides to the claws, with a small turquoise/white blotch on the upper surface at the claw hinge

Find out more about signal crayfish

Record sightings

## Carpet Sea-squirt (*Didemnum vexillum*)

Carpet Sea-squirty is a marine species recorded in coastal marinas and adjacent artificial structures but can grow on natural cobble or gravel seabed up to 80m depth, in tide pools on shore, in seagrass beds and on aquatic installations. Colonies can spread to extensive coverage of seabed, potentially smothering species living in gravel and affecting fisheries and shellfish industries.

Carpet Sea-squirt:

- Is pale orange, cream or off-white colonies forming extensive, thin (2-5mm) sheets and can form long pendulous outgrowths
- Has a firm leathery texture and veined or marbled appearance
- Has numerous small pores in surface close when colony disturbed to produce tiny whitish spots

Find out more about carpet sea-squirts

Record sightings

## Wireweed (*Sargassum muticum*)

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This marine species is a large brown seaweed with a frond over a metre long and has flattened blades and gas bladders. It is olive brown in colour and its branches alternate along the frond. It grows in shallow waters and can also be found in estuaries.

Find out more about wireweed

Record sightings

# INNS on land next to water

These are examples of species present on land in Scotland that you should look out for as you access the water – take care not to transport seeds or fragments of plants.

## Giant Hogweed (*Heracleum mantegazzianum*)

Giant hogweed is especially abundant by lowland streams and rivers, but also occurs widely on ground and in rough pastures. It grows on moist fertile soils, achieving its greatest stature in partial shade.

The sap can sensitise human skin to ultra-violet light, leading to severe blisters. Affected skin may remain sensitive for several years.

The plant is also a vigorous competitor, producing almost pure stands which exclude vegetation and hinder access to the water.

Giant Hogweed - RPS Group

Giant Hogweed:

- Has flowering stems typically 2-3m high
- Bears 'umbels' of flowers up to 80cm in diameter
- Has leaves often 1m or more in size

Find out more about Giant Hogweed

Record sightings

## Himalayan balsam (*Impatiens glandulifera*)

Himalayan balsam grows in moist and semi-shaded damp places, predominant on banksides by slow-moving watercourses.

It spreads rapidly on soft banks of waterbodiesies, forming extensive monoculture stands to the exclusion of most other plants.

Himalayan balsam:

- Is an annual herb
- Has stout succulent, reddish-translucent hollow stems up to 2.5m tall
- Has leaves 5-18cm long and 3-7cm wide

- Has deep purplish-pink to white flowers with a distinctive strong balsam smell

Find out more about Himalayan balsam

Record sightings

## INNS that are not yet present in Scotland

These are examples of species that are already causing problems elsewhere, including some in England, so we need to be especially vigilant to prevent them from arriving in Scotland.

### Gyrodactylus salaris

*Gyrodactylus salaris* is a parasite of significant concern as it lives on salmon. At present it is found in some European countries (Norway in particular), but should it ever find its way into the UK the economic consequences could be catastrophic. The fishing, whisky, paper and hydro industries would all be greatly affected, and paddling restricted across whole catchments for indefinite periods.

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*Gyrodactylus salaris* is a tiny parasite which lives on the body of fresh water fish including salmon and rainbow trout. It is 0.5mm long and cannot be seen with the naked eye. It attaches to the fish, dissolves the salmon skin with its digestive enzymes and causes large wounds which cause secondary infections. The parasite produces live young which are already carrying (in development) a further generation of *Gyrodactylus salaris* within them.

Risk: anyone returning from overseas where *Gyrodactylus salaris* is present could import the parasite on damp and untreated equipment.

Whilst the current concern is connected with *Gyrodactylus salaris*, there are other diseases that could have equally devastating effects, so the advice we are issuing represents a range of sensible precautions that should prevent the import of any disease into this country. Please refer to the advice here if paddling abroad (particularly in Scandinavian countries)

## Advice to prevent transmission of *Gyrodactylus salaris*

Precautions to take before travelling back to the UK after canoeing in Europe:

Action to take if you are going to use your equipment within a week of leaving the foreign country:

a. **After canoeing in Europe**: Wash your equipment then disinfect it with a chemical disinfectant such as Virkon S or a saline solution. Sachets of Virkon S can be bought from some canoe shops, or a bag of salt can be taken on holiday to easily make a saline solution for disinfecting your equipment.
b. **Within a week of leaving Europe**: If you are going to use your equipment within a week of leaving a foreign country it is advisable to dry equipment thoroughly, and where this is not possible to use hot water, disinfectant or salt to kill the parasite. Freezing also kills the parasite.

