Priority Ponds in the Brecks Fen Edge & Rivers (BFER) Landscape Partnership Scheme

Priority Ponds are waterbodies that have a particularly high conservation value: usually because they support important freshwater species or rare community types. These ponds can be permanent or seasonal waterbodies and can span a wide size range: from 1m^2 to 2ha in area.

On the national register of Priority Ponds collated by Freshwater Habitats Trust and Natural England (2019), prior to the BFER Testing the Water project there were **153 Priority Ponds** identified in the Brecks area. The majority of these were based on Criteria 5 (irreplaceable habitats) - pingo pools, a very rare type of pond, created at the end of the last ice age. Other Priority Ponds in the area qualified due to the presence of species of high conservation importance (Criteria 2), including Great Crested Newt and Common Toad and Criteria 4, ponds of high ecological quality as assessed by the Predictive System for Multimetrics (PSYM) method.

The BFER Testing the Water Project has produced a new Priority Ponds map for The Brecks Area, with the eDNA surveys adding a further seven Priority Pond under Criteria 2 – presence of Great Crested Newt, Common Toad, Pool Frog, Eurasian Otter, Water Vole, European Eel. An additional pond was also identified as a Priority Pond based on Criteria 2 - an RDB plant species Water-violet (*Hottonia palustris*). One of these eDNA ponds, however, overlapped with one already mapped, so the total number of Priority Ponds in this Important Freshwater Landscape was brought up to 159 Priority Ponds.

The overall results of the BFER clean water survey identified a further **160 Provisional Priority Ponds** (Criteria 6-Clean water). The presence of clean water in ponds highlights the need to follow up with further surveys, including PSYM assessment and other priority species surveys to confirm full Priority Pond status.

