

Potential for Biodiversity Enhancement at the Head of the Itchen Estuary



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Preface

Southampton is fortunate to have a wildlife rich river estuary within its city boundary. Although much of the Itchen Estuary's saltmarshes, riparian woodland and green riverbanks have been lost to development some still remain. Our estuary still has huge value for biodiversity, mental and physical wellbeing and as the world's climate heats up, the estuary and its environs become increasingly important for countering the urban heat island we sometimes inhabit during our hotter summers.

Despite its huge heritage, wildlife, ecological and wellbeing value this precious open space within Southampton faces multiple threats from pollution, from access restrictions, and from development.

If Southampton is to protect and realise the full value of this precious blue/green space, not only does the estuary need greater protection from pollution, encroachment and from development, but we also need a vision for the future.

What if the recreational, the heritage, the biodiversity, the mental and physical well-being value, the ecological value and biodiversity value were wrapped up into one vision? A vision which protects and enhances the remaining green spaces along the shores, a vision which recognises the rich cultural and heritage value of the estuary, a vision which includes accessibility for all and a vision which affords a uniquely valuable urban estuarine space with the recognition and the protection afforded to Southampton's many other green spaces and parks?

Biodiversity loss is one of the key challenges. The upper reaches of the Itchen Estuary present a great opportunity to deliver a biodiversity improvement pathfinder project which will build community support and demonstrate the potential for further downstream biodiversity gains.

We are grateful to Dave Fairlamb for his support and inspiration.

Friends of the Itchen Estuary, December 2023

Management of Riparian Habitat

The majority of the habitat along the River Itchen is classified as Riparian. The riparian zone is a biome that includes the area immediately adjacent to running water in a stream, river or estuary.

Diverse habitats within a riparian zone will hold greater biodiversity, so it is important to manage the Riparian zone around the River Itchen to increase and embellish habitat types.

Reed and Reedbeds

Whilst it is ecologically beneficial to have some mature woodland overhanging the river edge to provide river characteristics particularly suitable for fish, there is scope to open up more sections of the riverbanks to create areas of reed fringe, connecting to already established reedbeds to expand this important habitat which can also help to purify water and provide a buffer against pollutants.

Woodland overhanging river



Reed fringe by picnic site in Riverside Park



Establishing reeds and reedbeds can be achieved either by allowing natural expansion or by the planting of seedlings. In either case, it may be necessary to install coir rolls (made from the natural coir fibres of coconut husks) to reduce river water action eroding the riverbank. Pre-vegetated coir rolls are also now widely available and could be planted with reed seedlings.

Coir roll along riverbank



Pre-vegetated coir rolls in situ



Woodland Management

First and foremost, from a safety perspective, any owners of woodlands that are accessible to people should address any issues of dangerous trees or hanging limbs, such as below. It is also advisable to remove any litter likely to cause issues for either people or wildlife, such as rope. Both pictures below were taken in the Focus Area.



Within the Focus Area several woodland zones would benefit from thinning to:

Increase the ecological value of the woodland by allowing more light to reach the woodland floor

Encourage a multi-layered structure to develop within the woodland, with the inclusion of rides and glades to promote a 4-layer woodland.

- Ground Layer
- Floral Layer
- Shrub Layer
- Canopy

Reduce overcrowding of trees to relieve tree stress and allow retained trees to grow stronger, ensuring a greater resilience for the woodland.

Examples of zones that would benefit from thinning



Invasive Species

Unfortunately, the Focus Area does have invasive plant species present, namely Japanese Knotweed (*Fallopia japonica*) and Himalayan Balsam (*Impatiens glandulifera*)

Japanese Knotweed in the Focus Area

Under UK law, Japanese Knotweed is legally classed as a controlled plant species under the Wildlife & Countryside Act 1981. Though it is not illegal to have on owned property, it is against the law to cause or allow the plant to spread in the wild or to neighbouring properties. See www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading for further information.

Himalayan Balsam (middle left and right corner of photo) in flower at Woodmill

Himalayan Balsam is listed under Schedule 9 of the Wildlife & Countryside Act 1981 with respect to England and Wales. It is an offence to plant or otherwise allow this species to grow in the wild. See www.gov.uk/guidance/invasive-non-native-alien-plant-species for further information.

