



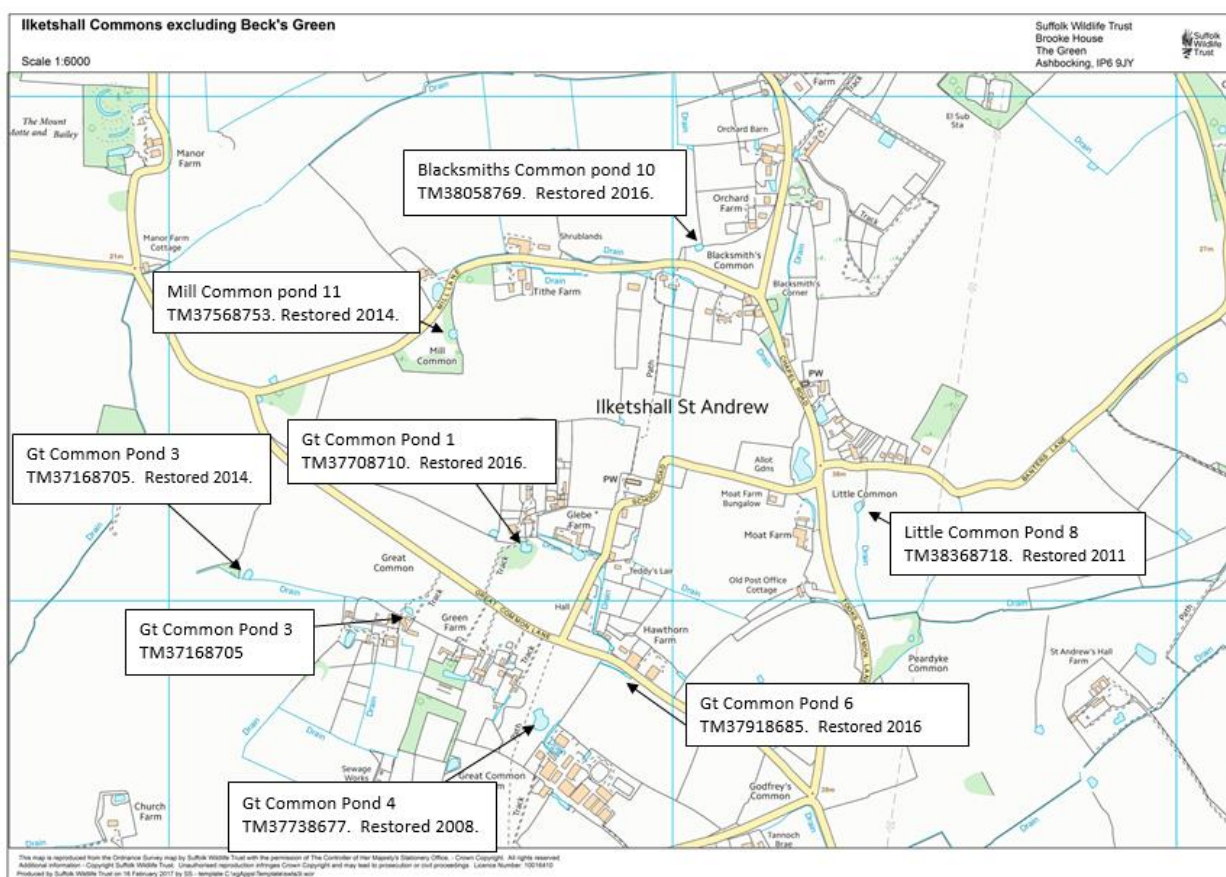
POND SURVEY 2020

ILKETSHALL ST ANDREW COMMONS

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Pond surveyed 15 June 2020 by Juliet Hawkins (with Dorothy Casey) and Dragonfly survey 20th July 2020 by Steve Piotrowski (with Dorothy Casey)

- Gt Common Pond 1 (nr Rose Cottage) TM37708710
- Gt Common Pond 2 (nr Dairy Farm) TM37488698
- Gt Common Pond 3 TM37168705
- Gt Common Pond 4 (nr Gt Common farm) TM37738677
- Gt Common Pond 6 (nr Hawthorn Farm) TM37918685
- Little Common Pond 8 TM38368718
- Blacksmiths Common pond 10 TM38058769
- Mill Common pond 11 TM37568753

Front cover pics:

- *GCN - John Baker*
- *Norfolk Hawker - Milo Bostock, Creative Commons License*
- *Tubular water dropwort and pond pic: Juliet Hawkins*

POND SURVEY & MANAGEMENT RECOMMENDATIONS JUNE 2020: ILKETSHALL ST ANDREW COMMONS

Summary of pond survey

This pond report was requested by the Ilketshall St Andrews Land Management Committee and summarises the status and management recommendations for eight ponds following my visit on 15th June 2020. The report builds on previous surveys I undertook in May 2008, July 2013, July 2015 and July 2017 and is useful to show how ponds change over even a short time – and how one complex their ecology can be – and how important it is to be both vigilant and patient when dealing with them. Previous pond-specific comments are included for each pond in blue text with this year's update in black text – this helps to provide a context for what management has taken place and the resulting pond community.

The aims of managing the Ilketshall St Andrews ponds should include the following:

- i. Safeguard ponds supporting existing rare or priority conservation species ie Tubular Water Dropwort, Great Crested Newt
- ii. Ensure they are kept predominantly open and sunny to maximise pond wildlife and enjoyment by the public
- iii. Monitor ponds and fine-tune management in response to survey evidence and conservation priorities which may change over time.

Species lists are provided for each pond and records have been submitted to Suffolk Biological Information Service where they can be retrieved and added to as monitoring progresses. There are several factors that make the higher quality ponds especially valuable to wildlife:

- The ponds lie within the **wider, high density pondscape of Ilketshall St Andrews** - the parish has 14.2 ponds per km² - which puts it in the highest 13% or so of pond densities in Suffolk. To put this into context, Suffolk, along with Cheshire and parts of Norfolk, has the highest pond density in the UK. The ponds are a good example of a pond cluster (with many more than these in the report) where hedgerows, ditches and grassland, managed with Suffolk Wildlife Trust advice and under Natural England's Higher Level Scheme management prescriptions are providing habitat corridors between a number of ponds (including private garden ponds nearby) where newts, grass snakes, dragonflies and other aquatic species move between as conditions at each pond becomes suitable.
- Dragonfly fauna is above average and aquatic plant diversity is good at some ponds. The cumulative list of aquatic invertebrates over the years at the most accessible and best vegetated ponds shows there to be a number of different water snails, water beetles and bugs which are likely to move between the ponds as they become suitable.
- **Ponds that rely on a rainwater-only water source**, independent of any drains going into them, tend to be cleaner as they are not affected by domestic pollution and not being fed by nitrogen and phosphate rich inflows.
- Rotational pond restoration has increased Great Crested Newt populations which is excellent. The restored pond margins **have been regularly well maintained** to ensure they do not scrub over rather than abandon them to have to come back to in a few years to do further restorative work. Regular strimming and coppicing is really keeping some pond margins free of scrub regeneration and keeping the ponds accessible, visible and sunny for much of the pond edge.

