

## Yorkshire Water – Lower Ure Conservation Trust

### ***Expanding priority wetland habitats in the Lower Ure Valley project***

**Update: November 2021**

Despite the challenges of Covid, a rising tide of invasive *Crassula helmsii* and other factors outside our control (including unfavourably high water levels for much of the summer), 2021 has been productive beyond our expectations. On the south-east shore of Flasks Lake, a former sand and gravel pit, Flask Fen forms the core focus of the project. This now comprises over 1.1 hectares of structured planting modelled on locally-characteristic wetland plant communities on what was bare silt and open water just three years ago. By the time further planting is completed in spring 2022, Flasks Fen will be connected with a small existing marsh to the west of the nursery and a newly-created pond to form a contiguous wetland habitat of 2.5 hectares.



The earliest trial plots are already well-structured habitats with breeding birds such as Reed Bunting, Reed Warbler and Sedge Warbler as well as diverse invertebrate communities. Snipe and Jack Snipe have been recorded foraging and Little Egrets are seen regularly in shallow water areas rich in fish fry. Over the next two years, we look forward to seeing this mature into a diverse but cohesive habitat. This will feature stands of native White Water-lily and Common Club-rush in deep water; reedswamp with beds of Great Fen Sedge, Bottle Sedge, Bladder Sedge and Lesser Reedmace in shallow water; tussocky fen with Tufted Sedge and Greater Tussock Sedge around the draw-down zone; species-rich fen-meadows with Blunt-

flowered Rush and Purple Moor-grass on seasonally exposed shorelines; and small areas of floodplain hay meadow at the inland edge of this sequence.

As plants become established, we will be able to gradually remove protective fences – essential to protect young plants from the attentions of Greylag Geese and Rabbits. This will make the fen more accessible to water birds and species such as Otter.

Our concept is to establish key species along a hydrological gradient but to allow plant communities to self-assemble over time. Light-touch management will be necessary: at present this is limited to removing invasive Greater Reedmace and willow seedlings but mowing and/or grazing will eventually be used to curb self-sown Common Reed and maintain species-richness and structural diversity.

We've undertaken additional planting in the pre-existing wetland area immediately west of the nursery, around a newly-created amphibian pond and on the north shore of Flasks Lake. Extensive planting has been carried within the renovated Reedbed to the west of Flasks, to create more diverse edge habitats. Tussock fen in the north-east corner has established particularly well.

### **The nursery**

Wetland plant production has been greatly increased thanks to additional wet beds and outside standing areas with irrigation, funded by Yorkshire Water. These have proved essential as the poly-tunnel has often been full to capacity. Equally importantly, the application of professional horticultural production techniques by our volunteer nursery managers Pan and Laurie enables us to produce plants in the volumes needed, while numerous volunteers have helped with seed collection, potting-on and planting-out. Including current stock, the nursery has produced around 25,000 plants during 2021.

DEFRA's Green Recovery Challenge Fund allowed LUCT to employ a Project Manager for a year from March 2021, who has in turn supervised two interns from July and recruited new volunteers. This has enabled us to carry out planting on a much greater scale than previously.

### **Wetland creation techniques**

Planting is based on plant communities characteristic of natural/semi-natural wetlands in the lower Ure and Swale valleys in North Yorkshire. Experience to date has been that key species such as Great Fen Sedge, Tufted Sedge and Blunt-flowered Rush establish and survive well provided they are protected from grazing by rabbits and geese in the early stages. Herbs without extensive rhizomes seem to be more vulnerable to smothering by *Crassula*, and this is something we will continue to monitor.

Most planting has been successfully protected using mesh panels supported by iron rods and attached using re-useable cable ties. Although materials costs are relatively high, all can be re-used repeatedly and avoid the plastic pollution which invariably results from plastic barrier fencing. Assembly is simple and can be carried out safely and quickly by volunteers.

