

NEW FOREST WATERNEWS

The New Forest Catchment Partnership is coordinated by the New Forest National Park Authority and Freshwater Habitats Trust who are working alongside other organisations and communities to protect and improve the special freshwater and coastal habitats of the New Forest. This newsletter showcases their work and aims to raise awareness of the importance and unique nature of these environments.

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IMPROVING HABITAT QUALITY FOR WETLANDS UNDER A CANOPY

DELIVERING THE BLUE HORIZONS PROJECT

The New Forest is rightly famous for its impressive trees and wooded landscapes, and whilst many people think of woodlands as dry places, water is often an integral part. In fact, the New Forest's rivers, streams, flushes, mires, spring lines, ponds and small seasonally wet pools are present throughout both wooded and open habitats. Water isn't confined to one type of woodland either, you can find important freshwater habitats within various woodland types including priority habitats like wood pasture and parkland, lowland deciduous woodland and, more obviously, wet woodland.

The variety and quality of these woodland wetlands are part of the qualifying features that have led to the New Forest being identified nationally as an Important Freshwater Landscape, where rare freshwater species still occur, having largely been lost from almost every other landscape in lowland England. The core aim in identifying Important Freshwater Landscapes is to protect the best and restore and create new clean water habitats around the edge which build out from and link the high biodiverse New Forest Special Area of Conservation (SAC), coastal Special Protection Area (SPA) and SSSI chalk streams.

As reported in the last edition of WaterNews, Freshwater Habitats Trust have been delivering conservation action in the New Forest through the Blue Horizons Project Green Recovery Challenge Fund to extend the Freshwater Network through the creation of new clean water habitats.

This article summarises another component of that work, the Woodland and Wetlands project which has been helping to deliver habitat restoration work that will benefit wetland habitats and species within wooded areas on privately owned land on the outskirts of the New Forest's Protected SAC Landscape.



*Woodland and Wetland project officer
Angela Peters*



To date, we have worked in ten woodlands around the New Forest, as part of the Blue Horizons Woodlands and Wetlands project, although double the number of sites were considered and landowner's advised on suitable management. To make the shortlist for work in this project, we selected sites based on their condition, proximity to designated sites and Water Framework Directive waterbodies, presence of priority habitats or species and, of course, landowners who would champion the work and continue to manage the woodlands in a positive way into the future.

WHAT ARE THE ISSUES?

Small wetlands that are unconnected to rivers and streams can hold particular importance as clean water habitats for freshwater species. This includes ponds and temporary pools in woodland areas. Clean water ponds, flushes and pools of varying levels of shadiness and openness can be important for a range of important wildlife such as beetles, liverworts, true flies and amphibians. Traditional management of woodlands including maintenance of rides (for access), grazing of wood pasture, and



A pond in a small patch of woodland. This is an unmanaged area with clean water and therefore has a high potential for some of the nationally scarce wetland species that prefer shaded areas.

rotational coppicing for wood products in times gone by, created dynamic areas within woodlands that provided sunny clearings with vegetation of different age classes which in turn provided the conditions for specialist woodland plants and invertebrates. The same is true for species occupying freshwater habitats within woodlands. Uniformity and heavy shade, caused by the cessation of management practices, and growth of secondary scrub, especially when the regrowth is dominated by invasive non-native species, can lead to a deterioration in the diversity of woodland wetlands, ponds and streams.

But, at the same time, shade is not universally bad. In old growth woodlands, and in wet woodlands on poorly drained soils, a high diversity in woodland structure including the presence of mature, dying and dead trees, (standing and fallen), creates a broken canopy, and a mosaic of wetland pools and streams within a gradient of open, to dappled and partial shade, and full shade. A large proportion of aquatic plants and animals are tolerant of partial shade and some of the rarest species, that wet woodlands are so important for, require shady areas which are sensitively managed. There are at least 30 Biodiversity Action Plan pond species and many Red Data Book species which occur in woodland ponds.

Due to the often underestimated value of shady freshwater habitats for specialist wildlife it is important to factor this in when deciding how to manage a wet woodland or wetland features within a woodland. Freshwater Habitats Trust website provides a range of useful factsheets that should be consulted when making decisions about managing wetlands in woodlands; [Managing Trees Around Ponds](#).

