



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 habitats of the New Forest. This newsletter showcases the work of those who are committed to improving the freshwater environment of the New Forest.

IN THIS ISSUE:

- Expanding the freshwater network in the New Forest **1 to 4**
- Helping the sea trout overcome an arch nemesis and prepare for climate change **5 to 6**
- Ecologically responsible school fieldwork **7 to 9**
- Nature-based ways of improving water quality - RaNTrans **10 to 11**
- Personel Profile: Angela Peters **12**
- Species Profile: Lagoon sand shrimp **13 to 14**

EXPANDING THE FRESHWATER NETWORK

NEW CLEAN WATER PRIORITY HABITATS BEING CREATED

The New Forest has been identified an Important Freshwater Landscapes, one of the key remaining areas for wetland habitats and species in the UK. The area is so special because it has escaped large developments and intensive agriculture, and has a long continuity of traditional management through grazing by Commoners livestock. However, threats still remain from a range of impacts such as habitat fragmentation, non-native invasive species, development, pollution and disturbance, which can all impact on habitat availability particularly for rare wetland species.

WHAT AND WHY ?

Freshwater Habitats Trust (FHT) and partners have developed the Freshwater Network to protect and create a national network of healthy unpolluted and interconnected landscapes made up of Important Freshwater Areas, Historic floodplains and Wetland Opportunity Areas.

Implementing this network in the New Forest, partners including FHT, secured funding from the Green Recovery Challenge Fund and Environment

Agency’s Water Environment Improvement Fund to deliver a new project. The New Forest Blue Horizons scheme aims to expand the New Forest Freshwater Network and to engage people in the recovery of nature. Running until March 2023, one aspect of the scheme, the Woodlands and Wetlands Project has been underway for a year now and this article gives an introduction to some of the work being undertaken.

Woodlands and Wetlands Project Officer Angela Peters joined Freshwater Habitats Trust in October 2021 and started work towards the delivery of these aims, to create new clean water habitats and expand key areas of wetland habitat within woodlands, with the objective that Priority Species in particular are able to expand their range and strengthen populations to become more resilient in the future.



Woodland and wetland project officer Angela Peters on a site where improvement works have taken place.



WHERE ARE WE WORKING ?

In recent years, Freshwater Habitats Trust’s New Forest team and our partners in the New Forest Catchment Partnership have made positive landowner connections across the Forest. Through this work, we and our partners have delivered habitat restoration within woodlands, meadows, mires, and more, all of which have the common thread of wetlands within them. Opportunities through new and existing landowner contacts have been used to develop and prioritise practical habitat enhancement work, that can be funded and delivered through this project. We are focusing on identifying where work is needed on non-designated, but high quality habitat, where connectivity opportunities exist, building out from or linking sites. The FHT New Forest Team, then shortlisted sites using desk top review and site visits, based on their potential and priority within the New Forest Important Freshwater Landscape in terms of getting maximum biodiversity gains balanced against achievability and sustainability.

Objectives for the project have been to restore ten wet woodlands, or wooded areas with wetland features and to create or restore five wetland sites. These objectives aim to directly benefit Priority Habitats - ponds, fen meadow, rush pasture, wet woodlands and marine habitats within and adjacent to the New Forest National Park.

CASE STUDY- HARROWWOOD

The New Forest Land Advice Service and the New Forest National Park Authority have worked with Richard Frampton at Harrow Wood (Site of Importance for Nature Conservation) in Bransgore for several years. Work has focused on the restoration of the woodland and heathland to a high quality habitat by removing the invasive and non-native *Rhododendron ponticum* from the site, along with clearing some selected young birch, willow and Scot’s pine. Following the



Wet and dry heathland species developing after recent clearance of Rhododendron, birch, Scot’s pine and willow with machinery by Landowner Richard Frampton.

clearance work and surveys it became apparent there was an opportunity to not only restore an area of former wet heathland, but to also create new wetland habitats. By creating a shallow clean water pond within the degraded area of the site adjacent to wet heathland we would immediately increase its biodiversity value. Degraded sites are often topographically “flattened out” and lose the dips, divots and pools which are a vital part of a sites biodiversity value. Creation of a pond here would also provide opportunities for a greater range of important aquatic and wetland heathland species to re-colonise this former heathland site. Many wetland species are excellent at dispersing naturally and are just waiting for the habitat to be available for them to drop in. With a very enthusiastic landowner it was a very exciting site to explore this option further.