Friends of the Itchen Estuary believe there is scope for building community engagement by enlisting volunteers to help eradicate these invasive species.

Installation of a Sustainable Draining Systems (SUDS)

Sustainable Drainage Systems or Sustainable Urban Drainage Systems (SUDS) are a collection of water management practices that aim to align modern drainage systems with natural water processes.

There is scope to install Sustainable Drainage Systems to service either existing buildings, redevelopment of buildings or new builds within the Focus Area, channelling rainwater run-off to create pools, marsh and reedbed habitats, with the addition of hydrological controls within the individual systems if necessary.

Below: Examples of Sustainable Drainage Systems incorporating rainwater run-off



For example, within the Focus Area there is a ditch that runs between the Southampton University Boat Club and the Railway Line. Although overgrown and impossible to access during the August visit to ascertain the hydrological credentials of the site, there may be potential to include the ditch in any SUDS planning or biodiversity enhancement initiative in the future for either the Railway or Centre.



Creation and Management of Wildflower Meadows

Sites in the Focus Area

Southampton University Boat Club



Riverside Park by Woodmill Lane



Although several plant species were recorded casually during the Focus Area visit on 4 August, there would be a recommendation to carry out a formal survey on existing vegetation along with the hydrology and ground conditions of both sites during the optimum seasons of Spring/early Summer, to further inform decisions on the establishment of a wildflower meadow. It would also be beneficial to conduct a soil test to establish existing nutrient levels, particularly Nitrogen, Phosphorus and Potassium, as well as soil pH.

Seed Mix Selection

Selection of plant species will depend upon local site conditions and need to reflect the semi-natural plant communities of the local area and would normally constitute a 80:20 wildflower to grass mix ratio. If vigorous grasses are an issue on site, then the introduction of Yellow Rattle, may be necessary to reduce competition from grasses. The seed mix should be sourced from native local provenance and from reputable suppliers that follow the Flora Locale Code of Conduct.

Summary of Ground Preparation and Sowing

- Treat existing vegetation with approved herbicide
- Shallow cultivation of site using rotavator and then roll to secure moisture in soil
- Harrow or treat weed regrowth
- Power Harrow to create fine soil surface tilth
- Final herbicide spray if required
- Surface sow seed and roll

Plugs

The introduction of plugs should be considered for some plant species that are difficult to establish such as Meadow Cranesbill, Field Scabious or Clustered Bellflower.

Management of Wildflower Meadow

Year 1

The primary aim during this time is to control weeds and reduce competition from vigorous grasses. The sward should be kept short at least until the end of June, then allowed to grow so wildflowers can seed in July and August. The sward is cut in early autumn and all plant material removed from the site. Persistent weeds may need to be spot-sprayed or removed.

Summary of Future Management

- First cut to 5cm in March/April
- Second cut to 5cm in September/October
- All plant material removed from site

Monitoring

Botanical surveys should be carried out for at least the first 5 years after establishment using fixed point survey techniques to determine requirements for weed control, suppression of vigorous grasses and any other necessary management.

Examples of established wildflower meadows/fringes by roadsides



Examples of established wildflower meadows/fringes in parkland like Riverside Park



Installation of Nesting and Roosting Boxes, Hibernaculum and Invertebrate `housing`

Biodiversity can be greatly enhanced with the installation of nesting and roosting boxes in suitable locations for mammals and birds, hibernaculum for herptiles and the creation of `bug hotels` and `habitat piles` for a wide range of insects and other invertebrates.

It is evident that a bird nesting box scheme has been/still is operational within Riverside Park, as can be seen in the photograph below. A recommendation would be to contact Southampton City Council to ascertain present status of the scheme and propose relevant installations of nesting and roosting boxes, hibernaculum and invertebrate housing in appropriate areas of the Park.



Mammals

Hedgehogs have undergone a huge decline in Britain due a variety of factors, especially since the turn of the millennium, populations dropping 30% in urban areas and 50% in rural areas. Hedgehog status is now `Vulnerable` on the British mammals red list. The installation of artificial Hedgehog homes in shady, sheltered and dry locations can provide winter hibernation or nurseries in the spring.