CASE STUDY: WET WOODLAND PROJECT SITE, NEAR LYMINGTON

One of our project sites, just outside Lymington and within the New Forest National Park is showcased here. The site is a small 2.5 hectare wet woodland on a valley side, adjacent to the Lymington River SSSI. The spring lines and flushes on the valley side of this woodland feed into a small ditch and tributary that flow alongside the woodland edge, into the Lymington River, and then out to sea.

To inform our management approach, Hampshire Biodiversity Information Centre (HBIC) were asked to supply records within 500m radius of the site. The woodland was surveyed in 2017 and was found to support 85% wet woodland and 2% purple moor grass and rush pasture which are both priority habitats and as such the site was designated a Site of Importance for Nature Conservation. The woodland supports an array of wetland species, sedges and ferns; with 123 species, including birds, recorded during the 2017 survey. The wetter areas of woodland are largely willow dominated, but a diverse understory of wetland plants had also been recorded including, lesser spearwort and ragged robin. HBIC records also noted 5 species of bats, grass snake and an impressive list of birds within 500m of the site, which is partly due to the inclusion of the nearby Lymington River SSSI with its reedbeds and associated riparian and estuarine habitats. So in conclusion, an important site in and of itself, and within proximity to other important wetland habitats.

Unfortunately, the site has suffered from the spread of *Rhododendron ponticum*. Originally introduced by the Victorians, this invasive non-native shrub is listed on Schedule 9, Part 2 of the Wildlife and Countryside Act 1981 (as amended). This shrub shades out the understorey and ground layer of woodlands, making it uninhabitable for native wildlife. However, *Rhododendron* can be successfully eradicated from sites through appropriate management. The site



The Rhododendron ponticum smothering the understorey and ground layers. Picture taken in winter 2021/22 at the start of the project before volunteers or contracts started work.

has also developed to have near total canopy cover, and little structural diversity, leading to a uniformly heavily shaded understory.

To address these issues, we ran two volunteer task days in partnership with the New Forest National Park Authority. The majority of *Rhododendron* plants were cleared by volunteers, cutting them back with hand tools and carefully burning on site. Following these volunteer days we engaged local contractors Julian Potheary and his team to clear the remaining *Rhododendron* which were beyond the size at which volunteers could manage. We also tasked the contractors to clear a small number of willows in one area and a small number of poplar in another area to create small clearings within the closed canopy. Log and brash piles were stacked near the clearing to provide refugia and habitat for a range of wildlife. This work was included in the landowner's existing felling licence - a piece of legislation which regulates which trees can be felled and the amount of timber that can be removed from a woodland.

Apart from removing the *Rhododendron*, we left large areas within the woodland so that the shade loving species such as ferns, mosses, liverworts and specialist invertebrates can also thrive.

Through the project we have also worked in an adjacent woodland supporting flushes and spring lines, which also had extensive *Rhododendron ponticum*. This site has also had all its *Rhododendron* cut and removed. Both sites will require follow-up monitoring and the landowners will be overseeing follow-up herbicide treatment on any regrowth of *Rhododendron* to ensure its total eradication.



The site after the clearance of small willows cut piled up on the site, picture taken in winter 2021/22.



The wet flush on the site in the summer after clearance, the picture taken in August 2022 during the dry period.



Lesser skullcap flowering in a sunny clearing next to a shallow pool on site.

Photos © FHT



Flowering hemlock water dropwort, water mint and yellow loose-strife at the edge of a new clearing on site.

The project, Blue Horizons, will continue to seek opportunities to work with landowners and businesses to address improvements to both the running and standing water network, reducing diffuse pollution and sedimentation, increasing water storage capacity and the restoration and creation of clean water habitats around the edge of the New Forest SAC. Outcomes will contribute to the expansion of specialist priority clean water dependant species, now lost from almost every other landscape across lowland England.