2. Evidence for Ilketshall St Andrews Commons ponds qualifying as High Value Ponds

This report along with any records and monitoring info from elsewhere should be kept as useful evidence to support future applications for capital grants or agri-environment schemes. Some of these ponds **would qualify under the *existing* Natural England definition of Higher Level Scheme ‘Ponds of high value’** in that they do one or more of the following:

- I. Support ‘high-value species’ that are dependent on the pond cluster - they support several species from three different taxonomic groups - amphibians, dragonflies and water beetles
- II. Some contain significant collections of species - they support both 15 or more species of aquatic or emergent plants
- III. Some are of good water quality and contain a range of features characteristic of that pond type - with excellent communities of diverse pond plants, aquatic invertebrates and amphibians.

The following section discusses these high value features in some detail.

2.1 Ponds support ‘high-value species’ that are dependent on the pond cluster

2.1.1 Priority amphibian species – Great Crested Newt (GCN)

GCN (a European protected and priority species) **have been recorded** breeding in all ponds except Little Common Pond 8. Some egg and eft counts suggest that some ponds support better populations than others which is inevitable as GCN will travel up to 1km between ponds to find the optimum sites and those that have better quality water and range of vegetation in pond and nearby will suit them best. The Commons ponds have good terrestrial hedge/edge corridors and GCN will probably be recorded in most fish-free ponds nearby in private gardens. They will be overwintering and foraging in nearby grassland and scrub, and the juveniles will disperse to other good parish ponds along the very well-connected hedgerow network and commons grassland, thus creating a healthy ‘metapopulation’ with all the other good ponds within the area. Their presence has implications for timing of restoration management to ponds.



Male great crested newt © John Baker

Smooth Newts appear to be living alongside too. Toads and frogs were not recorded so that is something that would be good to have records of in the future as they are probably there but too late in June to easily find them.

2.1.2 Priority dragonfly species - the Norfolk Hawker (NH)

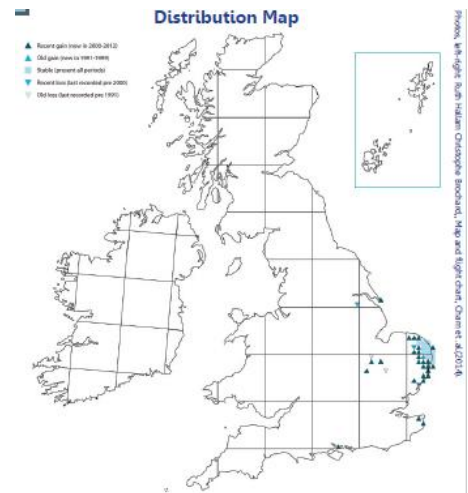
Seven species were recorded at the various ponds in 2020 but 11 have been recorded in total over the years. The very best wildlife sites in Suffolk hold ca. 20 species, but given the restricted range of aquatic habitats present ie just ponds (notably the absence of streams/rivers), the present list must be considered satisfactory and it is likely that more species would have been located if current pond management is fine-tuned and possibly if all the farm's ponds were surveyed.

Norfolk hawker was recorded both on 15 June and on 20th July at Blacksmith's Common Pond 10. It is considered Red Data Book 1 Endangered on the GB Red list and a Schedule 1 list that affords it special protection. It has a very restricted range *and its best breeding habitats have slow flowing to still water in unspoilt grazing marsh dyke systems with clean, non-saline water, margins with rushes and flag iris, an abundance of water soldier and the presence of other aquatic plants, such as frogbit. Trees and bushes are needed close to breeding sites, providing adults with hunting routes and resting places over night or during bad weather (BDS).* It is also found on ponds with these features but Pond 10 does not have water soldier so it must be egg laying on another plant here.

Management advice is to never clean all pond banks of vegetation in any one year which re-inforces advice to patch-scrape ie occasionally remove vegetation from small areas rather than do a wholesale restoration of a pond. The British Dragonfly Society has a good description and further information on the Norfolk Hawker <https://british-dragonflies.org.uk/species/norfolk-hawker/> and an excellent factsheet on habitat management for it <https://british-dragonflies.org.uk/wp-content/uploads/2019/01/Norfolk-Hawker-Management-Profile.pdf>

2.1.3 Priority plant species

Tubular Water Dropwort (*Oenanthe fistulosa*) has been recorded regularly in the shallow muddy margins of Great Common Pond 4. Tubular Water-dropwort is classed as Vulnerable in the UK and protected as a Priority Specie. The Freshwater Habitat Trust has a [factsheet on this priority plant](#): Tubular Water-dropwort has declined dramatically in the UK since the 1950s. This has been due to multiple factors including wetland drainage, nutrient enrichment, loss of grazing, land use change to intensive agriculture and grazing, and the spread of non-native species. It is still found in southern England and in places on the coast of



Norfolk Hawker distribution map.
Source: British Dragonfly Society.



The Norfolk Hawker (Photo: Milo Bostock, Creative Commons Licence, Flickr)



Tubular Water Dropwort (*Oenanthe fistulosa*) is found on the margins of Great Common Pond 4 and it favours sunny habitat that is both grazed and have fluctuating water levels, both of which help eliminate competing plants and maintain appropriate conditions. Photo: Juliet Hawkins

Wales, it is a rapidly declining plant. Recent surveys, conducted through PondNet, have found it has been lost from a high proportion of its previous sites.

Tubular Water-dropwort grows in a variety of forms depending on local conditions and management practices. It often occurs as small low-growing plants only a few cm high, with a rather cow-parsley-like basal leaf (basal leaves grow at the bottom of the stem) and may also have finely divided submerged leaves. Flowering plants are easy to identify but seedling or non-flowering plants can be tricky.

It is a native annual or short-lived perennial of muddy, nutrient- rich ponds and ditches with still or slow-moving water (and open marshes and fens with fluctuating water levels) - all features available in these ponds at the margins. Martin Sanford (*A Flora of Suffolk 2010*) says it is occasional in ponds on old commons, in marshes and ditches on the boulder clay in north-east Suffolk (and a few fens in the Waveney/Ouse valley and the Fens) - it occurs in 67 tetrads in Suffolk's 1,089 tetrads so the Bramfield cluster is a good find.

Tubular Water-dropwort is a lowland plant which grows in a wide range of wetland areas, including damp ground on the edges of ponds (more rarely rivers, streams, canals, ditches and lakes) as well as in dense wetland vegetation in meadows, marshes, fens and pasture on river floodplains and occasionally in deep water in permanent ditches. It appears most frequently in ancient habitats, where there is a long history of stable land use, such as traditionally managed pasture and meadows.