Some initial survey work was undertaken to assess the site for its suitability for wetland creation. This included gathering habitat data, looking at historic maps, water quality testing and digging a test pit to explore the substrate and to investigate how the pond might be fed as well as its ability to hold water. The woodland is designated as a Site of Importance for Nature Conservation (SINC), and although this is not a statutory designation it was able to flag the site up as already supporting Priority Habitat. Through previous SINC survey work, the site had been identified as plantation on heathland, and through targeted management work some heathland restoration and woodland management has already taken place. Additionally, the site is strategically located in the south-western edge of the protected landscape of the New Forest, adjacent to SSSI (Site of Special Scientific Interest) heathland and wetlands, so in a key location for extending the area of high quality New Forest habitats to increase connectivity for important wetland species.

To create a pond within the New Forest National Park requires Planning Permission as it is deemed an engineering operation. The project covers this stage of the works, including preparing and submitting the application on behalf of the landowner. Once the application is submitted the turnaround is 8 weeks before permission is granted.



Photo on left: Landowner Richard Frampton in his new clean water pond, post construction!

Photo below: Small pools created during construction, creating further associated wetland habitat on edges of the new pond, within the new heathland habitat which is re-establishing after early rhododendron clearance work

The planning application process included writing a “Design and access statement”, “Ecological appraisal” and providing various detailed maps and drawings outlining the plan and vision for the site. Plus, all the data to back-up why the work would result in biodiversity net gain. Planning Permission was granted and the pond was dug over a couple of days in early Spring, by the landowner, when the weather and ground conditions were suitable.



During a visit to the site in August 2022, the pond appeared to be settling in well. It was holding water, even though we were experiencing drought conditions, and wet heathland vegetation was already colonising the new habitat we'd created. The pond edges supported toad rush, marsh bedstraw, purple moor grass, bent grass, and soft rush. On the drier areas of the site ling heather and cross-leaved heath are also returning.



Varying water levels create many niches throughout the seasons. The pond retained some water even though the dry conditions during the summer.

The landowner is ready to tackle invasive species seedlings, including rhododendron, willow, birch and Scots pine. Some really nice areas of bare ground, including clays and gravels have been left exposed, which provide early succession habitat for some of the New Forest rarities - we're keeping an eye out for pillwort which would be a classic for this type of pond margin. The shallow pools, around the edge of the pond, with their varying depths and substrates are also providing niches for a range of species. These shallow, wet ground areas along with the shallow edges or drawdown zones of the new clean water pond, are biodiversity hotspots for aquatic insects and their larvae, including dragonflies and damselflies, newts, water beetles, flies and molluscs. Amphibians, including frogs, toads and newts will also make a beeline for the pond and associated pools in the spring. These in turn will attract predators like grass snake and bats, and a host of other species who will use the ponds as a source of fresh unpolluted water. Undoubtedly a great new area of diverse wetland habitat has been created here and we will monitor it over time to see how it develops further.



Photo: ©Richard Frampton

Only a short period of time after creation, this new pond has become an important part of this heathy wooded site, contributing to the biodiversity and offering a stepping stone from the New Forest Special Area of Conservation.

