POND INFO

1. What is a Pond?

A pond is a small, natural or man-made body of freshwater, ranging in size from $1m_2$ up to 4 acres, that are either permanent or temporary (ephemeral). You can also have man-made micro-and bucketponds created from tubs, containers, and old sinks. Ponds can be found all over Ireland from gardens to farms and bogs, beaches, woodlands, and mountain tops.

2. Why are ponds important?

Ponds are important because they can be a source of clean freshwater in our landscape, and they provide a home to over 60% of all our native freshwater wildlife! They can also be of high amenity value, a place where you can go to see and learn about wildlife, and spending time near water and wildlife are good for your mental health. Ponds are great at storing water and can reduce the pressure on rivers and streams, and in some cases, alleviate flooding. Best of all, ponds are a great, easy way to create and help protect our native wildlife.

3. Who lives in ponds?

Ponds offer a home and important breeding habitat to many aquatic and semi-aquatic species, like amphibians, and a huge variety of insects and other invertebrates from dragonflies and damselflies to water beetles, mayflies and leeches which all rely on ponds to survive and reproduce.

4. What do ponds offer to other, non-aquatic wildlife?

Ponds are excellent feeding grounds for nocturnal insectivorous animals such as bats and owls. Some birds also rely on ponds for foraging and nesting. Ponds can occasionally even be visited by otters, hedgehogs and foxes too!

PONDS FOR WILDLIFE

5. What do aquatic plants do in ponds?

There are a lot of plants that you might find growing in ponds. These can be roughly classed as submerged (under the water), floating (on top of the water), emergent (growing out of the water), and marginal (growing at the water's edge). The different plant types do everything from producing oxygen to nutrient recycling and microhabitat creation.

6. How do ponds help to stop biodiversity loss and buffer against climate change?

Creating or restoring a pond can be a quick and easy way to tackle both biodiversity loss and climate change. Clean-water ponds have the ability to sequester up to 20 - 30 times more CO_2 than other habitats such as woodlands and grasslands. Permanent, clean and naturally vegetated ponds are the most efficient at CO_2 uptake. They also provide a range of ecosystem services that can help biodiversity and mitigate the impacts of climate change by holding water in the landscape to reduce flooding, assisting groundwater recharge, as well as pollution control of waterbodies by removing pollutants through circulation. Finally, ponds allow society to adapt to climate change by providing areas for recreation and leisure, which is greatly beneficial for public mental health and wellbeing.

Focus on the Biodiversity of Ponds

1. Irish amphibians

Ireland is home to three native species of amphibians that rely on ponds for breeding: The common frog, the smooth newt and the natterjack toad. Each springtime common frog and smooth newts make their way from their hibernation sites in wood and leaf piles, old stone walls, and woodland edges to their nearest pond to lay their spawn and eggs. Natterjack toads emerge from their burrows in sand dunes to breed in shallow warm ponds called dune slacks. It only takes a few short weeks until the spawn and eggs disappear, and the ponds are full of free-swimming tadpoles and larvae.

2. Predators in ponds

Ponds are full of predatory species and these predators play a really important role in keeping the pond ecosystem healthy. Dragon - and damselfly nymphs eat a variety of other pond life, from small crustaceans to others even as large as fish and tadpoles. Water scorpions and water boatmen use modified body parts to capture or eat their prey. In this way, the predators control the numbers of shredders and grazers (water lice, snails, and other larvae) so that they don't take over and negatively affect the plant life. In many cases, the presence or absence of predators in a pond can actually tell you a lot about the cleanliness of the water.

3. Fish in pond — good or bad?

As a rule, The presence of fish usually reduces the biodiversity of a pond unless there are plenty of microhabitats and shallow areas where the other wildlife can escape from them. Smaller, native fish species such as sticklebacks, can generally co-exist within many ponds without having a negative effect on the other wildlife but over time this can change. This is why fish-free ponds tend to have much greater biodiversity than those with fish present. It is never a good idea to introduce fish to a pond where they aren't usually found, especially if the fish is not a native species.