Tubular Water-dropwort often forms long-lived populations. These can occur in a surprising variety of habitats; from open muddy areas at the edge of ponds to amongst dense vegetation such as sedges and rushes in the drawdown zone. It can form very low-growing plants in mown grassland and will occasionally persist on seasonally inundated tracks, although these plants rarely flower. A unifying requirement for these habitats is clean water with little or no nutrient pollution from intensive agriculture. This is because nutrients are a fertilizer that allows more vigorous and fast growing species to out compete more delicate species such as Tubular-Water Dropwort.

This perennial plant flowers between July and September. It reproduces by seeds and small plantlets that develop from its spreading root-like stolons. It can be transported by animals. To germinate, Tubular Water-dropwort requires some kind of disturbance to create openings amongst denser vegetation. Consequently, it favours habitat with both grazing and fluctuating water levels, both of which help eliminate competing plants and maintain appropriate conditions. Although usually found in open sunny situations and is intolerant of heavy shading from trees and scrub, light shade can sometimes help to knock-back Tubular Water-dropwort's competitors, allowing it better opportunities to flourish. Gentle and occasional patch-scraping management is likely to help this plant thrive at the margins of Pond 4.

2.1.3 Priority water beetle species

A snapshot of the water beetle community has been obtained through sampling over the years summarised over the page. A minimum of 19 water beetle species have been recorded, several of which are recognised as being of **national or local significance**. Three species are **Nationally Notable**.

Water beetles recorded at Ilketshall St Andrew ponds 2008-20 by Juliet Hawkins

SPECIES	Status	Range / Distribution if known	Habitat if known
<i>Agabus bipustulatus</i>	Very common	S,E,W,M,Ni,Ri,Ch	wide range of habitats
<i>Agabus nebulosus</i>	Very common	S,E,W,M,Ni,Ri,Ch	ponds, especially new ones
<i>Anacaena limbata</i>	Very common	(SNWEI)	marshes and pools
<i>Berosus affinis</i>	Nb	(nWE)	silt ponds, drains, sometimes brackish
<i>Enochrus testaceus</i>	Local	(snWEI)	dykes and ponds
<i>Gyrinus substriatus</i>	Very common	(SNWEI)	fresh, peaty or sometimes brackish water
<i>Haliphus lineatocollis</i>	Very common	S,E,W,M,Ni,Ri,Ch	mainly slow- running water
<i>Haliphus obliquus</i>	Local	S,E,W,M,Ni,Ri	pools, especially with Chara
<i>Haliphus ruficollis group</i>			
<i>Helochaes lividus</i>	Nb	(nwE) mainly SE + Devon Glamorgan Lincs	ditches, fens, ponds
<i>Helophorus brevipalpis</i>	Very common	(SNWEI)	ubiquitous, temporary waters
<i>Helophorus griseus</i>	Nb	(nwE)	grassy ponds and fens
<i>Hydrobius fuscipes</i>	Very common	(SNWEI)	detritus pools
<i>Hydroporus palustris</i>	Very common	S,E,W,M,Ni,Ri,Ch	ponds and slow water
<i>Hydroporus planus</i>	Common	S,E,W,M,Ni,Ri,Ch	lowland pools, often temporary
<i>Hygrotus inaequalis</i>	#N/A	#N/A	#N/A
<i>Hyphydrus ovatus</i>	Common	S,E,W,M,Ni,Ri,Ch	still or slow-running water with vegetation
<i>Laccobius minutus</i>	Local	(SNWEI)	ponds and lakes
<i>Noterus clavicornis</i>	Local	S,E,W,M,Ni,Ri,Ch	still water, often in weed rafts

Key: RDB3 = Rare and at Risk, Nb = Nationally Notable, Local = Locally significant

(Analysed using SAFIS - Chalkley, A. K. (2019). Site Analysis for Freshwater Invertebrate Surveys (Version 31) [Computer Software] Boxford, Suffolk, England: Boxvalley Aqua Surveys. Supplied by the author July, 2019. Available from <https://www.suffolkwildlifetrust.org/safis>)

2.2 Ponds contain significant collections of species

Ponds that hold significant communities of aquatic species, for example, **15 or more species of aquatic or emergent plants may be considered of high value.** Ponds 3 and 4 on Great Common both contain a good variety of plant species and Pond 4 supports the priority species Tubular Water dropwort.

2.3 Several ponds have good water quality and contain a range of features characteristic of pond type

Ponds 3, 4 and 10 are the best ponds with good water quality and a good range of plants, invertebrates and some rare species.

3. Pond wildlife requirements

Different taxonomic groups, and different species within these groups, have evolved to exploit subtly different niches and so the important thing is that a group of ponds provide slightly different features which, by their location, adjacent habitat, size, shape and profile, these farm ponds do but are included here for anyone who might be involved in managing these ponds in the future.

- **Historically, ponds were rotationally managed** to keep them open for livestock to water at them (margins were coppiced) and had organic matter removed to create clean drinking water (livestock, humans) and to use the organic matter on adjacent heavy clay fields to ameliorate the soil conditions as a kind of marl. Consequently, ponds were regularly opened up to keep them sunny and cleaned out in an imperfect way. This regular disturbance and exposure of bare substrates, along with removal of competition, shade and the absence of enriching and chemical pollutants, provided perfect conditions for species that like early successional pond stages, such as stoneworts to periodically thrive, fruit and set seed (spores). These oospores could then survive for many years until the next rotational clean. Management that mimics this traditional approach suits aquatic species that like early and later stages of pond succession.
- **Ponds need to have variety in underwater profile** to create shallow and deeper water where a variety of underwater habitat is created with different aquatic and emergent plants, bare areas, tangled roots, and a drawdown zone that provides bare banks.
- **Plant stand density** can influence which species, such as dragonflies, flourish at a pond such as the Norfolk Hawker discussed above. Tubular Water Dropwort does not like competition so removing competing plants occasionally allows them to flourish. Some dragonflies such as Broad-Bodied Chaser, Black-Tailed Skimmer and Common Darter like early successional ponds with bare open habitat and relatively sparse aquatic vegetation - and the latter two particularly like to sunbathe on sunny bare ground and interestingly none of these species were recorded this year but have been historically. Others such as Emerald Damselfly and Ruddy Darter appear to prefer ponds with denser aquatic vegetation. Ruddy darter appear to prefer breeding amongst the tangled roots of well-established vegetation in which their larvae are protected.
- **Fluctuating water levels** may be beneficial to several invertebrate species and some species tolerate or even benefit from ponds that occasionally dry out which often reduces predators such as fish. Great Crested Newts thrive in ponds where drought kills off predatory fish. Emerald Damselfly lay eggs in the stems of emergent plants, mostly above water level and their eggs hatch out in late winter/early spring when water levels have risen. Ruddy Darter oviposit in mud and grass at pond margins and their eggs hatch when winter water levels have risen. Thus having some parts of a pond which dry out completely provides useful habitat variety.