Examples of Hedgehog Homes



Bats

Many species of bats are known to use Bat Boxes, artificial roosts designed for providing bats with alternative resting places or to encourage bats into areas where there are few existing suitable roosting sites. Trees and/or any buildings could be used to host bat boxes.

Examples of Bat Boxes**Birds**

With natural nesting sites in decline, the provision of artificial nesting boxes can increase the opportunities and success rate for a wide variety of breeding birds. The species attracted will depend on the location, type of box and entrance size.

Sizes of entrance holes for hole-nesting species:

- 25mm for Blue Tit, Coal Tit and Marsh Tit
- 28mm for Great Tit, Tree Sparrow and Pied Flycatcher
- 32mm for House Sparrow and Nuthatch
- 45mm for Starling

Examples of hole nest-boxes: Below left – Blue Tit Below Right - Starling



Sizes of entrances for open-fronted boxes nesting species:

- 60mm for Spotted Flycatcher
- 100mm for Robin and Pied Wagtail
- 140mm for Wren

Examples of open-fronted nest-boxes: Below left – Spotted Flycatcher Below Right - Robin



Nest-boxes for larger bird species:

Examples: Below left – Kestrel Below Right – Barn Owl



Specialist nest-box for Treecreeper which replicates bark peeling from a tree - the preferred nesting site for this woodland species.



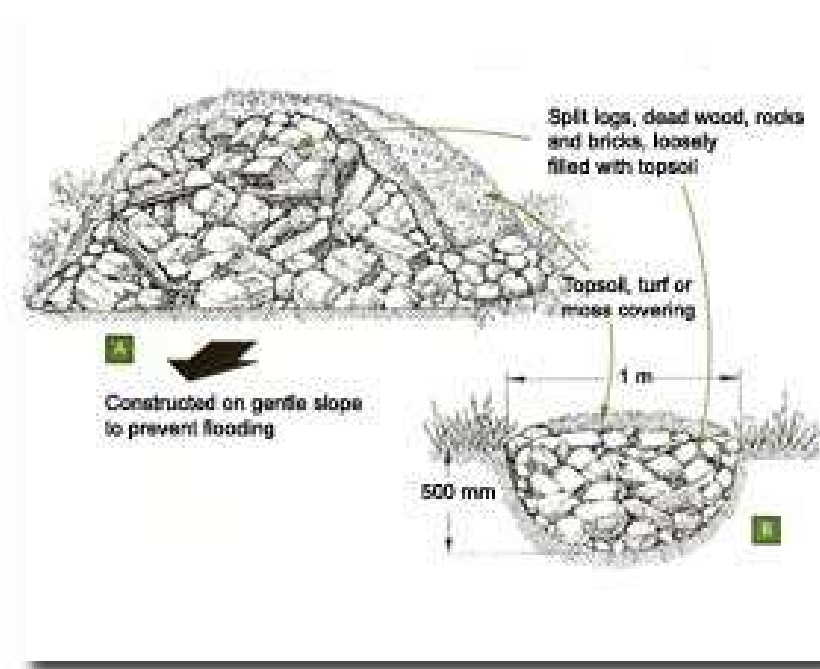
Herptiles

Reptiles and Amphibians require shelters during the winter for either hibernation or brumation and these can be composed of natural materials or artificial and can consist of brash, cut timber, inert hardcore, bricks, rocks, building rubble, tree roots, piping, metal sheeting, vegetation and soil. Suitable for frogs, toads, newts, lizards and snakes.

Examples of Reptile and Amphibian hibernaculum



Example of construction of hibernaculum



Habitats and homes for Invertebrates

With over 2,000 species of invertebrates relying on dead or decaying wood, Log Piles or Habitat Piles are ideal for these species.

Examples of Log/Habitat Piles



'Bug Hotels', as they are fondly known, come in all shapes and sizes (see also Static Interpretation) and can provide quite specific environments for invertebrates, such as Mason & Leaf Cutter Bees, Bumblebees, Woodlice, Earwigs, Ladybirds, Lacewings and Beetle larvae. These can be positioned within woodlands, hanging from trees or on the sides of buildings.

