

# Pond Condition assessment and management recommendations for Burkes Pond, Melton Parish Council.

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## Background:

Melton PC approached Suffolk Wildlife Trust to undertake a condition assessment of one pond in Burkes Wood in October of 2020. The assessment visit was duly carried out in May of 2021 and this report sets out the findings. The report covers both the initial pond and an adjacent late successional pond at the head of a nearby spring line. This report makes a brief biological assessment of each pond, and its surrounding habitat, assesses opportunities and risks of management and makes management recommendations.

Please note when reading this report a formal assessment for protected species (Great Crested Newt) has not been conducted as part of this study, however, no activity consistent with GCN was noted from a basic visual search, this cannot rule out the presence of this species at this location, as they are known nearby and the habitat is highly suitable, management action should be undertaken using the precautionary approach to minimise possible impacts.

## Location of Ponds:

The Ponds in Burkes Wood, located at TM2782250066 and TM2778849995. Are perched on high sandy ground and fed with rising/emergent groundwater (springs) the ponds are on the edge of deciduous woodland well used by residents for recreation. The Burkes Wood ponds exist in this sandy soil by virtue of the system of emergent springs along this escarpment face, which combine to produce sloping wet and boggy ground with many typical marshland communities in evidence. The geological setting of the ponds is interesting (it is unusual to find ponds on high sandy ground) it is likely that this location was at some historical time an estuary edge, and a soil sample taken near the ponds on the marshy ground reveals both silty sediment and well sorted sands with shell fragments consistent with this hypothesis, further detail would require consultation with a soils expert.



## Assessment of Pond condition:

### Pond 1:

An initial visit made in October of 2020 showed pond 1 (115 m<sup>2</sup>) to be in late successional stage, with shaded eutrophic water, dominated with duckweed, encroaching scrubby growth (bramble) low water levels and dominant false bullrush, see image 2 below.



Image 2: pond 1 in late October 2020

Revisiting pond 1 in May 2021 a very different situation was presented. Works over the winter had cleared much of the encroaching bramble scrub, giving a more open pond surface and accessible banks. Image 3 below. Great numbers of frog tadpoles were present in all the shallow water edges of the pond. Duckweed, false bullrush and flag iris were the dominant plant species. Some low numbers of broadleaved emergent plants were present, including hairy willowherb, water mint, water cress and fools water cress, all of which are also present in distinct patches across the entire of the marshy woodland edge. In addition, the non-native and invasive New Zealand pigmyweed was noted growing in a small patch at the northwest corner, image 4 below. The water was noted to be clear and appeared not to be subject to pollution. It is likely that the duckweed will become dominant again over the summer.

The base of the pond was clearly very silted, with a large volume of leaf litter and some large woody debris which have been added by the locals. There were no floating leaved pond plants as a result of this siltation.



### General statement on condition:

Pond 1 appears to be approaching late-stage succession with the lack of rooted aquatic vegetation across its surface and clear evidence of siltation/organic matter accumulation. The pond may persist at this stage for many years without any intervention necessary but the significant finding of New Zealand pigmyweed and dominance of false bullrush across 50% of its surface suggest that this will not be the case and management would be timely. The presence of a range of emergent marginal plants and clear water suggest a lack of pollution which is positive, the pond has much duckweed suggesting that it is both shaded and eutrophic (nutrient rich).

### Pond 2:

Pond 2 (58m<sup>2</sup>) sits at the head of an emergent spring watercourse and appears to have been artificially created here with an adjacent bank of built-up material. This pond is also in late successional stages, dominated by false bullrush. The pond supports a similar range of species to Pond 1, water cress and water mint are key emergent plants and bittersweet is added to the list as a late-stage colonist. The pond clearly has a deep organic sediment base and is somewhat shaded by adjacent willow and sycamore trees.



Image 5: pond 2 – late successional stage on spring line nearby

### General statement on condition:

Pond 2 is rather further in its process of succession than pond 1. Water quality appears to be good, if eutrophic, and some flow was noted. This pond presents a good opportunity to restore a small clean water wildlife habitat, and managed in conjunction with pond 1 presents a nice opportunity to create a habitat network.

## Opportunity and Risks of management:

With both ponds described above there are clearly pressing management needs that should be addressed. Left to its own devices it is highly likely that New Zealand pigmyweed will become dominant in Pond 1 and severely reduce its value for wildlife, in addition it could spread across the marshy ground adjacent to the pond. Reduction and monitoring of this invasive plant should be the priority for management.

Beyond the issues of New Zealand pigmyweed there exist opportunities to improve the ponds for wildlife, but these are not without risk, and should be considered as an ongoing suite of management actions to ensure that high quality habitat is created and maintained in the long term.

### Principle opportunities:

- Restoration of clean freshwater habitats in Pond 2, and potentially Pond 1 in time, supporting biodiversity in Melton.
- Development of public engagement resource, and amenity value
- Creation of new habitat mosaic of small ponds across the area, further enhancing biodiversity value.

### Principle risks:

- Unmanaged invasive species spread – risk to ponds, wetland habitat and ephemeral water habitats.
- Public health risk if creating further open water.
- Unacceptable recreational use risk – dogs/people swimming
- Possible anti-social behaviour risk.

## Management recommendations:

The below table of management recommendations are listed in order of importance. It is critical that no mechanical intervention is progressed at Pond 1 until New Zealand pigmyweed is suitably contained/controlled. It is likely that interventions here will be limited to small scale hand works in the foreseeable future.