- **Many freshwater invertebrates spend life in the water for part of their life cycle and on metamorphosing into adulthood, they need areas to bask, feed, shelter, perch and mate.** So even sunny, open ponds benefit from trees, shrubs and scrub nearby - but not shading. A mosaic of bare soil to warm up on, rough tall grass, rushes, sedges, nettles, brambles and taller trees well back from the pond provides a good range of sites at different times of the day. The Willow Emerald Damselfly is unique in needing an overhanging willow/shrub branch over a predominantly sunny pond so that when its eggs, laid in the willow bark, hatch, the larvae fall directly into the pond to develop there, but that can be provided at bigger ponds where having part of the pond shaded is a benefit.
- **Most freshwater invertebrates tend to thrive in fish-free ponds and those that do not have lots of duck.** Fish and duck predate larvae; duck in numbers and bottom-feeding fish such as carp stir the water and make it turbid preventing aquatic plants from growing so these should not be encouraged. Stickleback have been recorded in the ponds historically and are likely to still be present but were not sampled this year. There is evidence that shows toads do particularly well in ponds with fish as the fish do not like their warty bodies.
- **Great Crested Newts thrive** in fish-free and duck-free ponds with clean water, plenty of submerged aquatic plants on which to lay their eggs and good rough vegetation in which to forage and overwintering cover nearby.

4. General management recommendations

Management of these Commons ponds should aim for the features discussed in section 3 above through a combination of management approaches which historically farmers would have done as part of their regular maintenance programme to keep ponds open for livestock and to use the organic matter as a soil improver to heavy clay. There are a few problem issues that are worth flagging up as they apply, or could apply, to several ponds over time.

Non-native plant species are undesirable usually because they are invasive and can dominate entire ponds, can be spread by small fragments and are very difficult to remove as no herbicides are currently approved to eradicate them in water. Great care needs to be taken to ensure they are not inadvertently introduced by well-meaning plant donations and then spread to other ponds by dogs, duck, pond net or pond digger. They are sometimes accidentally introduced with pond plants bought from garden centres.

New Zealand pigmyweed (*Crassula helmsii*) is present in Great Common Pond 3 next to Dairy Farm and Dairy Barn. This is extremely invasive and great care needs to be taken to ensure it does not inadvertently get carried to other ponds. General pond management recommendations need to be fine-tuned to minimise it getting a better stronghold as I think it is the shady conditions that may be keeping it in check. Interestingly it has been recorded in the past in Great Common Ponds 1 and 4 which may have been mistaken identity but unusually, it has not become seriously invasive in any of the ponds.

Interestingly, ***Azolla filliculoides*, the non-native Water Fern**, has been recorded over the years on the Commons ponds so it is nothing new to be present. It was recorded on Great Common Pond 3 in July 2017 and I mentioned that can take over ponds in sheltered, often silted, situations but equally can disappear one year and not return and recommended that you simply leave it as it can disappear one year as quickly as it came. It has indeed disappeared from Pond 3 but has completely taken over Great

Common Pond 1 which looked glorious in July 2017. It is thought that it cannot persist in winters with prolonged freezing temperatures so a hard winter may kill it. Care should be taken not to cross-contaminate other ponds when contractors use digger machinery between the ponds although it must be acknowledged that it can be transferred between ponds by duck's feet or a wet dog.

The presence of introduced fish is often an issue in ponds that have open access to the public as people sometimes introduce both with the best of intentions but they can seriously affect the ecology. On-stream ponds often naturally have stickleback and obviously the ecology of on-stream ponds is different to off-stream ponds. Some fish species are considered to have less adverse impact than others but those that stir the water are especially harmful to pond ecology. I did not net any fish but brown, murky, stirred water is often an indication of carp, tench or bream being present in a pond and a few of the ponds did have brown water. Pond 11 had quite brown water and *might* support fish.

Pollution can come in various forms - accidental pesticide or fertiliser drift into ponds on arable field margins or into ditches that feed into on-ditch ponds; leachate of fertiliser through the soil profile into ponds fed by field drain; excess build-up of leaf litter can lead to eutrophic (nutrient-rich) conditions with anaerobic smelling organic matter on the pond floor; agricultural effluent from livestock units or muck heaps that may run-off into ponds via ditches or over land; and domestic sewage from systems that might leak into the ditches and thus onwards into ponds where they may drop pollutants. Ponds 1 (under the Azolla), 2, 4, and 10 had especially clean water. Ponds 6 (brown water, seasonal cattle yard runoff?) and 8 (green water, possibly domestic effluent run off into ditch inflow) might merit some investigation.

Trees, shrubs and scrub are really valuable and those near ponds are especially so for species such as turtle dove. However, there is a balance to be had and the best ponds are usually those that have plenty of sun and minimal build-up of leaf litter and organic matter. In the absence of livestock accessing pond edges regularly, tree and scrub encroachment needs to be constantly managed to ensure that ponds are kept predominantly open and sunny. The smaller the pond, the more important it is to keep trees and shrubs to a minimum to ensure it is not shaded. There appears to be an excellent regime at present whereby ponds are regularly kept open by strimming or flailing encroaching sallow for a proportion of the pond perimeter and rotational coppicing. Targeted painting the stumps of larger coppiced sallow with glyphosate after cutting in the growing season would also help reduce the management needed to deal with re-growth.

I advise that the following recommendations are generally applied and can be reviewed as time and monitoring goes on.

- **On small ponds keep pond margins open and sunny** and minimise leaf fall. Coppice regularly on a rotation (and carefully paint the stump with glyphosate to prevent regrowth) or flail the margins once every three years ensuring that the flail operation blows the cut material away from the pond and not into it where it will enrich it.
- **On larger ponds,** keep a good 60+% of pond margins open and sunny but allow the occasional tree/shrub to cast some shade on the pond.

- **If feasible in the future, allow livestock limited access to as many ponds as you can** as they will create topographical and plant diversity by their poaching and browsing. However, there is a balance: don't allow them to remove all vegetation but ensure **controlled livestock access to ponds that**
 - Ensures margins are poached, trodden down and thus retain a gentle gradient but do not completely expose all the perimeter!
 - Ensures almost no natural regeneration of invasive woody species and invasive species such as reedmace and bur reed can be browsed and thus kept at bay;
 - Ensures a very good underwater structure - with hummocky topography created by large hoofprints, creating small microhabitats within the ponds
 - Ensures regular disturbance of the substrate, a feature needed by some species such as pioneer stoneworts which need bare soil in which to germinate;
 - Reduces the need for invasive and expensive heavy machinery to keep the pond open and in good condition.
- **As livestock do not currently keep back scrub/sallow regen, you need to regularly rotationally flail/cut/coppice sections of pond banks/shrubs in the winter** as part of your rotational hedging programme to keep encroaching shrubs back so that the majority of every pond is open and sunny. Never do all the banks at once and avoid damaging grass tussocks as amphibians and other creatures may be hibernating in/under these. Pile up cut dead wood and leave near to ponds to provide overwintering refuges for amphibians and reptiles. Avoid being over-tidy.
- **Patch-scrape. Be opportunistic - if you or a farmer neighbour have a digger on hire in the winter months**, gently patch-scrape invasive stands of vegetation (none that need this currently) and scrape a few sections of the terrestrial pond bank to remove regenerating scrub and create sunny, south-facing patches of exposed clay/other substrate. **At any one time, the maximum bank patch should be 20% of the pond margin.** Ideally use a digger bucket that has 'teeth' to create mini 'ridge and furrow' effect under the water and even on the terrestrial bank and allows slithers of silt with seeds to be left in the pond. This should ensure that once restored, no pond ever needs huge, drastic and expensive restoration again. Only take a proportion of the vegetation and never over-deepen the pond or steepen the pond sides. Scrape a few sections of the terrestrial pond bank to create sunny, south-facing patches of exposed clay/other substrate.