Green Recovery Challenge Fund



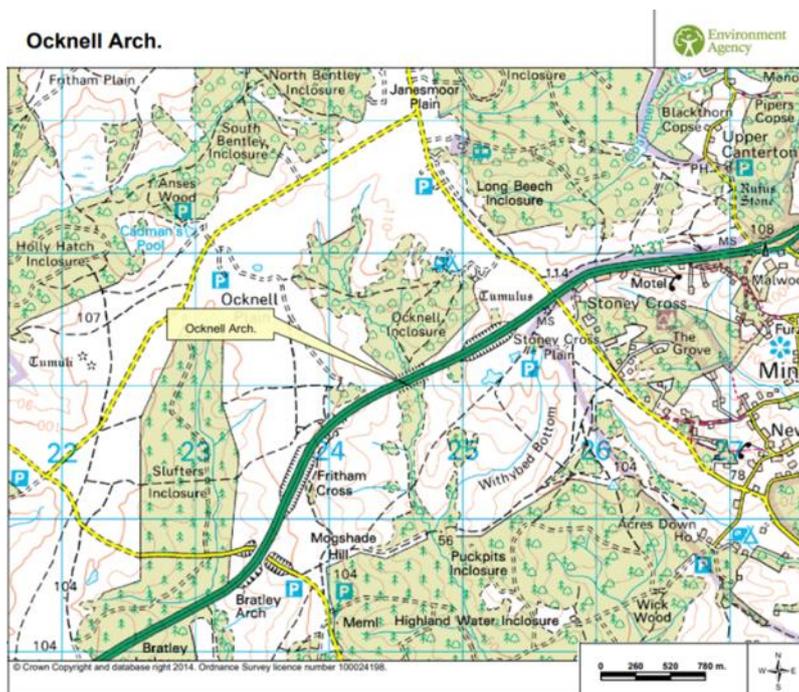
The National Lottery Heritage Fund



HELPING SEA TROUT OVERCOME AN ARCH NEMESIS AND PREPARE FOR CLIMATE CHANGE

A FISHY TALE OF HIGH AND LOW WATERS

The Highland Water emerges from the New Forest’s mires and flows for almost 15km, meandering through a series of Forestry England Inclosures before joining the Lymington River just to the north of Brockenhurst. The area is part of the New Forest Special Area of Conservation (SAC) and Special Protection Area (SPA). Water quality here is fantastic and the habitat through the catchment is just perfect for spawning sea trout (a protected species). They have even been seen spawning right up to the edge of the mires.



Like many New Forest streams, the flows carried through the Highland Water are naturally low but also respond quickly to heavy rainfall, resulting in water rushing through the catchment. Both extremes of low and high flows can make obstacles such as weirs impassable to fish. This is a big problem for sea trout migrating up the catchment to spawn and one exacerbated by climate change where long periods of dry weather and more extreme storms are expected.



Ocknell Arch marked on a map as the step weir and culvert were identified as a barrier to sea trout, after an absence of sea trout redds were noted in the upper Highland Water.

The Environment Agency’s Fisheries, Biodiversity and Geomorphology team regularly visit known spawning sites to understand changes between years. Fisheries officer Paul Newman noted an absence of sea trout redds (nests for spawning fish) in the upper Highland Water in seasons where flows had been particularly high or low. Further investigation revealed the step weir and culvert at Ocknell Arch (spanning the entire width of the dual carriageway beneath the A31) was a barrier to sea trout in these conditions.

While sea trout can put on a burst of speed to get through fast flowing sections of rivers, the velocity of water coming through the culvert and weir in high flows was too much for them to battle through. In particularly dry seasons the water levels would be too low for trout to navigate. These conditions create a spawning bottleneck (unnaturally high spawning activity over a smaller area) downstream of Ocknell Arch.

The upstream habitat perfect for spawning sea trout

Spawning bottlenecks cause multiple issues for sea trout survival rates. Failed attempts to pass the structure can exhaust the adult fish resulting in post spawning fatalities. Competition for limited spawning locations downstream of the structure can result in “overcutting”. This is where hen fish detect the improved upwelling of water through the gravels in existing redds, so spawn over the top of these rather than creating their own. In doing so, the original clutch of eggs is washed downstream to awaiting predators! For those who successfully spawn, bottlenecks can create an artificially high number of juvenile fish competing for limited space and food.

To overcome this issue, the Environment Agency have been working with partners including Forestry England, Highways England, Natural England and 5 Rivers Consultancy, to come up with a design that will allow the sea trout to pass through Ocknell Arch over a greater range of flows, while not impacting on the protected sites (SAC/SPA), commercial forestry interests or the A31.

In works planned for late spring, the Environment Agency will install a single timber pre-barrage downstream of the culvert. The barrage will increase water levels in the culvert, maintaining depths in low flows, while also slowing flows down when levels are high. As a result, sea trout will be able to access the upper catchment of the Highland Water over a greater range of flows, opening up high quality habitat for spawning and nursery grounds and ultimately helping sea trout survive as our climate changes.



The current structure at Ocknell Arch



Paul Newman the EA Fisheries Officer at Ocknell Arch

Paul Newman: *“The problems at Ocknell Arch were identified some 20 years ago, since that time the EA have been monitoring spawning activity within the Inclosure under different flow regimes.*

This project will ensure passage over a greater range of flows by slowing water velocities within the culvert and allowing access for these incredible fish to some of the best spawning and juvenile habitat within the New Forest. As part of this ongoing project we are also working with Highways England to address access to this area for eels”.