CITIZEN SCIENCE WATER QUALITY INVESTIGATION

A FIRST LOOK AT THE WATERBLITZ RESULTS 2023

Volunteers and staff have recently completed a New Forest WaterBlitz, as part of the Wilder for Water project, funded by the Green Recovery Challenge Fund. The survey took place, mostly across the New Forest using nutrient testing 'quick kits' to assess the levels of nitrates and phosphates (nutrient pollution) in a variety of waterbodies.

The project was in part a follow on to the Clean Water for Wildlife project that ran in 2016, which was the first national survey of its kind using citizen science to gather landscape scale information about water quality.

WHY IS WATER QUALITY IMPORTANT?

Many factors can affect water quality. The New Forest freshwater habitats are fed by semi natural, uncultivated habitats that are naturally very poor in nutrients. These low nutrient environments are good news for freshwater wildlife, and in the New Forest rare species that are dependant on clean unpolluted water thrive, especially in combination with the tradition practice of grazing from a variety of livestock.

Continued monitoring is essential to help detect change over time and enable land managers to address pressures quickly to prevent deterioration of these special habitats. Nutrient input of any kind can have devastating effects for freshwater and coastal wildlife. An increase in nutrients causes a domino effect ultimately favouring fast growing, dominant vegetation and algae, depleting oxygen levels in the water creating an environment unsuitable for a significant proportion of freshwater species.

OUR AIMS

Our focus for this study was to attain an up to date understanding of the presence of clean water habitats across the National Park. Not only this, but also to provide volunteers with new/consolidated skills and knowledge, assess where to target engagement efforts, and influence land management decision-making with site specific information.



WaterBlitz volunteer out in the New Forest conducting water quality testing across a variety of freshwater habitats.



The water quality testing kits used to complete the survey across the New Forest landscape.

SURVEY AREA

Volunteers and staff surveyed across the New Forest National Park, and in some cases beyond. A variety of freshwater habitats were tested including ponds and ephemeral pools, lakes, ditches, streams and rivers. A combination of publicly accessible land and private land was surveyed to ensure good coverage across the National Park.

FIRST LOOK AT RESULTS

700 water samples have been submitted from October 2022 to 16 March 2023 and over 120

volunteers have been involved in this data collection, all of which we highly appreciate the time and effort contributed to this important study. The results collected are predominately from streams (45%) and ponds (33%).

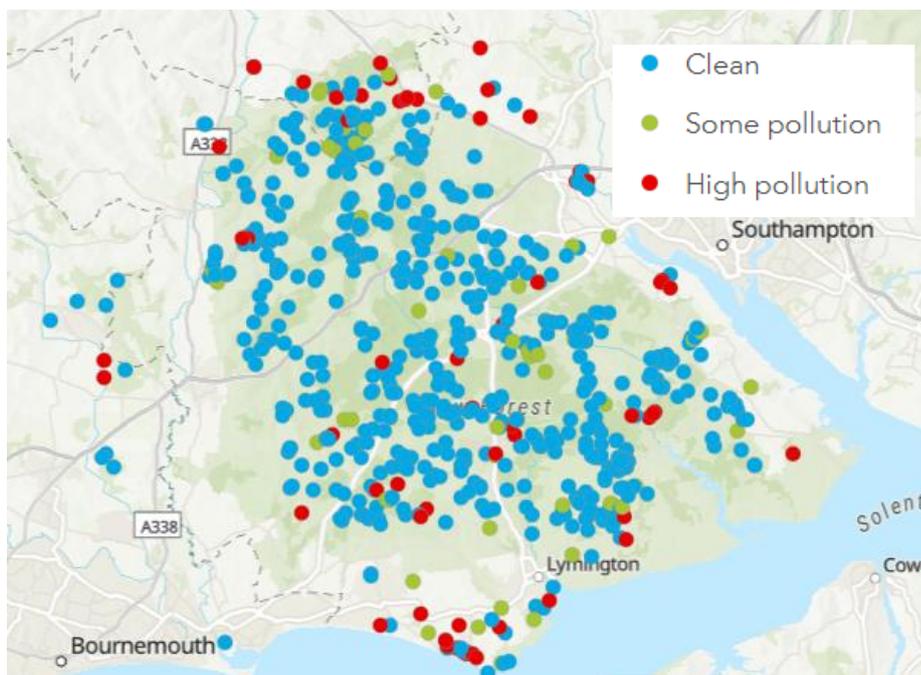
Over three quarter's (84%) of sites showed no evidence of nutrient pollution. Rivers and lakes had lower percentages of clean water compared to the other waterbody types. Ponds had a noticeably higher proportion of results recorded as clean with no signs of nutrient pollution. The core of the Forest contained the majority of clean water records.