Examples of 'Bug Hotels'



Constructions and items already on site can also provide opportunities for invertebrates, such as the disused cricket screens in Riverside Park which could be developed into 'Bug Hotels', possibly combined with a modular notice board.



Biological and Environmental Monitoring

Biological and Environmental monitoring programmes are the main source of information on the population status of species of conservation concern and have a significant role in setting conservation action priorities.

Recommended Monitoring for relevant biodiversity on the River Itchen (all year round unless otherwise stated):

Bird Sightings – can be input to a range of on-line databases such as Bird Track or iRecord

British Dragonfly Monitoring Scheme

British Trust for Ornithology (BTO)

- Breeding Bird Survey (April to July)
- Nest Box Challenge (breeding season)
- Nest Record Scheme (breeding season)
- Wetland Bird Survey

Butterfly Conservation

- Big Butterfly Count (July/August)
- National Moth Recording Scheme

Freshwater Habitats Trust – Pond Net

Mammal Society – National Mammal Atlas

National Amphibian and Reptile Recording Scheme

National Plant Monitoring Scheme

Other biodiversity initiatives include Bioblitz; teams of professional and amateurs recording the biodiversity of a site on a planned recording day.

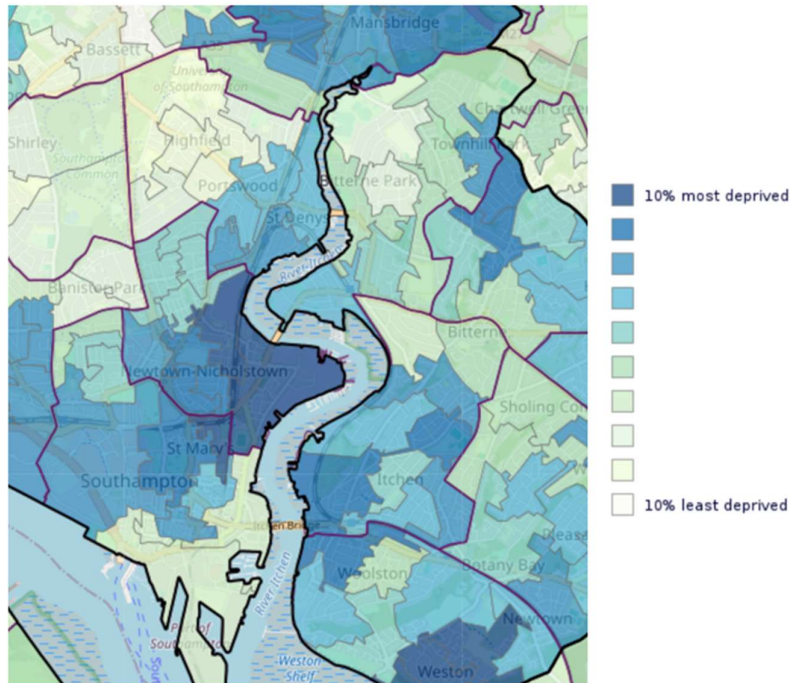
Engagement with Nature

Engaging with nature can lead to a better understanding of the natural world and a greater appreciation of wildlife and nature conservation. Apart from the fundamental joy, inspiration and connection that green and blue spaces can bring, research has shown that engaging with nature reduces stress in both adults and children and there is growing evidence to show that our relationship with nature is part of the reason for its positive impact on our wellbeing.

There is an opportunity for the River Itchen to become an exemplar for engagement with nature by creating managed access at various locations along the course of the river, with static seasonally-adjusted interpretation in appropriate settings. Delivery of nature-based events and activities could be a collaborative initiative between nature conservation organisations, statutory bodies, Southampton National Park City, Friends of the River Itchen and other key stakeholders.

Engagement with local communities

At least three quarters of the neighbourhoods around the Itchen Estuary are below the median level of English deprivation. Southampton is rightly renowned for its parks yet often these green spaces are situated close to the more affluent areas of Southampton. Improved quality of blue/green space along the Itchen Estuary and engagement with local communities and community leaders has the potential for helping to counter some of the impacts of deprivation in Southampton. A strategy to build engagement with local communities across Southampton and to include and build on their ideas and perspectives is needed.