ECOLOGICALLY RESPONSIBLE SCHOOL FIELDWORK

HOW THE NATIONAL PARK AUTHORITY'S EDUCATION TEAM LEAVE ONLY FOOTPRINTS

More often than not, the anticipation of being out of the school classroom for the day inspires even the most reticent to bounce around and chatter continuously with excitement. The inspiration so many of us take from this beautiful, protected landscape is written across their faces in smiles, and the peril or promise of the open space is reflected in their body language.

As the students step off the coach we are bombarded with questions; are we going to build a den, when do we get lunch, where is the toilet, are we going to meet Peppa Pig, do the ponies have names Miss, what's poo is that?

Many of the students that our education and youth team work with, have simply never been to the New Forest before, some have never left the borders of Southampton, and they almost certainly don't own wellies.



A child experiencing nature in the New Forest by feeling the flow of water over their feet in a place identified as safe to enter the water

The novelty of the day is both hugely inspiring and daunting to them, before they have even stepped beyond the gravel of the car park. For some, it is utterly unfamiliar, so how can we possibly expect them to know the “buttercup” beneath their foot is an internationally rare plant?

We want to ensure the students have a good time and that we maximise the learning experiences of the day, while operating in a way which sustains the very reason we were inspired to visit in the first place. The key purposes of a National Park are to help people enjoy and understand the landscape, while at the same time protecting and conserving the natural beauty, wildlife and cultural heritage of this landscape. These objectives aim to keep National Parks protected for the benefit of the nation and future generations.



The New Forest code, which is the general advise to all visitors to balance experiencing nature and conserving the natural beauty, wildlife and cultural heritage of this landscape

One of the most important aspects of our work as education officers leading guided sessions is to prepare and plan ahead. We always conduct pre-visits with leaders on site and share information in advance with pupils, parents and teachers. The next part of this article gives just some of the best practice we follow and share with others focussing on what helps protect the landscape and wildlife.

How we plan and run any group visit is integrally linked to why we are running it.

KNOW THE LANDSCAPE

What species might be under your feet? Where are the areas that ground nesting birds use or fish, like sea trout and brook lamprey, use to spawn? Are there any invasive species to avoid spreading elsewhere? Disturbance can be as problematic as destruction, so we don't take samples, we look don't touch, and we stick to the main tracks especially during ground nesting bird season. We tread carefully if stepping out to discover sundews, bog asphodel, and the miraculous abilities of sphagnum moss.

KNOW THE CULTURE

Who else uses this landscape and how? The New Forest is a working forest, where tree felling and management takes place, and pony drifts occur in the late summer and autumn. It is also a place locals and visitors enjoy tranquillity or seek uncrowded spaces for reactive dogs to exercise. We talk to students about respecting the New Forest as a shared space.

KNOW THE LANDOWNER/MANAGER

Taking a group anywhere on public or private land means seeking landowner permission beforehand. Despite much of the New Forest being open access land under the CROW 2000 act, this is not an open permission for organised group visits, or any commercial activity. Landowners and managers coordinate what happens across the landscape to ensure there are no clashes between events, management work or carpark closures. Conversations with landowners/managers mean that we understand more about the specific area and follow any site specific codes of conduct.



A group of students walking on the main track around a pool of water as part of a comprehensively planned educational visit to the New Forest. Planned with knowledge of the landscape, culture, water and landowner/manager permission.

KNOW THE WATERS

Every muddy puddle contains more wildlife than you realise, so we treat small waterbodies and larger rivers with the same respect. There are very few safe spots to enter the water and study its flow, meanders and microhabitats. Working on the very edge of waterbodies can lead to bankside erosion and compaction, so instead, we often sketch, practice mindfulness, play Poohsticks and other games on bridges/walkways or away from the bank edge. However, there's nothing to rival the understanding of rivers that comes from feeling the flow of water lift your foot, the chill the first time it fills your welly, or joy watching minnows shoal over sunlit gravel before hiding in a deep eddy barely a footstep away.