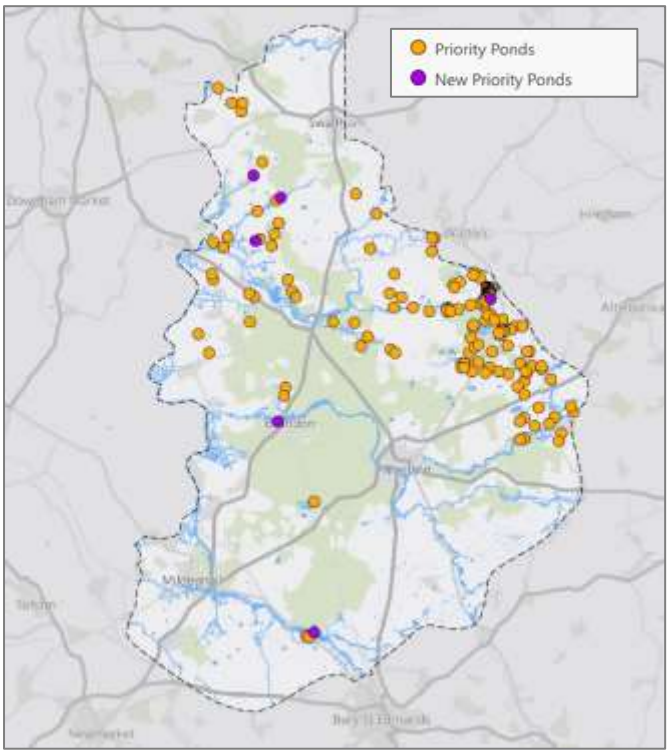

Figure 1: All Priority Ponds in The BFER Scheme Area post eDNA surveys

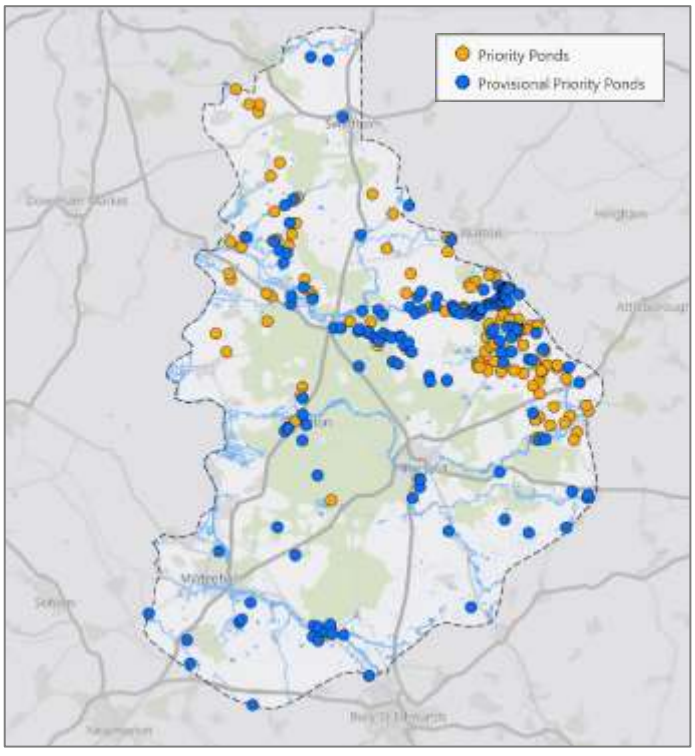

Figure 2: All Priority Ponds and Provisional Priority Ponds at the end of the BFER LPS Testing the Water project

The majority of identified Priority Ponds and Provisional Priority Ponds, are located to the East of the of the BFER scheme area in the Thompson, Stow Bedon and Frost Common areas and STANTA Military Training Area. These where all identified as Important Freshwater Areas - IFA's which are high priority areas for freshwater biodiversity.

Thompson and Stow Bedon Commons, managed by Norfolk Wildlife Trust, contain the highest density of pingo ponds in Breckland. These sites contain a mosaic of habitats supporting a wide range of plant communities developed in response to variations in topography, soil type and wetness, and also includes dry and unimproved neutral grasslands, oak and birch woodland and hawthorn scrub. Thirty-seven Priority Ponds have currently been identified within the Thompson and Stow Bedon area including two of the eDNA survey Priority Ponds. A further thirty-five Provisional Priority Ponds, based on clean water quality where also discovered in this area.

Frost's Common, just south of Thompson Common, is an area of mixed plantation owned by Forestry England. The site has over 40 natural pingo ponds, with six currently designated as Priority Ponds. These support many rare freshwater plants and animals including invertebrates associated with pingo systems. A further five Priority Ponds have also been found in the adjacent woodland/heathland compartments of Hockham Heath, Bragmere Pits and Queen's Close. Within this area of semi-natural habitats a further nine Provisional Priority Ponds, based on clean water quality have also been identified.

Thirteen Priority Ponds and thirty-five Provisional Priority Ponds have can be found within the STANTA Military Training area. Located around the Thompson and West Tofts alluvial corridors of The River Wissey, STANTA encompasses a large area of semi-natural habitat, including extensive areas of Breckland grassland and heath which are largely unaffected by intensive agriculture, drainage, pollution, eutrophication or water abstraction.

To the West of the BFER scheme area, ten Priority Ponds, including two eDNA Priority Ponds, and seven Provisional Priority Ponds can be found around the Foulden, Gooderstone and Oxborough area. Most are located in the area close to the floodplains of the River Gadder and Oxborough Drain, both tributaries of the River Wissey. Foulden Common encompassing a wide mosaic of habitats, including open water, rich fen, both acidic and calcareous grassland, birch woodland and pingo ponds. However only two Priority Ponds and one Provisional Priority Pond have so far been identified in this site.

Only four Priority Ponds have been identified to the south of the BFER scheme area, all around the West Stow and Lackford area. Three of these are within the Suffolk Wildlife Trust's Lackford Lakes Nature Reserve and one, an eDNA Priority Pond, at Fullers Mill Gardens. Within this area, eight Provisional Priority Pond have be identified and a further thirteen Provisional Priority Pond are scatted to the south west of the scheme area.

It is a recommendation from this project to continue surveys of ponds in these areas and the wider BFER scheme area, and for Provisional Priority Ponds to include PSYM assessment and other priority species surveys to confirm that they are Priority Ponds and to confirm the location of other Priority Ponds.

42% of all the Priority Ponds and 46% of the Provisional Priority Ponds, mapped in the BFER scheme, sit within protected areas (SSSIs), with the vast majority of the remaining Provisional Priority Ponds also found in areas of woodland or semi natural habitats. This highlights the importance of surrounding good quality terrestrial habitat to sustaining ecologically rich clean water ponds.

The principals of the Freshwater Network are to protect, buffer and expand areas of clean water, which are hotspots for freshwater biodiversity. The citizen science survey of the Breckland Important Freshwater Landscape has made a major contribution to identifying these sites. Future work should focus on their protection and expansion.