

Water Plant Surveys at Wheatfen

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Water plants are an often-overlooked part of our flora, as their submerged life and relative inaccessibility makes them sometimes rather tricky to see. This is not helped by cloudy water and dense marginal growth frequently obscuring them from the gaze of the casual observer.

Nonetheless, the Broads Authority, through its annual water plant survey, routinely monitors submerged plants present in the open water of many of the broads. The underwater plant growth provides a valuable habitat for a range of aquatic organisms, especially invertebrates, which can feed upon algae growing on the plant surfaces, shelter from predators within the tangled physical structure, or utilise the stems and leaves to lay their eggs upon. Water plants also help to improve water quality, through stabilising bottom sediments and using up dissolved nutrients, which algae would otherwise use and turn the water green.

The open water and channels of Wheatfen are a prime example of relatively undisturbed aquatic habitat in Broadland where water plants can thrive. Sunlight can penetrate the water to the bottom sediments, as the water depth is never too deep, thus enabling new seedlings to sprout and grow. Fortunately, water quality and clarity in the River Yare has been progressively improving over the last decade, so the potential for submerged plant growth has increased in recent years. Specific designation of the open water habitats of Wheatfen, as part of the Yare Broads & Marshes Site of Special Scientific Interest (SSSI), means that water plant monitoring is a crucial part in assessing the long-term changes in the ecological health of the area.

The Broads Authority water plant survey has been conducted four times at Wheatfen in the past nine years. The sampling method for collecting submerged plants entails dragging a double-headed rake attached to a long rope, along previously mapped transects. Retrieval of the rake at the end of each haul often produces a surprise or two. This year a yellow water lily seedling was particularly nice to see, especially as it was still attached to its seed case. Clearly these plants are reproducing sexually, as well as regenerating from their over-wintering rhizomes. The odd swan mussel is temporarily disturbed, as was one of the relatively new arrivals to the Broads, an Asiatic clam.

Several different growth forms of aquatic plant are now found commonly at Wheatfen, where perhaps a less diverse mix was found a decade or more ago when the water was more murky. As previously mentioned the water lilies are the most obvious growth form, with their large floating leaves and colourful displays. Less showy, but with a certain refined grace, are the dense clumps of starwort which are particularly common in the channels and ditches. Their thin pale-green leaves form a delicate four-pointed star shape when viewed in cross-section. The tidal ebb and flow through the restricted channels also creates suitable conditions for the submerged strap-like leaves of the unbranched bur-reed, a species often seen in larger river channels, with its leaves coming up vertically from the bottom sediments. As many of the channels at Wheatfen have been dredged in recent years, increased amounts of plant varieties forming dense underwater beds are evident. Species such as rigid hornwort and Nuttall's waterweed, with compact leaf structures and tousled stems, have colonised the once bare mud and created bushy green pillows within the clear water. The variety of growth forms is as important as the number of species found, and is certainly an improvement on the blanket-weed and stringy algal mats that were found to coat much of the area as recently as 1998.

The gradual change in aquatic plants, both in species type and overall vigour, which has been observed at Wheatfen, helps to justify the often large expenditure that accompanies restoration and conservation efforts in these fragile habitats. The benefits are also not purely those that may interest the botanist, but permeate through all parts of the aquatic ecosystem, as exemplified by numerous sightings of a top Broadland aquatic predator at Wheatfen, the otter. Having trawled nearly 70 kilometres with the rake last summer, including sampling in the rather barren River Bure broads whilst dodging holiday boats, coming to Wheatfen was a real treat. Who knows what we will find next year?