For much of the year we had to work with water levels which were significantly higher than anticipated. Planting thousands of plants safely became increasingly challenging. One solution

has been to place three to four plants into a sandbag, allow these to root-through in wet beds and then drop the bag into final position. Planting-up the sandbags proved an enjoyable activity for a series of volunteer ‘taster’ sessions, and gave volunteers who couldn’t attend the regular Tuesday and Friday sessions an opportunity to contribute personally to creating the new wetland.



Sandbag planting proved effective in varying depths of water; we discovered that placing a handful of gravel on each bag was useful to anchor the plants. As well as allowing plants to be placed safely without having to dig under water, this technique has the added benefit of temporarily suppressing *Crassula*, which grows throughout the fen creation area. We did find that standard sandbags began to rot after about 8 weeks (weather depending); more expensive rot-resistant bags allow at least a month longer in the wet beds, so that younger plants can be used.

Common Club-rush, a plant which can grow 3 metres tall, forms the offshore component of emergent swamp communities at Flasks Fen. To acclimatise seedlings and cuttings, these have been grown on in large containers, filled with gradually increasing depths of water.

Another innovation has been to ‘head start’ tussocks of Tufted Sedge and Greater Tussock Sedge by growing these in extendable plastic sleeves in tanks. Big sedge tussocks can live as long as trees and provide an important structural component of fens, offering refugia for terrestrial invertebrates when water levels rise and for semi-aquatic insects when water levels fall. They also provide potential nesting sites for rails and other wetland birds and store carbon in the humus which accumulates in the tussock. The pedestals of tussocks are formed by vertical growth of rhizome in response to fluctuating water levels, and we’ve found that ‘head starting’ can stimulate around 10 cm of growth. A number of these plants are now in-

situ and it will be interesting to see how they fare compared to conventionally-grown plants of the same species.

The northernmost section of planting at Flasks Fen is vulnerable to wave action, so dead hedging has been used in addition to mesh fencing. It is hoped that this will reduce wave erosion and silt deposition, as well as providing a barrier to geese and temporary habitat for invertebrates and fish fry. Water conditions are visible calmer inside the hedge. This barrier uses Aspen stems and stakes thinned from adjoining shelter belts.



In addition to planting, we're trialling other fen-creation techniques including direct sowing of hand-collected seed and spreading green hay. Initial results and evidence from earlier trials suggests that direct seeding can be successful in establishing a modest range of species such as Meadowsweet and Yellow Flag. Spreading a mixture of hand-collected seed and hay has been successful in establishing a small meadow plot, with characteristic plants such as Meadow Brome, Meadow Fescue, Meadow Barley, Common Sorrel and Meadow Buttercup appearing in the first year.

### **Species propagation**

The project has allowed us to expand our know-how of plant propagation techniques. Keystone plants such as Great Fen Sedge, Tufted Sedge and Blunt-flowered Rush are now grown in their thousands. As far as we know, Great Fen Sedge has never previously been cultivated in volume: we currently have 5,500 plugs.

We've also been able to propagate species like Greater Tussock Sedge, Greater Spearwort, Hemp Agrimony and Meadowsweet in bulk. In addition, we've 'cracked' the propagation of rare wetland plants including Fibrous Tussock Sedge, Slender Sedge and Bird's-eye Primrose

(the former will be used to reinforce the tiny Askham Bog colony from which the seed was sourced – one of just two known populations in Yorkshire). Other additions to the range of species in cultivation in 2021 have included Bog Myrtle, Lesser Water-plantain, Lesser Spearwort, Water Avens, Marsh Pennywort, Brown Sedge and Needle Spike-rush. The nursery currently has 89 plant species in cultivation.

### **Partnership working**

Working with the Yorkshire Wildlife Trust, we recently undertook extensive planting of marginal fen at YWT's Ripon City Wetlands reserve – an important start to restoring locally-distinctive wetland habitats across the wider Ure Valley landscape. In turn, many of our sources of seeds and cuttings are from Wildlife Trust sites.



We've provided approximately 2,800 plants for YWT for use at Ripon City Wetlands and Potteric Carr.

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