

WHAT CAN WE DO FOR TEMPORARY PONDS ?

- 1** **ACKNOWLEDGE THE VALUE OF TEMPORARY PONDS FOR WILDLIFE (INVERTEBRATES, BIRDS, AMPHIBIANS).**
Try to keep harmful effects to a minimum for activities in natural areas.
- 2** **RESTORE DEGRADED PONDS.**
Improving the functioning of existing ponds allows the populations that are present to recover. Small interventions can already have a major effect.
- 3** **DIG MORE PONDS TO CREATE ROBUST NETWORKS.**
More ponds means more opportunities to move between growing, feeding and/or breeding locations.
- 4** **MAP TEMPORARY PONDS AND INCLUDE THEM IN REGIONAL CONSERVATION PLANS AND LOCAL MANAGEMENT PLANS.**
Knowing the status of temporary ponds and developing conservation policies are a first step towards improving their ecological condition.



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TEMPORARY PONDS ON



www.temporaryponds.com
www.respondproject.eu



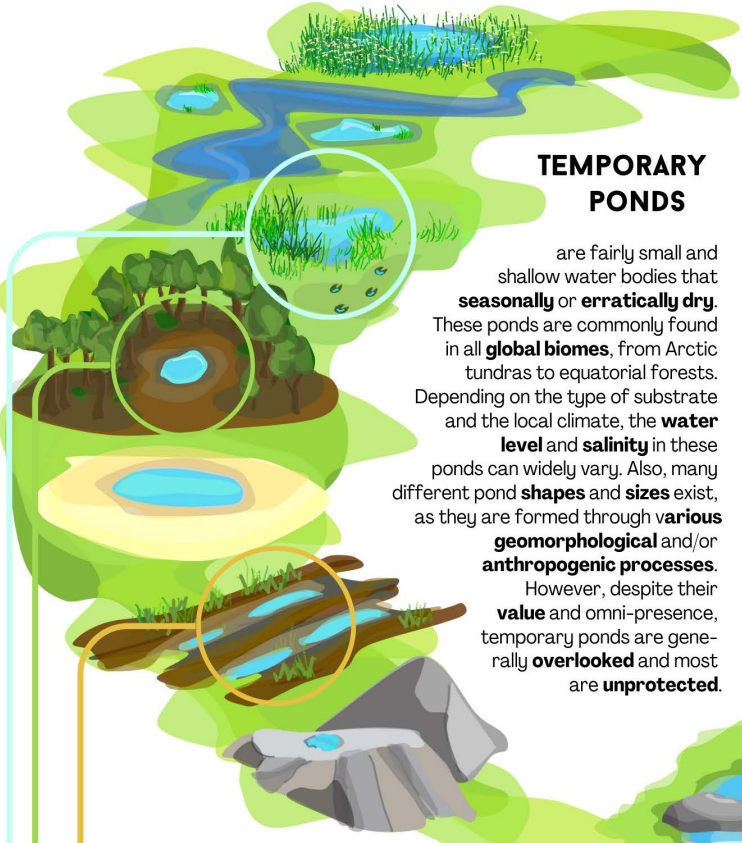
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TEMPORARY PONDS

preserving the
hidden diversity of
uncharted waters





TEMPORARY PONDS

are fairly small and shallow water bodies that **seasonally** or **erratically dry**. These ponds are commonly found in all **global biomes**, from Arctic tundras to equatorial forests. Depending on the type of substrate and the local climate, the **water level** and **salinity** in these ponds can widely vary. Also, many different pond **shapes** and **sizes** exist, as they are formed through **various geomorphological** and/or **anthropogenic processes**. However, despite their **value** and **omni-presence**, temporary ponds are generally **overlooked** and most are **unprotected**.

WHEEL TRACK POND

Temporary ponds form in hollows created by road traffic in unpaved roads. Erosion by vehicles prevents them from silting up with sediment. Species living here are tolerant to the passing vehicles and the turbidity caused by them. Resistant life forms of plants and crustaceans, for instance, can hitchhike along with passing vehicles.

FOREST POND

Ponds in forested habitats are created in depressions remaining where trees are toppled, where wild swines or buffalos wallow, or where ice lenses from retreating glaciers melt (kettle holes), amongst others. The processing of leaf litter and the shading by trees strongly shapes the communities inhabiting these forest or woodland ponds.

MEADOW POND

Similar to forest ponds, meadow ponds merge in open grassland habitats from human (bomb craters, drainage ditches), wildlife (wallowing mammals), or geological (glacial/kettle holes) processes. Sometimes, groundwater surfaces and stagnates, or water is retained on top of an impermeable clay or bedrock layer, forming pans. These are often shallow, ellipsoid and quite turbid, and the community living here is more exposed to solar irradiation and wind than the species living in woodland ponds.

A UNIQUE & BIODIVERSE ECOSYSTEM

A SOURCE OF WATER

Temporary ponds account for an important part of the Earth's freshwater stores. Their hydrological functions include ground water replenishment, water purification and water provision for wildlife, cattle and agriculture. Temporary ponds also act as buffers against floods.

A SOURCE OF LIFE

Temporary ponds host a high diversity of animal and plant species of which many are **unique and/or threatened**. These species display remarkable **adaptations** to survive conditions of unpredictable water supply. Such adaptations include opportunism and pioneering skills, and dispersal and/or diapause mechanisms to overcome periods of drought.

A SOURCE OF KNOWLEDGE

At the scale of landscapes, temporary ponds are a true observatorium for understanding ecological and evolutionary processes. Major concepts can be studied relatively easily, as temporary ponds display all functional characteristics of ecosystems at small scales, yet are less complex than permanent systems.



The majority of temporary ponds have disappeared due to **agricultural intensification** and **hydrological modifications**, and the remaining ponds are in a **degraded** or suboptimal condition. Major threats are:



Toxicants



Drought



Urbanisation



Disturbance



Gaps of knowledge: functions & values



Pollution



Shift in water permanence



Extraction & mining



Invasive species



How to restore?

NATTERJACK TOAD *EPIDALEA CALAMITA*

Temporary ponds are excellent breeding habitats for several amphibians such as the Natterjack Toad. These species benefit from an environment with plenty of food but without fish predators that would otherwise consume the tadpoles. Natterjack Toad eggs are laid in strings of up to 2 meters long, in shallow and warm pools with little vegetation. After only 6 to 8 weeks, eggs develop into young toadlets.

FAIRY SHRIMP *ANOSTRACA*

Fairy Shrimp are primitive crustaceans equipped with many legs that are used for swimming, breathing and filter feeding. They produce dormant eggs to survive dry periods. Some Fairy Shrimp can grow to maturity and reproduce in just 7 days. They can be found in temporary pond ecosystems worldwide, and fossil evidence suggests they have been present in temporary ponds since the Devonian period more than 350 million years ago.

COMMON DARTER *SYMPETRUM STRIOLATUM*

Like other darters, this dragonfly feels at home in shallow and warm ponds and ditches with little vegetation. In these habitats it is an abundant and common pioneer, that hunts for insects by dart-like motions. The Darters' life cycle is characterised by periods of interrupted development (diapause) when conditions are unfavourable, as larvae, prereproductive adults or rarely as embryos. Common Darters can be spotted flying from May to December.

TADPOLE SHRIMP *TRIOPS SP.*

This crustacean still looks like its ancestors that roamed Devonian wetlands. To survive the dry season, *Triops* eggs dry out and enter diapause. When pools fill with water again, eggs hatch to become hermaphroditic and sexually mature adults within 3 weeks. Tadpole Shrimps are opportunistic when it comes to food: they are omnivorous scavengers and hunters.