Some of the sample locations were the same as the 2016 Clean Water for Wildlife locations and we have found change at a number of these sites. Of these, a total of 36 sites showed significant change. The change has been a

fairly even mix of positive, negative and neutral with the dominating nutrient changing.

We are still receiving the last few results from testing kits that were distributed and undertaking analysis of results. We look to hold an online talk and publish more about the results later this year.

Photos © Volunteers and FHT



WaterBlitz 2023 results



Water quality testing on sites where improvement work is being carried out or may happen in the future

AN UPDATE FROM THE COUNTRYSIDE EDUCATION TRUST

HOW WE PROTECT OUR WATER QUALITY, AID EEL PASSAGE AND INSPIRE THE NEXT GENERATION

The rivers, streams, mires, and ponds of the New Forest are home to some of the purest and most ecologically valuable freshwater ecosystems in the UK. Here at the Countryside Education Trust, we are lucky enough to be the custodians of several ponds along with Hartford Stream, a tributary of the Beaulieu River, which is home to a multitude of species including the Demoiselle Damselfly's, Water Stick Insect, and European Eel.

LIVING WATERS PROJECT

From 2016-2020, we have worked in partnership with the Freshwater Habitats Trust on the Living Waters Project with the aim to improve water quality across the Beaulieu Estate. This was achieved by managing and creating freshwater habitats, along with addressing small sources of diffuse pollution from agriculture and horse pastures. In conjunction with the project, we undertook a four-year monitoring programme into phosphate and nitrate levels in the water systems across our two sites. In every case we found that levels for both were low which is an excellent indicator of a healthy water system. Further surveys across the Estate revealed that 80% of the water bodies had clean water which is outstanding compared to surveys in other catchments across England.



This manure store was constructed to prevent the leaching of nitrates and phosphates into the nearby stream and a rainwater collect tank was installed on the far side.

Following our survey results we were able to undertake a series of funded building projects across both of our sites which have been of enormous benefit in conserving and improving our freshwater habitats. These included the relocation of the farm's manure heaps along with the construction of a covered manure barn to prevent the leaching of nitrates and phosphates into the nearby stream.

The project also funded the purchase of several water collection tanks which were installed with the help of our fantastic volunteers. The tanks collect rainwater from the roofs of various building across the farm and are used to supply drinking troughs, irrigate our garden, and supply water to two ponds. Thanks to the tanks we now have a reservoir of 40,000 litres of rainwater which we can use in place of mains water, a cost saving and highly beneficial for the environment.



Modified slurry spreader to distribute pig waste in a way to limit run off and leaching that might effect water quality and wetland plants.



European eel Anguilla anguilla

Finally, the project enabled us to replace the old weir which regulated the water level at one of the largest ponds on Hartford Stream. In the process of installing the new weir we also installed an eel pass to aid the migration of European Eels, which reside in the pond, to their breeding grounds in the Sargasso Sea over 3,000 miles from the Beaulieu River. The European Eel is critically endangered with some estimating a population decline of 98% since 1970. Since the installation of the new weir, we have encountered eels whilst pond dipping with one of our school groups.

PROJECT UPDATES

As recommended by Freshwater Habitats Trust following a survey carried out at Middle Pond, we removed some encroaching vegetation to restore balance to the ecosystem as well as reduce run off and loading of sediment. General maintenance work and some adjustments have also since been carried out on the Eel pass as it had breached its walls, and it has continued to work very well since. Our wonderfully enthusiastic and knowledgeable volunteer, Brian, was working hard on the greenhouse water tank throughout 2022. We encountered an issue with spraying the collected water from a hose due the risk of legionella being released into the air, and so the tank was engineered to redirect flow to a leaky pipe system to irrigate our plants.