Progress scheme of control and monitoring for New Zealand Pigmyweed	<ul style="list-style-type: none"> <li>- Monitor the habitats across the entirety of this spring fed hillside to ensure spread is caught early.</li> <li>- Develop and implement a scheme of chemical control for the patch that has established within pond 1.</li> <li>- Publicise activities to reduce risks from vegetative spread through vectors such as dogs swimming.</li> </ul>
If control is ineffective, consider risks further	<ul style="list-style-type: none"> <li>- Ineffective control may prompt more extreme action, such as filling the pond in to eradicate the invasive species.</li> <li>- If this is necessary, then creating new ponds will become important, pending no further identified spread.</li> </ul>
Restore pond 2 to provide clean water habitat, provided that no spread of pigmyweed is noted.	<ul style="list-style-type: none"> <li>- Between November and February (to avoid protected species risk), completely desilt pond 2 to original base to re-set the clock of succession.</li> <li>- Utilise skilled contractor with 360° excavator.</li> <li>- Reduce shading through selective removal of trees to S and SE of pond.</li> <li>- Remove all false bullrush and vast majority of organic sediments.</li> <li>- Spread material thinly on downslope side of pond bank.</li> <li>- Ensure that outfall area is maintained at current level.</li> </ul>
Identify areas to dig series of small ponds on slope, creating a freshwater habitat mosaic.	<ul style="list-style-type: none"> <li>- Create a mosaic of wetland pond habitat across the hillside, utilising the spring water flow to ensure that ponds are full year-round.</li> <li>- Ensure that NZ pigmyweed is under control and not spreading away from Pond 1 in first instance.</li> <li>- Target areas that have wet soil year-round, ponds on spring fed streams are useful, as are pond in existing flats or depressions.</li> <li>- Create soil bunds with arising material.</li> <li>- Avoid areas already dominated with false bullrush.</li> <li>- See map below for indicative layout of how this project could look.</li> </ul>
The following recommendations are assuming successful control and monitoring of NZ pigmyweed.	
Reduce shading at pond 1.	<ul style="list-style-type: none"> <li>- Once NZ pigmyweed under control and monitoring, some careful reduction in shading at pond 1 will be beneficial, the bank to the SE hosts willow, sycamore and birch that could be effectively coppiced to reduce shading</li> </ul>
Reduce excessive build-up of woody material	<ul style="list-style-type: none"> <li>- If added woody material becomes excessive, carefully remove and stack in an inaccessible location nearby!</li> </ul>
Encourage thick scrub to develop to N and NW	<ul style="list-style-type: none"> <li>- Scrub approaching a pond provides valuable shelter for semi-aquatic animals. This can be encouraged and developed as best practice management to the northern boundary of the pond.</li> </ul>

	<ul style="list-style-type: none"> <li>- This will need occasional intervention (coppicing) to maintain in good condition.</li> <li>- Scrub can be encouraged through the coppicing of existing vegetation and through protection from disturbance by creating brush piles.</li> </ul>
Reduce dominance of false bullrush.	<ul style="list-style-type: none"> <li>- Hand pulling false bullrush (in winter) on a regular basis will ensure that it does not become dominant across the entirety of the pond.</li> <li>- Material can be stacked on the pond margins.</li> </ul>
If NZ Pigmyweed completely removed.	<ul style="list-style-type: none"> <li>- Suggest after two years of no record.</li> <li>- Desilt up to 50% of the pond in any one year, with the second 50% in year 3 afterwards.</li> <li>- Carry out works between November and February.</li> <li>- Spread material to downslope side of adjacent pond bank.</li> <li>- Do not proceed if NZ pigmyweed still present.</li> <li>- Ensure machinery is clean when arriving on site, and cleaned before leaving.</li> </ul>

It is not recommended that the public are encouraged further to the ponds until NZ pigmyweed is under some control regime, as this spreads easily through vegetative fragments.

### Biological records:

Biological records - Melton Pond and Surrounding area			
Species Common Name	Scientific Name	Abundance	Notes
False Bullrush	<i>Typha latifolia</i>		across ponds and marshland in patches
Flag Iris	<i>Iris pseudocorus</i>		in main pond
Duckweed	<i>Lemna minor</i>		
Duckweed	<i>Lenma gibba</i>		swollen duckweed
New Zealand pygmyweed	<i>Crassula helmsii</i>		main pond, invasive non native
watercress	<i>Rorrippa nasturtium</i>		
fools watercress	<i>Apium nodiflorum</i>		
Creeping buttercup	<i>Rannunculus repens</i>		
Brooklime	<i>Veronica beccabunge</i>		
Marsh Thistle			
Common Frog	<i>Rana temporaria</i>	many 100's	tadpoles
Smooth newt	<i>Lissotriton vulgaris</i>		



## Appendix:

Links to resources:

GB Non-native species secretariat:

<http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=1017>

Plantlife pages on NZ pigmyweed: <https://www.plantlife.org.uk/uk/discover-wild-plants-nature/plant-fungi-species/new-zealand-pigmyweed-australian-swamp-stonecrop>

Freshwater Habitats Trust NZ pigmyweed study: <https://freshwaterhabitats.org.uk/projects/other-projects/controlling-crassula-helmsii/controlling-crassula-helmsii-impact-options/>

SWT pond management advice pages: <https://www.suffolkwildlifetrust.org/ponds>

Maps:



Indicative layout of pond mosaic network - future habitat enhancement opportunity



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