- If restoring other unseen ponds, **without ever going deeper than the ponds already are, create uneven topography**

underwater as the diagram shows - good for plants and stoneworts in particular. Use the

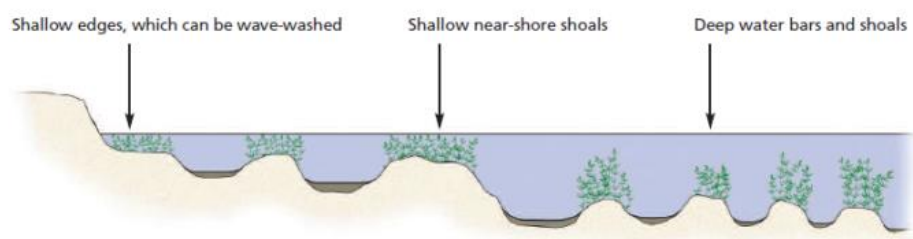


Figure 2. Make underwater shoals to help maintain inorganic sediments.

‘teeth’ of digger buckets to create very shallow ‘ridge and furrow’ diversity under the water. Small amounts of organic matter will remain in the pond this way too and allow for long-buried oospores to germinate from the seedbank.

- **Avoid introducing non-native plants** which might be invasive and take over the ponds - and be impossible to remove. Wash down diggers on hire before use on a pond. Never introduce plants from garden centres or accept a kind donation from someone! You may never be able to prevent a duck bringing in a fragment of New Zealand pigmyweed but by being careful, you can minimise the chances.
- **Wash all pond digging machinery** before coming onto the Commons from elsewhere, and between ponds, to ensure no contamination from invasive aliens such as New Zealand pigmyweed and *Azolla* water fern. Take special care if you ever do anything with Great Common Pond 2.
- **Keep ponds pollution-free** – domestic effluent, leachate of fertilizer, herbicides and organic manure via farm ditches/washed over the road (such as Great Common Pond 6) leads to eutrophication, reduce oxygen levels and damage ponds. **Clean, unpolluted water** (zero nitrate and phosphate) is essential for plant diversity, stoneworts, water beetles, dragonflies and other invertebrates. Eutrophication by nitrogen or phosphorus causes algae and higher forms of plant life to grow too fast. This disturbs the balance of organisms present in the water and the quality of the water concerned. On-ditch ponds that receive fertiliser run-off or leached nutrients through the soil profile are likely to be more nutrient-rich and thus vulnerable to developing thick blanketweed mats that suppress aquatic plants. Suspended algae make the water turbid and this also prevents light getting through to the pond floor, inhibiting plant growth. Seepage of farm yard manure can be extremely polluting in a pond whilst occasional access by livestock which dung in or around the pond is acceptable.
- **Buffer edges of ponds generously** Arable edges should be buffered with wide grass/flower-rich grass margins where possible - min 6m width but ideally more if possible to fund through CS options. Commons edges are buffered by zero input grassland.
- Where possible **buffer any agricultural ditches that inflow** into ponds with generous grass/flower-rich grass margins. Obviously this requires neighbouring farmers to be encouraged to do so if they are not already.
- **Be aware and avoid harming or disturbing Great Crested Newts.** Natural England’s advice is that *“Pond management includes the restoration of ponds which have become full of silt to such an extent that they no longer provide good habitat for Great Crested Newts. A conservation licence is only required if the work would otherwise be an offence in relation to Great Crested Newts eg deliberate killing or injury, deliberate disturbance or damage or destruction of a breeding site or resting place.*

- *Pond management work is designed to improve the breeding site and therefore there is little risk of damage or destruction occurring, as the site will be enhanced. Where the work is carried out with sensible precautions then the risk of deliberate killing, injuring or disturbing newts can be greatly minimised. When the risk of killing, injury or disturbance has been considered and minimised then it is unlikely that an offence will occur, as such actions are unlikely to be considered as deliberate.*
- *Natural England envisages that carefully planned standard pond management works would be highly unlikely to result in offences, and therefore we would not normally expect licence applications.*
- *Pond management work should normally be carried out in late autumn through winter, typically 1st November to 31st January, when Great Crested Newts are unlikely to be present in ponds. The dates are for guidance only as we cannot give specific dates that apply to all situations.*
- *It is also important to consider whether the proposed pond management work will impact upon surrounding terrestrial Great Crested Newt habitat. Large machinery can damage habitat and hibernacula if not carefully planned and the silt removed from pond must not be deposited on areas used by Great Crested Newts.” (Pond Management Work and Great Crested Newts, Natural England 2009)*
- Pond restoration should follow these important practices to avoid disturbance and/or injury to Great Crested Newt whilst doing so:
- De-silt heavily silted ponds and ensure that silt is spread well away from the pond and where it does not smother newt hibernation sites, herb-rich grassland or marshy vegetation. Depositing silt on arable stubble fields is ideal.
- Timing of work is critical where Great Crested Newt are known to be in the area. Work should be timed to avoid periods where newts may be present and where the impact of disturbance would be significant ie patch-scape or restore ponds between Nov-January.

Newt use of works area	General optimal period for carrying out works but timing may vary depending on local sites
Breeding	November-January
Hibernation	May-September
Dispersal	November-January
Feeding	November-January

- Aim to de-silt with heavy machinery used from a minimum number of access points to minimise disturbance of ground around pond where newts could be hibernating.
- Continue to monitor ponds and fine-tune management in response to survey evidence, problems and conservation priorities which may change over time.