Items of equipment such as buoyancy aids, spray-decks, throwlines, towlines and sponges should all be considered as potential means of carrying this parasite and be treated in at least one of the above ways.

The area of highest risk is Scandinavia, so paddlers travelling to Norway and Sweden should take particular care. The disease is regarded as a serious threat within Scandinavia and disinfection facilities are available for paddlers and anglers as they move from one river system to another

## Floating pennywort *(Hydrocotyle ranunculoides)*

Floating pennywort (also called water pennywort) grows in fresh water. It can grow up to 20 centimetres a day, blocking out light and reducing the oxygen for other plants and animals. It blocks waterways, preventing access to the water and increasing the risk of flooding.

Floating pennywort:

- has shiny, kidney-shaped leaves with crinkled edges
- is usually found floating on still or slow-moving fresh water

Find out more about floating pennywort

Record sightings

## Water primrose (*Ludwigia grandiflora*)

Water primrose is a highly invasive freshwater weed from South America. It has become a serious problem in France where it blocks waterways and overgrows ponds and lakes. It has only recently started to be found in Britain, but if it were to establish widely could cost as much as £242 million to manage.

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- grows on the banks of rivers and lakes and floating on the surface of the water
- has a flower with 5 bright yellow flower and distinctive seed pods
- has a thick fleshy stem Has leaves which range from long and thin to almost completely round

Find out more about Water primrose

Record sightings

## Killer Shrimp (*Dikerogammarus villosus*)

Killer shrimp is freshwater species. It is a predator of native shrimp and other native species, including fish eggs. It can disrupt whole ecosystems through predation and its impact across food chains. Parasites carried by killer shrimp could reduce fish stocks.

Killer shrimps:

- have a tail with distinctive cone-shaped bumps
- usually have striped backs, but can be more uniform in colour
- can grow to 30 mm long, larger than native shrimp, but are more commonly 10 to 20 mm.

Find out more about killer shrimp.

Record sightings

# Biosecurity

Invasive non-native species have the potential to cause significant economic problems for the nation as well as adversely impacting upon our environment and paddling.

**Impact:** It is estimated that invasive non-native species and fish diseases cost the Scottish economy, and therefore us, upwards of £500 million per year and the UK economy £2 - £6 billion per year. That is why we strongly recommend you to study this information.

1. **Avoid transporting water**, which may contain some form of living creature or plant material, from one water course to another. The simple act of always draining your boat as you leave the water is the most important biosecurity habit you can do, ensuring you make a valuable contribution to protecting Scotland's rich native biodiversity. Please follow this link for Check Clean Dry.
2. **Reporting invasive non-native species**: Click for reporting any sightings, if possible, taking photographs to aid identification to Reporting Invasive Non-Native Species.

An alternative website for reporting is: iRecord | Manage and share your wildlife records (brc.ac.uk)

Be aware of special requirements when returning from overseas countries (especially Norway) that have rivers infected with Gyrodactylus salaris. Also bear in mind any biosecurity concerns and measures in other countries and follow this advice when travelling outside Scotland.

## Advice to Paddlers for biosecurity: CHECK, CLEAN, DRY

Avoid paddling through aquatic weeds in still or slow-moving inland water as some non-native species will benefit from the disturbance and this can lead to canals, rivers and lochs becoming overgrown and impossible to paddle.

## Whenever you leave the water, remember to Check Clean Dry

**Check** boats, equipment and clothing after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.

**Clean** everything thoroughly as soon as you can, paying attention to the inside of your boat and areas that are damp and hard to access. Use hot water if possible.

**Dry** - drain water from every part of your boat and dry with a sponge or towel before leaving the site. Dry everything thoroughly for as long as possible before using elsewhere as some invasive plants and animals can survive for two weeks in damp conditions.

## Going abroad?

It's even more important to **Check Clean Dry** if you're taking your kit abroad to make sure you don't bring any plants or animals back with you. Make sure everything is clean and has been dried thoroughly before you use it again at home.

**Assume every water body is infested. Drain your boat and inspect your gear every time.**

Further information:

GB Non-Native Species Secretariat

Invasive non-native species | Scotland's environment web

Check, clean, dry

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