We would like to extend our thanks to those at the Living Waters Project and Freshwater Habitats Trust who have enabled us to conserve and protect the freshwater habitats we manage and those who have made all of the work carried out throughout this project possible.



The eel pass at Middle pond where adjustments and maintenance work has been carried out to keep the pond accessible to eels.



Male Palmate Newt and various aquatic invertebrate caught during pond dipping exercise riantly at our Owl Club

Photos © Countryside Education Trust

WATER ENVIRONMENT TEACHING

We recognise that freshwater ecosystems are essential for biodiversity, the economy, recreation, and well-being, and so inspiring people to care for them from a young age is crucial for the future of both people and wildlife. We offer a popular stream study course and pond dipping activities at our woodland site, which capture the changing characteristics of the Hartford stream as it flows from its source to the mouth and highlight the special and unique flora and fauna found along the way.

WATERSPORTS WITH WILDLIFE

BALANCING THE NEEDS OF NATURE WITH THOSE OF RECREATION

Every day we share space with wildlife, and that is especially true on and around the water where one can truly feel like you are in a wild place.

52 million visits are made to the Solent coast each year but many people who live or holiday here don't know about the area's huge value for wildlife. The 250km (155 mile) coastline of the Solent is distinctive and dynamic. It has a wide range of habitats from the sandy beaches and shingle banks to saltmarshes and vast natural harbours. And of course, the fabulous mudflats that become exposed at low tide and provide a feast for protected coastal birds.



Wading birds including Redshanks, Dunlin and Turnstone feed on exposed intertidal mud at low tide.

This makes the Solent one of the most important places in western Europe for coastal birds. On a typical winter day there are up to 125,000 birds along the shorelines of the Solent. For this reason, three areas of the Solent have been designated as Special Protection Areas (SPAs) by the government. Three areas are also designated as wetlands of international importance under the Ramsar Convention (an international treaty for the conservation and sustainable use of wetlands).

BIRD AWARE SOLENT

The coastal birds that spend the winter here including waders such as Sanderling and Godwits as well as geese such as Brent geese. These species need to feed and rest [undisturbed](#) so that they can survive the winter and build up enough energy to fly back to their summer breeding grounds. Their survival and breeding success relies on everyone on the Solent [sharing our shores](#).

Bird Aware Solent is a tool being used to lessen potential impacts from increased local housing development. The initiative is run by the Solent Recreation Mitigation Partnership made up of [19 organisations](#), and funded by contributions from all new residential dwellings within 5.6km of the Special Protected Areas. Our work is raising awareness of the [ducks, geese and wading birds](#) that spend the winter on our special coastline. The main measure is a team of rangers to help coastal visitors and communities understand the importance of the different bird species and the impact of disturbance.



The Special Protection Areas (SPA) that Birds Aware Solent operate within, The majority of the New Forest coast included within the Solent & Southampton water area.



Sanderling and Ringed Plover feeding at the water's edge on a shingle beach.



Dark-bellied Brent Geese on a salt marsh.

One of our goals as an organisation is to (over time) work with stakeholders from various recreational user groups to develop voluntary behavioural guidelines specific to that recreational community. Recently I worked with stakeholders from the beach cleaning community to create [Wildlife Aware Beach Cleans](#). These are new guides for making sure beach cleans minimise disturbance to wildlife.



A Bird Aware ranger interacting with members of the public.

WATERSPORTS WITH WILDLIFE

Over the past year I have also focused on working with the watersports community, specifically stakeholders from wind and paddle sports. Initially the idea was to create a set of guidelines, much like we did for beach cleaning, but after collaborating with stakeholders such as watersports businesses and harbour masters it became apparent that what was really needed was a wildlife friendly watersports map that encouraged people to use entry and exit points less likely to disturb wildlife, as well as provide guidance on where amenities such as parking and toilets are. Wind and paddle sports are both growing in popularity, and there are more people enjoying the benefits of these sports on the Solent and in the New Forest than ever before. By providing a map as well as behavioural guidance, we can ensure those who enter these sports today will understand that they share space with vulnerable species and that the natural places that are enriching their own lives are also vital feeding and resting places for our birds.