5. Funding future work

There may be something under Higher Tier Countryside Stewardship or under the new Environmental Land Management scheme (yet to be announced). The following might be worth getting funding for if you are putting the Commons grassland into a scheme:

- **Capital payments for a contractor with a digger to occasionally patch-scrape ponds** to mimic livestock disturbance in arable situations and in ponds where livestock is not doing as much as required. This could be the funding of a digger every 3 years year to patch-scrape a proportion of ponds on a rotation.
- **Coppicing larger willow scrub around margins**

6. Individual pond assessments and recommendations

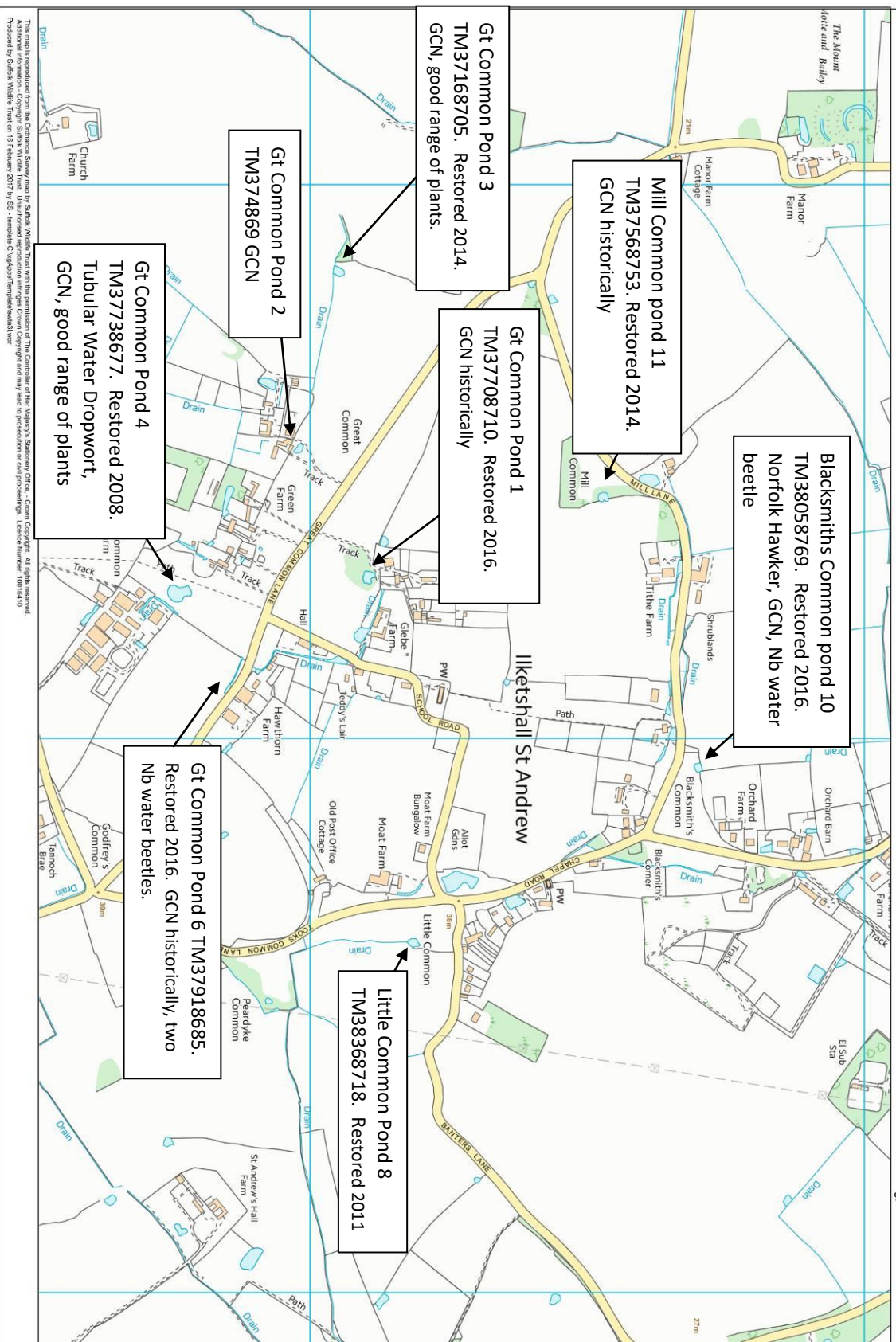
The following section summarises the key wildlife interest and suggested management at each pond, as at 15th June 2020, and the blue text shows the historical comments.

Ilketshall Commons excluding Beck's Green

Scale 1:6000

Summary of pond wildlife interest 2020

Suffolk Wildlife Trust
Brooke House
The Green
Ashbocking, IP6 9JY



Pond 1 – South of English Cottage on Great Common - TM37695 87113 - 220m2

High Value pond: GCN historically

15th June 2020: In July 2017 this pond looked glorious. In 2020, this shallow and normally seasonally fluctuating pond, with a firm bottom, had dropped its water levels by 30cm or so following this severe spring drought. For wildlife, seasonal fluctuating water levels (and even occasional drying out) are nothing to worry about.

Like Great Common Pond 2 in 2017, this pond is now completely covered in *Azolla filliculoides*, the non-native Water Fern. *Azolla* multiplies very quickly and effectively shades out submerged vegetation and I could see none easily. 2020 records below summarises what was visible in the emergent zone and includes Branched Bur-reed which has returned and Reedmace which is just getting established – and poplars and sallows are occasionally seeding along the banks. In the absence of browsing livestock accessing the pond edges, all of these will need some regular patch-scraping to ensure they don't take over this shallow pond.



To avoid contaminating any subsequent pond I was surveying (and because it is almost impossible to do it through the layer of the floating leaved fern), I did not pond dip to sample the aquatic invertebrates but it is fair to assume that those species recorded in 2017 will still be present except for the Whirligig Beetle which will not like the lack of open water to whirl about in but will soon return when the *Azolla* disappears. Underneath the *Azolla*, the water was clear and clean. Stickleback were recorded in 2008 but not since and the presence of breeding Great Crested Newt efts thriving amongst the stonewort in 2017 suggests that they will still be present but possibly not breeding very successfully this year in the absence of their preferred (for egg-laying) broad-leaved submerged aquatic plants. I suspect stickleback are present still but maybe in very low numbers.

Azolla was present on Great Common Pond 3 in July 2017 and I mentioned that it can take over ponds in sheltered situations but equally can disappear one year and not return. It has indeed disappeared from Pond 3 and it is thought that it cannot persist in winters with prolonged freezing temperatures so a hard winter may kill it so I recommend you do nothing but, be patient and avoid taking action that will waste time, resources and possibly spread it elsewhere. Care should be taken not to cross-contaminate other ponds if contractors use digger machinery to patch-scape the pond, although it must be acknowledged that it can be transferred between ponds by duck's feet or a wet dog.

2020 Records (not sampled for inverts as too much *Azolla*)

<i>Azolla filiculoides</i>	Water Fern	15/06/2020	J Hawkins
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins
<i>Populus</i>	Poplar	15/06/2020	J Hawkins
<i>Rosa</i>	Rose	15/06/2020	J Hawkins
<i>Rubus</i>	Bramble	15/06/2020	J Hawkins
<i>Salix cinerea</i>	Common Sallow	15/06/2020	J Hawkins
<i>Sparganium erectum</i>	Branched Bur-reed	15/06/2020	J Hawkins
<i>Typha latifolia</i>	Bulrush	15/06/2020	J Hawkins

2020 Recommendations

- Avoid putting fish in pond or encouraging duck.
- *Azolla* can quite quickly disappear so don't worry about this and be patient! Take care with hygiene for any machine used to patch-scape the pond and wash it down afterwards to avoid contaminating other water bodies with *Azolla*.
- Rotationally/regularly strim or flail 2-3m pond margins to keep scrub from getting well established again and to enable all year access to monitor pond and visibility of the pond in addition to creating some structural diversity amongst the scrub-grass-nettle mosaic.
- Occasionally winter patch-scape to reduce the spread of Reedmace, Branched Bur-Reed, sallow/poplar seedlings, and to create some bare terrestrial banks for dragonflies. Avoid deepening or steepening the wonderful gentle banks.
- If the shading willow should become unstable, consider pollarding or coppicing.
- As has been recommended in previous years (see below), the blackthorn scrub around this pond is very valuable for the conservation priority turtle dove which has been recorded here (2015 I heard it). The aim of managing this area should be to create a good structural diversity amongst the scrub-grass-nettle mosaic. As recommended before, try to cut a meandering path through the area that enable all year access and visibility of the pond but also allow for some low and high scrubby areas to grow up too.