Neighbourhood deprivation deciles around the estuary
from 'English Indices of Deprivation 2019', Office for National Statistics

An annual Itchen Estuary events programme

There are a number of relevant National nature and environmental events and citizen science initiatives held throughout the year that could be incorporated into a River Itchen annual events programme.

January – RSPB Big Schools Birdwatch / RSPB Big Garden Birdwatch

February – World Wetlands Day

March – World Wildlife Day / Trees are the Key Awareness Week / World Water Day

March/April – The Great British Spring Clean

April – Earth Day

May – World Bee Day / Every Flower Counts

June – The Wildlife Trust's 30 Days Wild / World Environment Day / The Great Big Green Week

July – Plastic Free July / Love Parks Week

July/August – National Marine Week

September – World Clean Up Day

September/October – Seed Gathering Season

October – World Habitat Day

November/December – National Tree Week

Social Prescribing

The benefits of wildlife and the natural world for our mental and physical wellbeing are beginning to be recognised in NHS Social Prescribing practices. Social Prescribing is rapidly growing in popularity, especially as there is now evidence to suggest that there are fewer GP consultations and A & E attendances in areas where Social Prescribing is deemed to be working well.

There are 2 Primary Care Networks around the tidal River Itchen, Southampton Central and Bitterne.

Part of the success of Social Prescribing relies on promotion of social interactions through a wide range of interest and activities. Social interactions can be enhanced by providing appropriate infrastructure such as social seating and there are many opportunities to provide such facilities in the parks and other access sites along the tidal River Itchen.

Examples of social seating

Static Interpretation Displays

Nature interpretation boards are used to educate and inform the public about the natural history and wildlife in an area. They provide further information or insight and can be an invaluable resource to raise awareness of the importance of a site, to highlight key species and to connect people with the environment that surrounds them.

Current interpretation in the Focus Area consists of a 'Wildlife at Riverside Park' board, positioned by the river at the picnic site in Riverside Park.



There is potential to install interchangeable interpretation in the form of modular boards, which allows flexibility in providing seasonal information, up to date sightings and current events and activities. The changing of smaller boards within the modular unit is Example shown below.



To maximise the benefits of modular boards, they can be used to house 'bug hotels' on the backs of the units, for use by insects and other invertebrates. Examples are shown below.



Further Site-Specific opportunities for Biodiversity Enhancement on the tidal River Itchen, out-with the Focus Area.

The greater the number of biodiversity enhancements of the many small parcels of land and potential habitat along the estuary the greater the cumulative beneficial impact on insect and bird populations. A few examples follow.

Disused Jetties and Wooden Structures near Northern Bridge



Potential:

- Transformation of old jetties into nesting platforms for birds, specifically terns, gulls and wader species such as Oystercatchers and Ringed Plovers.
- Use of material from wooden structures to construct nesting platforms for Ospreys. The Poole Harbour Osprey Translocation Project began in 2017, with first young fledging in 2023. It is expected that Ospreys fledging from Poole Harbour, when adult, will look to establish nesting territories along the south coast of England in the coming years.

Tern Raft in the Firth of Forth



Osprey nesting platform



Small Parkland area by Northam Bridge



Potential:

- Establishment of native species hedgerow along fence-line by road.
- Establishment of wildflower fringe on bank alongside native hedgerow.

Example of hedgerow & wildflower bank in Durham



Example of native species hedgerow



Small patch of land just North of the 'Boardwalk'



Potential:

- Ensure tree/shrub species present are native species.
- Establish structural diversity within the copse, with ground, floral, shrub and canopy layers.
- 'Pocket Park'

Janaway Gardens and Pettinger Gardens



Potential:

- Establishment of native species hedgerows along the inland edges of the Gardens
- Establishment of wildflower fringes along the bases of the hedgerows
- Some expansion of reeds along the riverbanks though but retaining some open views out across the river.

30 November 2023



Dave Fairlamb
Founder/Owner