The map is accompanied by specific behavioural guidance that paddle and wind sports enthusiasts can adopt in order to reduce disturbance to protected birds and habitats.

Protect sensitive places

Islands, spits, marshes, lagoons and mud are vital habitats. Human presence will prevent birds using them.

Avoid landing here and keep your distance.

Small creeks are the perfect hiding place for birds and are sensitive to disturbance.

Stick to the main channels.





Some of the behavioural guidelines for paddle sports.

The majority of disturbance observed by our rangers on the coast is completely unintentional. It's not that people don't care about nature and wildlife, it's that there is not a clear understanding of what disturbance is and what the consequences are if birds are not allowed to feed and rest. Decades ago, it may not have mattered if a canoe or an off-lead dog put up a flock of waders or ducks. That's because it happened so infrequently, but today our rangers see the same birds interrupted from feeding and resting, by various recreational activities, over and over again. The frequency of disturbance now means that they not only lose feeding time, but they also lose energy by flying or walking away constantly from a perceived threat, and this is what impacts their chances of survival. All the Bird Aware Solent initiatives, including Watersports with Wildlife aim to create a balance between human activity and nature. It is a fine balance indeed, but I think most people understand that nature must be given a chance.

The wildlife friendly [watersports map](#), is now up and running on the Bird Aware Solent website. It has proven to be a more complex piece of work than I originally anticipated. It will all be worth it if these resources help people coexist with nature by reducing disturbance to protected birds and habitats.

My hope is that the map and guidance for paddle and wind sports will be well received by these communities.



Any recreational activity has the potential to disturb birds from feeding and resting on the coast.



Some Brent Geese being very tolerant of windsurfer left near the waters edge rather than at the top of the beach.

Next time you are out enjoying the coastal New Forest, spare a thought for the birds. Remember to follow [the Coastal Code](#).

- Look out for birds
- Move further away if they become alert
- Keep dogs alongside you
- Follow requests on signs

PARTNER PROFILE: DAWN THOMPSON

A SEASONAL RANGER WITH BIRDS AWARE SOLENT

I'm one of those people who's still trying to decide what they want to be when they grow up, but whatever it is, there are now two essential criteria: it must be outdoors and must involve working for nature.

I grew up in a rural environment at a time when it was perfectly normal to head off to the woods and the streams to explore and play without adults. I was the inquisitive one in our little troupe of renegades and yet I seem to recall that we all knew quite a lot, the names of trees and plants, of birds and insects, where to catch a glimpse of a slow worm sunning itself or the best part of the stream for tadpoles. We connected with nature from an early age and, though it was an environment I adored, a career in conservation simply never occurred to me.



My other passion was travel, so with the lure of adventures around the world I settled on the aviation industry. Starting on the check-in desks and ending in air traffic control did get me to distant lands, but the call of the wild persisted and I left for pastures new. Initially I did an array of weird and wonderful jobs from ski-instructor to theatrical dresser, photographer to equine therapist, but more importantly I took the opportunity to volunteer on conservation projects both at home and abroad giving me not only practical experience but also a better understanding of how and where my skill set might fit.

I finally cottoned on to the fact that I could work for nature although the first role I secured as a bat officer was a real baptism of fire. I seemed to spend a lot of time explaining to people that I didn't do pest control, quite the contrary in fact! I've worked on several different conservation projects since then and particularly enjoy the fact that the industry offers a whole array of seasonal jobs. These suit me perfectly; I may go to a different part of the country or work on a project that improves my species knowledge, I still enrol on courses galore (city treescape's coming up) and I'm constantly learning from those around me.

In anticipation of the arrival of the over-wintering migratory birds, Bird Aware Solent recruit a small team of seasonal rangers who patrol the coastline talking to people about these amazing avian visitors. Each ranger site visit lasts around 3 hours, and we spend that time engaging with as many people as we can. With our telescopes, bird ID knowledge and a few exciting facts it's lovely to see people walk away buzzing after our chats, but there is a serious message behind all this which is the negative impact of ever-increasing recreational disturbance. Whilst we have the envious task of walking around our beautiful coastline, some conversations can be difficult, and we see first hand the very real challenges that birds face day in day out. By directly reaching out to people we hope to encourage them to enjoy their walks or paddles or days out at the seaside in a sensitive way, giving birds the space that they need to flourish.