Pond 1 – South of English Cottage on Great Common - TM37695 87113 - 220m2

17th July 2017

This pond has been transformed by its restoration in autumn 2016! I would like to have seen the big willow coppiced too as this will shed a lot of leaf litter and will contribute to the seasonal lowering of the water table by transpiring a lot of water each summer but maybe this was left at the adjacent residents' request for privacy. For now, the pond looks wonderful, densely vegetated with stonewort (a pioneer species) and water crowfoot sp. The littoral zone (the bare, beached margins above the summer water line) has pink water speedwell, water mint and watercress which are all very valuable for egg-laying amphibians and shelter for invertebrates earlier in the year. Both smooth newts and Great Crested Newts were evident - numerous efts of each.

Recommendations

- Keep fish out.
- Regularly flail 2-3m pond margins as now and view in to keep scrub from getting well established again to enable all year access and visibility of the pond in addition to creating some structural diversity amongst the scrub-grass-nettle mosaic.
- Consider coppicing the willow to reduce shade and leaf litter.



Freshwater inverts and molluscs 17th July 2017

White-lipped ram's-horn snail	<i>Anisus leucostoma</i>
Wandering pond snail	<i>Radix balthica</i>
Cherry stone beetle	<i>Hyphidrus ovatus</i>
A whirligig beetle	<i>Gyrinus substriatus</i>
A diving beetle	<i>Agabus nebulosus</i>
A crawling beetle	<i>Halipus ruficollis</i> group
A crawling beetle	<i>Halipus obliquus</i>
A water beetle	<i>Anacaena limbata</i>
A water beetle	<i>Laccobius minutus</i>
A water beetle	<i>Hydroporus</i> sp
Pond skater sp	<i>Gerridae</i>
Greater water boatman sp	<i>Notonectidae</i>
Lesser water boatman	<i>Corixidae</i>
Mayfly nymphs	

Plants

Common stonewort	<i>Chara vulgaris</i>
	<i>Chara vulgaris longibractea</i>
Pink water speedwell	<i>Veronica catenata</i>
Hairy willowherb	<i>Epilobium hirsutum</i>
Bittersweet	<i>Solanum dulcamara</i>
Watercress	<i>Rorippa nasturtium</i>
Brooklime	<i>Veronica beccabunge</i>
Water forget-me-not	<i>Mysotis scorpioides</i>
Celery leaved crowfoot	<i>Ranunculus sceleratus</i>
Water mint	<i>Mentha aquatica</i>

Pond 1 - 30th July 2015: I beat a route through nettles to the pond edge to look at this pond and then was able to walk along the water's edge a little way and so have a good look. The pond was extremely shallow (4" of water), fairly brown but clear (reflecting the leaf litter build up) and a dip yielded very few invertebrates (water boatman, hoglouse, pea mussel) and a leaf litter layer of 6"+ at the margin so probably a little deeper in the middle of what appears to be a very shallow pond. Interestingly there were no stickleback apparent (have they died after a droughty year?) but a proper net would have to be done to really establish this. And Crassula was not evident either (did anyone ever spray this?) although a better look at the whole pond may reveal it. Hairy willowherb, bittersweet, water mint, creeping bent, water forget-me-not, watercress and gypsywort were all present along the margins but there were no submerged aquatic plants so I suspect that any Great Crested Newts will be breeding in other nearby ponds or occasionally egg laying on leaf litter.



Bur-reed dominates the northern 50% of the pond and the southern margins are shaded by a large willow and salwos. Beyond is some valuable scrub, nettle, thistle and grass. A turtle dove was purring in the thick blackthorn scrub which was excellent. The poplars appear to have been coppiced but are now re-growing with a nettle understorey.

Recommendations

- As neither fish nor Crassula appear to be present, or present in large number/amount, it would be worthwhile restoring this pond if you already have machinery on site or nearby.
- At present it is difficult to see into the pond at all. The pond could be made more attractive and visible to both the cottage owners and anyone walking by simply, regularly, mowing the fringe of nettle, bindweed and hops on the narrow margin/edge next to the trackside. The trackside 2-3m margin could be topped occasionally too in a wavy scalloped shape that makes it 'look' managed and provides a little diversity in sward ie grass and nettles/bindweed/hops.
- Regularly re-coppice suckering stools of poplar to minimise the shading near the pond.
- Retain the thorn tree on the eastern edge.
- Coppice the large willow to reduce shade to the south and to reduce leaf litter.



- Coppice/remove x 4 scrub willow to south of pond to open up the pond to the south and consider treating the stumps to minimise regular coppicing thereafter. Leave some dead/cut wood stacked in piles near to the pond.
- Once both the above are coppiced and access to the pond is good for machinery, consider removing the leaf litter and the bur-reed (which will re-establish itself) and taking it back to the original clay profile, retaining all gentle margins. Do not make the pond deeper than its original clay profile. **This must be done in the winter months November to February** to avoid harming any Great Crested Newts which are present in the area around the pond. Work from as few a places as possible to avoid compacting their overwintering sites around tree stumps. Remove spoil off the sensitive grassland but consider spreading it in the thistle, nettle area nearby and allowing blackthorn/hawthorn scrub to grow on it, thereby expanding the area for turtle dove nesting. If any clay is removed, smear this on top of the spoil and consider even spreading species-rich hay debris on the raw soil later in the year.
- Thereafter rotationally coppice the willows every 5 years or so to ensure they do not get so large that they shade a large proportion of the pond.
- Whilst topping the trackside, if the rest of the pond edge is accessible, I would suggest that a 2m or so meandering path is cut through the nettles to enable all year access and visibility of the pond in addition to creating some structural diversity amongst the scrub-grass-nettle mosaic.

8th July 2013: Unchanged except *Crassula* not visible. No aquatic plants.

May 2008: GCN eggs: 40 counted. Estimate: 101-500 – small but struggling population

Fish - minor presence of stickleback.

Plants: bur-reed (dominant), gipsywort, water mint, willowherb, hard rush, ivy leaved duckweed

Invasive non-native: *Crassula* – small amount only

This pretty, large, shallow pond is fairly silted with brownish water and encroaching bur-reed where the light reaches the pond surface, and elsewhere it is shaded by scrub willow, thorn, bramble and a large willow. There are enough plants to provide good enough habitat for dragonflies, pond skaters, water boatmen.