RIGHT ACTIVITY, RIGHT PLACE

We run a range of activities including river studies, map skills, WW2 local history discovery, and wellbeing welly walks. Almost everything can be adapted to have minimum impacts on nature. For example, where some schools measure river velocity by dropping orange peel, that doesn't happen in the New Forest, where we practice leave no trace. We make sure we clean our wellies and nets to prevent spread of invasive plants and diseases as part of leaving no trace. More intrusive or destructive activities (segways, drones, campfires, or foraging) we don't run and advise others to think twice and use better suited locations than the New Forest.

INVOLVE THE STUDENTS

To develop observation and decision making skills in students, we encourage them to take responsibility for their own impact. We have done this as part of the morning risk assessment run through, getting students to consider risks to both themselves and the habitat. Ideas generated by young people range from don't touch the ponies, take your litter home, to alternative travel choices, and creating video diaries so others can see and share without having an impact. Ultimately, these children will leave with powerful memories of nature and place, hopefully linking in a desire to protect and conserve the landscape.



A recent trip with Fawley Infant School at Bolderwood lead by Amy Moore, education and youth officer, where children experience nature first hand. Involvement in activities to think about their impact while on the trip hopefully leaves a desire to protect and conserve the landscape.

“No one will protect what they don't care about; and no one will care about what they have never experienced”

David Attenborough

Useful resources and webpages:

[New forest water code](#)

[New Forest code - New Forest National Park Authority \(newforestnpa.gov.uk\)](#)

[New Forest - permission FAQs | Forestry England](#)

[New Forest - The Duke of Edinburgh's Award | Forestry England](#)

[The Countryside Code - National Trails](#)

There is an ever replenishing audience for outdoor education, each year teachers return with their new cohort. It is important that we keep educating and find a way to help every child experience their own moment of awe and wonder in nature, because each student stepping off the coach then becomes a responsible visitor now and for the future. Perhaps they will be the inspiration to a green career; ecologists, farmers, fundraisers, journalists, landowners, decision makers, CEOs, or volunteer; or as someone who cares and understands.

By planning inspirational experiences at the right time in the right places, operating in the best way we know how, in the long term we ADD value to the New Forest habitats we love.

NATURE-BASED WAYS OF IMPROVING WATER QUALITY

RaNTTrans, AN INTERNATIONAL PARTNERSHIP PROJECT WITH NOVEL SOLUTIONS

Water quality is an international problem and critical environmental challenge of the Channel Manche region. Human activity has led to elevated nutrient levels, from fertilizer and sewage, inputs into streams and rivers that then flow into the sea. This water quality change results in a rapid growth of algal, termed eutrophication. Coastal eutrophication results in the growth of green algal mats on intertidal mudflats covering thousands of hectares. The Rapid Reduction of Nutrients in Transitional Waters (RaNTTrans) project is an international project covering the area of coast between France and England, including the Solent.

The RaNTTrans project aims to develop a range of solutions across multiple sites to address the issues of algal mats and elevated nutrient levels. The Interreg programme is providing funding for projects, to address a wide range of problems at a large scale. The RaNTTrans project is also the first to develop and test innovative nature based and cost-effective methods to address the eutrophication problem.

The techniques being tested are: (i) mechanical removal of algal mats, (ii) feeding algal mats to polychaete worms (converting these to aquaculture feed), (iii) establishing and optimising seaweed culture, and (iv) European oyster aquaculture.



A map of the nine project partners across the south coast of England and the north coast of France

The project has two sites per country and works in partnership to achieve the project goals.

University of Portsmouth – lead partner, involved in all aspects of the project, from algal mat removal to project management and communication.

Centre d'Étude et de Valorisation des Algues (CEVA) - dedicated to marine algae research and exploitation, transferring scientific knowledge to industry.

Centre for Environment, Fisheries and Aquaculture Science (CEFAS) - experience in developing local and 3D models for coastal phytoplankton algal blooms and will help generate web-based algal mat prediction models to help identify local drivers of algal mats for future control measures.

Bournemouth University - expertise includes removal of algal mats and the subsequent identification of species.

ARGANS - specialists in satellite-based Earth observation and will use their expertise to help create algal mat simulation prediction tools.

Université de Caen Normandie - carrying out algal mat removal at a site local to them in France, assessing the impact of the removal on sediment, benthic species and birds.

Université de Bretagne Occidentale - expertise to extract, purify and test novel bio-active chemicals from algal mat species collected by the other project partners.

Natural England - dissemination and learning on this project as they are responsible for project communication.

Aleor - expertise in seaweed cultivation and is a leader in Europe.