Working for conservation despite its difficulties in an ever-changing world, is a very rewarding job. The passion and determination of the people that I've worked with is inspiring and the generosity of those willing to share their knowledge is such a breath of fresh air. I most definitely took the scenic route to get here, it wasn't always picturesque, but it is now.

Photo © Birds Aware Solent

SPECIES PROFILE: FAIRY SHRIMP

A INCIEN T UPSIDEDOWN SWIMMING SPECIALIST SPECIES OF TEMPORARY PONDS

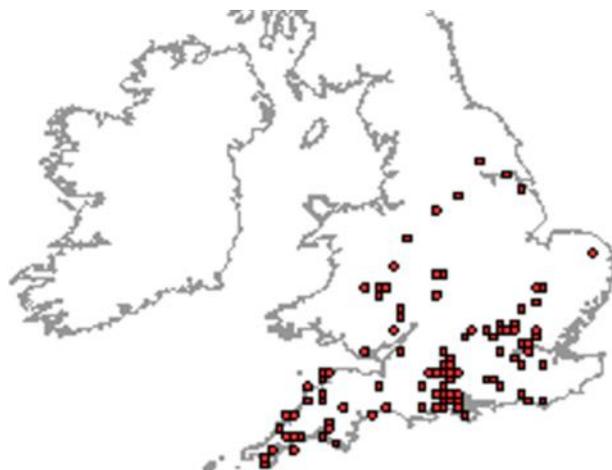
Fairy Shrimp is the common name given to a group of species known in Latin as *Anostraca*. The only species known to be natively found in Britain is the *Chirocephalus diaphanus*. The Fairy Shrimp is a specialist species which are surprisingly tolerant to a number of habitat factors and have the potential for a stronger population in the UK than is recorded, but unfortunately are principally threatened by habitat loss and degradation.

The Fairy Shrimp are a special and elusive species occupying ponds which are ephemeral (dry for part of the year) and grazed by livestock. They have interesting characteristics including upside-down movement through the water and have a translucent body.

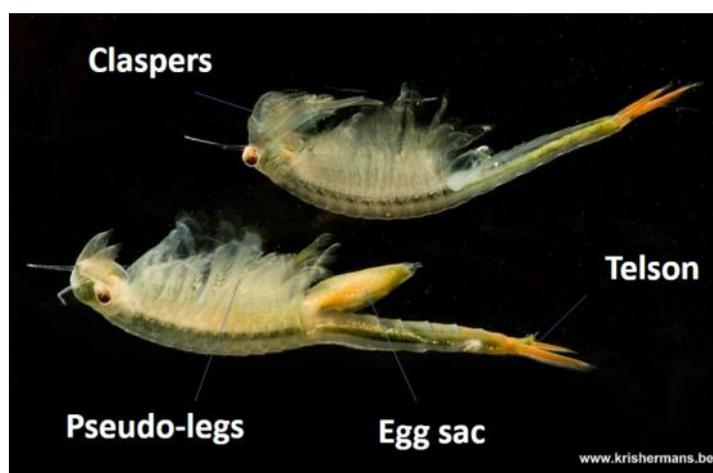
There are fossils dating back to the early Cretaceous period, over 140 million years ago, with similar forms to Fairy Shrimp. It is fantastic to know that they are still surviving and with relatively little changes in the way they look today. The landscape of Britain has undergone great change since the prehistoric times and the recorded populations of Fairy Shrimp are currently concentrated in Devon, Cornwall and the New Forest. The New Forest is a relatively unchanged landscape and supports many other ancient species like Marsh Clubmoss and the Tadpole Shrimp, mainly owing to the historic practice of grazing livestock and low nutrient freshwater habitats.

The limited size and distribution of the species means that it is currently listed as Vulnerable in the Red Data Book and they are fully protected under schedule 5 of the Wildlife and Countryside Act. Fairy Shrimp are currently thought to be present in 28 New Forest ponds.