4. Pond dipping

Pond dipping with a net is a fun and rewarding way to discover what wildlife lives in your pond. It can also be a good way to track changes in the pond wildlife community over time. This can be really important if the pond is brand new or if the pond looks like it is in need of some management.

The most important thing to remember when pond dipping is that you don't want to badly damage the plants or hurt the animals. So, only take one or two dips at each point and then move to another place. The aim is to try to get a dip sample from as many microhabitats in the pond as possible (e.g. near/under plants, shallow water, and open water). This gives you a much better chance of seeing as many types of animals and plants as possible! You should always dip from the water's edge, not in the water, and use a figure-of-8 "∞" sweeping motion to collect your dip sample. This way you push the animals and plants into the water and then scoop them up.

5. Using pond dipping to determine water quality (the traffic light system)

While discovering the wildlife that lives in your pond is great, you can also use the different groups of animals to give you an idea about the quality of the water in your pond. Water quality assessments for ponds usually use a scoring system (from 1 to 10) to determine the water quality. The higher the score, the better the water quality.

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Water quality assessments use invertebrates for their scoring. So, this means no scores for plants or vertebrates like frogs, fish, or birds (even though they are important to the pond). Each different invertebrate group is given a number based on their tolerance of low water quality. Low scores means these animals are tolerant of polluted water, middle scoring species show some tolerance to pollution, and the higher scoring species are intolerant of polluted water. The presence of multiple predators' species is generally a good sign that the water is relatively clean. For example, dragonflies are unlikely to lay their eggs and feed over ponds with heavily...polluted water. So, once you have taken the pond dipping samples, identified your species, and then scored them, all that is left for you to do is add them up. This will give you the total score of your pond. This score can then be used to determine whether your pond needs some help to bring its water quality up or if it is already of good quality!

There are a number of water quality scoring systems and methods available. We recommend initially using the Big Pond Dip (Freshwater Habitats Trust) or OPAL (Open Air Laboratories) resources for your water quality assessments.

Contacts and Further Information:

An Taisce: An environmental charity with a focus on conserving Ireland's built and natural heritage – www.antaisce.org

Legacy4LIFE: An Taisce's project focusing on Ponds for Biodiversity, Advancing Farm-to-Fork, and Green Communities: development of a low-carbon town plan – www.antaisce.org/legacy4life

Ponds for Biodiversity: One of the three strands of An Taisce's Legacy4LIFE project focusing on the importance of ponds for wildlife and climate change mitigation – www.antaisce.org/ponds

Rob Gandola: Pond Development Officer
Rob Gandola is a Herpetologist, Wildlife Consultant and occasional TV presenter.

Aoife O Rourke: Pond Development Officer
Aoife O'Rourke is a Pond Development Officer and the Ponds for Biodiversity team lead. A conservation ecologist with a BSc in Environmental Biology, an MSc in Biodiversity and Conservation and a research MSc in plant-pollinator interactions of fixed dune ecosystems, she brings experience and skills from the research, environmental NGO and ecological consultancy sectors of Ireland and the UK. Aoife has a passion for nature and enjoys connecting people with nature via outreach and community engagement.

Francesca Loughran: Pond Researcher
Francesca Loughran is an agricultural and ponds researcher, working part time on both the 'Advancing Farm to Fork' and 'Ponds for Biodiversity' projects. With a BSc in Animal Conservation Science and an MSc in Environmental Policy, she is well placed to draw on her broad knowledge across the spheres of biodiversity, environment, and policy, and communicate this through her research skills. Fran is also a member of the An Taisce Climate Change Committee and has previously worked with the Advocacy unit in the area of Climate Policy.

Brian Fitzgerald is a Dublin based illustrator of children's picture books.

For more contacts and further info on the Legacy4LIFE Ponds for Biodiversity Project and other relevant biodiversity information scan the QR code.

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