This work had never been done before and was not easy, however having governments, policy advisors, investors, and other key participants at an early stage was key to achieving the ambitious goals set.

Project RaNTrans has not only seen innovative science answer real world problems, but additionally, built new collaborations with partners in both France and the UK. This project is revealing the potential to use natural nature-based solutions to restore water quality and stimulate environmental and economic opportunities.

So far the project has tested the feasibility and efficacy of different techniques and is now at the stage of upscaling the potential of these solutions. We know that these habitats and species can do a good job to remove nutrients and restore water quality at small scales, but scaling up is a very important next step. This project is reinforcing the importance of collaborative working with scientists, to lead the way and gather evidence, that when implemented can restore water quality and marine dependant species.

The hope for the project is that the different project partners will continue working on this exciting area of research, using the collaborations built already to tackle the problem of nutrient pollution in transitional waters. Several tools have been identified which can be used to help create a more resilient coastal environment using nature-based solutions. Reports and scientific articles created will be produced for years to come and available on the [RaNTrans website](#).

Some of the collective works by Interreg and project partners can be seen in these 16 videos summaries [Final France \(Channel\) England videos – Google Drive](#) including RaNTrans.

Overall, the Interreg programme (<https://www.channelmanche.com/>) of over 220 million euros is shaping and influencing behaviours towards tackling a wide range of problems at a large scale and revealing the potential for using nature-based solutions to stimulate environmental and economic opportunities.



RaNTrans partners in action along the Solent Coast deploying methods to reduce nutrients in transitional waters.



Oysters remove nutrients as they grow and these oyster cages are part of the project's nutrient reduction programme.

These cages also support over 150 different marine species such as sea anemones, sea squirts and seaweeds etc.

PERSONEL PROFILE: ANGELA PETERS

FRESHWATER HABITATS TRUST'S WOODLANDS AND WETLANDS PROJECT OFFICER

Looking back, wetlands have always been in my life and career. I'm now thrilled to be working with a team of amazing nature conservationists at FHT and with our partners to deliver habitat restoration in a truly colourful and naturally wet part of the world! But how did I get here?

Growing up in suburban Bedfordshire initially I had very little nature in my younger years. Moving to Devon as a 10 year old, my family and I had Dartmoor and the coast a short drive away and the beautiful wooded valley of the River Plym on our doorstep. I gradually developed an interest in all things wild and was aware of the world's conservation issues. What sparked in me from this early age was a strong feeling that I wanted to make a difference and help wildlife.

After completing my Ecology degree, I had the desire to travel, so I saved some money and embarked on an adventure volunteering in Central, South and North America for best part of a year. I explored tropical rainforest, cloud forests and temperate rainforests. When I returned home I started volunteering and leading practical habitat conservation

work with the British Trust for Conservation Volunteers (now known as The Conservation Volunteers). I was scrub bashing, coppicing, fencing, tree planting and growing a love of working outdoors. I then landed my first seasonal work, surveying chalk grassland in Dorset. After a few more seasons of surveys and practical conservation work in Devon and Dorset, I then started a maternity cover job with the National Trust in Purbeck. We looked after almost every lowland habitat, with a range of UK and international designations to match. That role led to me gaining a permanent position there, where I stayed for 10 years.

I learnt lots in this role from working with partner organisations, scientists, local and visiting naturalists, tenant farmers, volunteers, contractors and the Trust's senior advisors delivering positive land management for the heathlands, dunes, saltmarsh, calcareous grasslands and woodlands. I set up and coordinated species and habitat, monitoring and surveys, including the rare Purbeck mason wasp, Southern damselfly, marsh clubmoss, water vole, greater horse shoe and Bechsteins bats. Although not specialising in wetlands particularly, they featured pretty strongly in the areas of my work, as after all, they are integral to every habitat and landscape.

Following my time with the National Trust, I wanted a new challenge and moved a few miles East to join the New Forest Land Advice Service (NFLAS) where I've used my natural history and land management knowledge, my experience working with the local community, volunteers and contractors to deliver NFLAS projects over the last decade including the Community Wildlife Plans Project and Nature's Stepping Stones Project. I considered myself extremely lucky to have ended up in another extremely beautiful and biodiverse area of the country making a difference for wildlife and working with inspiring people.