Fairy Shrimp do have two key habitat requirements (a) that the pond dries out each year and (b) that there is sufficient food supply when the pond fills. Drying out and re-wetting triggers the hatching of a proportion of the partially developed 'eggs' on the pond substrate. In natural conditions this results in only one generation per pond per year due to other limiting factors. However it is possible for there to be two generations within a year, but only under very specific conditions. The condition for potential presences is predominately based on the pond being temporary and in a range of circum-neutral pHs (~5.5 to 7.5). Pond depths, shade levels and even turbidity are also important factors. The New Forest has naturally low nutrient, clean unpolluted pond systems made suitable with the low intensity traditional grazing management. The grazing livestock poaching the pond margin and adding a nutrient supply through their organic dung leads to a sufficient food supply when the pond is filled with water.



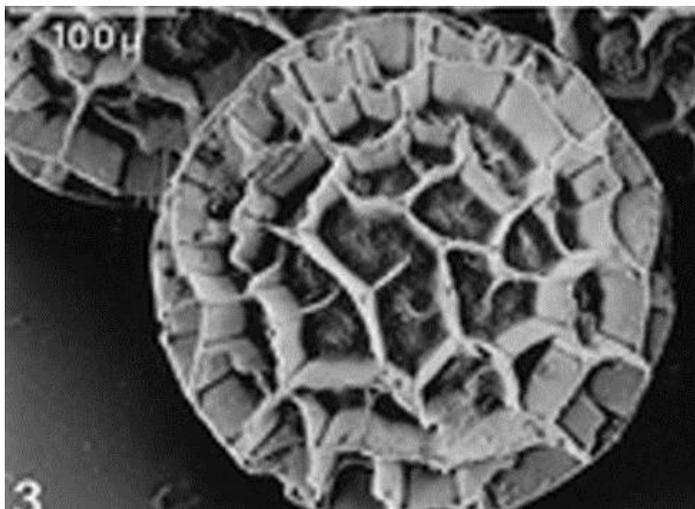
A map of the current records of fairy shrimp across England, a dense collection of records in the New Forest.



A labelled diagram of a male and female fairy shrimp at maturity. The male at the top of the image and the female below.

The lifecycle of the Fairy Shrimp is specially adapted to survive the dynamic nature of temporary ponds, which is their only known adaptation against predators. The eggs can hatch within 48 hours of the pond filling with water and it has been observed that not all of the eggs laid at the same time will hatch at the same time. This ensures that the population is not lost if the pond then dries out before new eggs are laid. Some eggs can be triggered to hatch after 50 wettings and have been shown to be viable even after three years without the pond filling with water. For the population to continue, at least two from each set of eggs laid must reach a level of maturity to lay or fertilise eggs.

A fairy shrimp can reach maturity within as little as three weeks and can start laying eggs before they are fully mature. Females can produce eggs from when they have grown to as little as 1 cm and produce more as they grow. The optimum number of eggs are produced when they have reached around 2-3 cm producing roughly 300 eggs. In situations with abundant food available, exceptional numbers of eggs (600+ eggs) can be laid by large individuals (+3 cm). The eggs have a honeycomb structure that protects the egg and provides a structure that aids dispersal by wind or with the movement of mud. Overall however the species has poor powers of successful dispersal and is under threat from the lack of suitable habitat within range.



A magnified image of a fairy shrimp egg, with the outer honeycomb structure that protects and aids the dispersal of the eggs. The eggs are adapted to hatch only after rain has filled a temporary pond.



Five fairy shrimp, the bottom two turned green through the consumption of algae.

Photos © Freshwater Habitats Trust

THE NEW FOREST CATCHMENT PARTNERSHIP

THE PARTNERSHIP IS A GROUP OF ORGANISATIONS THAT ARE WORKING WITH LOCAL COMMUNITIES, LANDOWNERS AND BUSINESSES TO PROTECT AND IMPROVE THE OUTSTANDING FRESHWATER ENVIRONMENT OF THE NEW FOREST.

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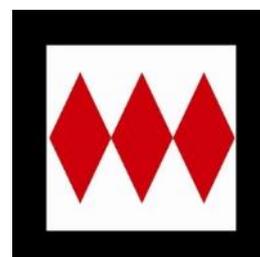
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