All this past work has led me into my current role at Freshwater Habitats Trust. Here I can utilise all the skills I've gained over the years to get practical conservation in action, whilst carefully juggling the needs of the biodiversity, permissions, landowner's needs, and funding constraints to maximise the outputs of the work we deliver. Although I thought I knew a bit about wetlands I am certainly gaining a greater depth of knowledge and experience in this role.



Angela Peters in a New Forest wetland

SPECIES PROFILE: LAGOON SAND SHRIMP

A RARE AND THREATENED COASTAL CRUSTACEAN

The lagoon sand shrimp *Gammarus insensibilis* is a rare and threatened crustacean, which lives in saline lagoons around the coast of the UK. The extreme conditions of a saline lagoon, limit the number of species which can survive. As a result they develop a specialist flora and fauna which is restricted to this habitat type.

Saline lagoons are also uncommon features within a coastal landscape and are listed as priority habitats under the European Habitats Directive. In spite of this protection, they face a number of threats including sea-level rise, coastal development, pollution and nutrient enrichment from agricultural run-off and sewage outlets, invasive non-native plants and changes in water and salinity levels.



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*Eight Acre Pond, Lymington is 2.9ha but less than 1m deep across almost its entire surface area. This is an important site for many saline lagoon species including Lagoon Sand Shrimp *Gammarus insensibilis*, Starlet Sea Anemone *Nematostella vectensis* and Foxtail Stonewort *Lamprothamnium papulosum*.*

*Keyhaven-Lymington lagoon system. Following seawall construction the western section became hypohaline (low salinity due to dilution from freshwater and disconnection from the sea). This led to the loss of Lagoon Sand Shrimp *Gammarus insensibilis* from the lagoon.*

The lagoon sand shrimp has a preference for lagoons that have a regular input of sea water, as this maintains high salinity levels, but they can be found in a range of brackish habitats including saline muds and shingle.

The best lagoons are sheltered and shallow, being less than one metre deep and where they have limited disturbance from waves. If levels are artificially raised, freshwater inputs can put the habitat at risk; when nutrients and pollutants flow into the pool. Permanent loss of water can be equally detrimental. Both too much freshwater and no water at all, will change the water chemistry of the lagoon and put the levels of salinity outside of the ecological tolerance of the shrimp. There is however, surprisingly little biological and ecological information about lagoon sand shrimp and the best conditions have, to date, been worked out through observations.

Plant communities in the lagoon are likely to be important, particularly the lagoonal-specialist green spaghetti algae. This plant forms a floating mat which the shrimp use as part of their habitat. Both the lagoon macrophyte and shrimp need a permanent pool of water.

The salinity of the habitat has also been detailed as a key factor, with lagoon sand shrimp favouring 15-40 parts per thousand (‰). However, they have been recorded to tolerate 10-58 ‰, which allows for some freshwater inputs from rainfall or land run-off or evaporation from a pure sea water pool (roughly 35 ‰). Just not too much either way.

An exposed lagoon could also lead to the loss of the species. The lagoon sand shrimp grows to about 19mm in length, and as a small invertebrate it can be easily transported with the moment of water. The turnover of water in the lagoon should be less than 40% to maintain stability, but with some input so that lagoon remains permanently filled with water.

There have been national declines in lagoon sand shrimp populations and other lagoon species over the last 50-100 years, due largely from habitat loss of this area of coast, below the high water spring tide mark but above the mean high water neap tide mark, a combination of climate change and coastal squeeze.

The Keyhaven-Lymington lagoon system experienced some of this loss, after the western section of the seawall was constructed. The lagoon became hypohaline, when the seawall disconnected the lagoon from the sea and the freshwater inputs diluted the waters salt content.

The best hope, to protect the lagoon sand shrimp and other lagoon species, is to increase the amount of suitable saline lagoon habitats. Allowing new lagoons to develop in areas where sea levels rise is permitted without creating coastal squeeze.



Lagoonal-specialist green spaghetti algae. A plant that forms floating mats the shrimp use as part of their habitat.

Photo© Andrew Gates



Lagoon sand shrimp . Photo© Andrew Gates

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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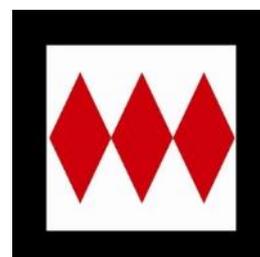
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