HLS status: potentially HQ2 but difficult to improve for key species due to fish presence

HLS recommendations: Accept that whilst this has fish, this pond is of relatively low value for aquatic species, but is attractive and should be kept open and sunny

- Coppice/remove x 7 suckering stools of Lombardy poplar that will quickly shade the open western edge of the pond
- Coppice/remove x 4 scrub willow to south of pond
- Pollard x 1 willow – side it up and pollard to increase light into pond
- Leave some dead/cut wood stacked in piles near to the pond.
- In a droughty year when pond dries out completely and fish die, de-silt and remove spoil off site to nearest arable field. Consider spraying off *Crassula*. Avoid any contamination with other ponds.

Pond 2 – By Dairy Farmhouse and Dairy Barn, Great Common – TM37489 86961 – 150m2

High Value Pond: GCN

15th June 2020: This shallow pond has not been surveyed since 2008 but in 2020 supports much the same species recorded then except the very invasive non-native *Crassula helmsii* (New Zealand pigmyweed) is much less dominant and the introduced Yellow Water Lily has taken over 35% of the pond at the Dairy Farm Barn end. *Crassula* is damaging to a pond environment (can take over completely and deoxygenate the water) and may well have been accidentally introduced when the Yellow Water Lily was as it is often brought in with garden centre plants. I don't know why the *Crassula* should lessen its dominance unless it has been cleaned out relatively recently or, more likely, the shade of the Yellow Water Lilies, and the surrounding poplars and scrub is casting enough shade and leaf litter to suppress it. Similar other species recorded in 2008 are present but in very low abundance, probably due to shade and leaf litter. Water quality appears to be a bit brown (possibly due to a build up of leaf litter) but fine. A dead tree stump has been deposited in the water. *Kniphofia*, or red hot poker garden plants, have been introduced on one edge. A couple of Great Crested Newt efts were netted and a few eggs noted but the invertebrate sample just contained a few freshwater shrimps and immature Corixid bugs.



2020 Records

<i>Triturus cristatus</i>	Great Crested Newt	15/06/2020	J Hawkins & D Casey
<i>Alisma plantago-aquatica</i>	Water-plantain	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Chara vulgaris</i>	Common Stonewort	15/06/2020	J Hawkins & D Casey
<i>Crassula helmsii</i>	New Zealand Pigmyweed	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Iris pseudacorus</i>	Yellow Iris	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Kniphofia uvaria</i>	Red-hot-poker	15/06/2020	J Hawkins & D Casey
<i>Ligustrum vulgare</i>	Wild Privet	15/06/2020	J Hawkins & D Casey
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins & D Casey
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins & D Casey
<i>Nuphar lutea</i>	Yellow Water-lily	15/06/2020	J Hawkins & D Casey
<i>Populus alba</i>	White Poplar	15/06/2020	J Hawkins & D Casey
<i>Populus nigra 'Italica'</i>	Female Lombardy Poplar	15/06/2020	J Hawkins & D Casey
<i>Potamogeton crispus</i>	Curled Pondweed	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis agg.</i>	Water crowfoot sp	15/06/2020	J Hawkins & D Casey
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	15/06/2020	J Hawkins & D Casey

<i>Rosa</i>	Rose sp	15/06/2020	J Hawkins & D Casey
<i>Solanum dulcamara</i>	Bittersweet	15/06/2020	J Hawkins & D Casey
<i>Sparganium erectum</i>	Branched Bur-reed	15/06/2020	J Hawkins & D Casey
<i>Symphytum</i>	Indet. Comfrey	15/06/2020	J Hawkins & D Casey

2020 Recommendations

- Avoid putting fish in pond or encouraging duck.
- To improve a pond habitat, I would normally recommend the removal of shade and trees that are casting shade and leaf litter. However, the poplars may be the very reason that the *Crassula* has declined so I am wary of recommending their removal. Recommendations for dealing with *Crassula* have changed since 2008 and there is no easy or effective solution despite lots of ongoing trials with dyes, plastic coverings etc:
 - Mechanical removal is no longer recommended as it simply breaks it up and potentially spreads it further.
 - There are no effective herbicides approved for use in water. However, if the pond dries out completely in a droughty year, applying glyphosate (approved for use in or near water) by someone qualified to spray in or near water could significantly check its growth. However, glyphosate kills all other plants that are sprayed too and the only way of killing the *Crassula* is to treat the whole dry pond floor – and even then it often returns the next year!

On balance, I suggest you leave this pond as non-intervention and monitor it. *Crassula* may continue to co-exist at low levels with the other species and this may be the best option for living with it!

May 2008: GCN eggs: 50 counted. Estimate: 101-500 – small but healthy population

Fish – not apparently present

Good clean water

Plants: Typha bulrush (dominant), yellow iris, yellow water lilies, gipsywort, water mint, water plantain, bittersweet, willowherb, hard rush, ivy leaved duckweed, myriophyllum

Invasive non-native: *Crassula* – dominant over 75% of the pond and through water column now inhibiting water mint and open water

This smaller, deeper pond has quite good quality water but *Crassula* is worse here than on any other Commons pond where it is actually suppressing other vegetation. The Lombardy poplar appear to let enough light to the pond's surface for plenty of vegetation to thrive.

HLS status: HQ2 but *Crassula* needs dealing with to restore/maintain value

HLS recommendations

- Regularly remove *Crassula* to prevent it suppressing all else and consider spraying if a droughty year allows drawdown of water to expose most of it.

Pond 3 – Western edge of Great Common, Dairy farmhouse/Barn – TM3716287054 (prev TM37147687065) - 200m2

15th June 2020: A very healthy pond. Water levels were down 50cm or so during this droughty period but water quality was good with 20 species of aquatic or emergent plant recorded which is excellent. Azolla water fern was completely absent, having been frequent in July 2017 which is excellent news. Dragonflies, hoverflies, water beetles, pond snails and pea mussels were all observed. Smooth and Great Crested Newt were both recorded and no fish. The pond margins to the east have been cut back well so that the 10 small stools of grey willow are being kept at bay which is excellent.



2020 Recommendations

- Continue to keep pond open and sunny on Great Common side, and accessible to visit and monitor by occasionally cutting back rank vegetation, seedling grey willow and bramble on the accessible banks. Consider selectively treating the stumps of grey willow once you have cut them by painting the cut stumps with glyphosate.
- Cut back (and treat stump) of the grey willow and young white poplar from the northern edge.
- Occasionally gently winter patch-scape to reduce the spread of Reedmace, Branched Bur-Reed, willow seedlings, and to create some bare terrestrial banks for dragonflies. Avoid any deepening or steepening the gentle banks.
- Take care with hygiene for any machine used and wash it down afterwards to avoid contaminating other water bodies with *Azolla*.

2020 Records over page

2020 Records

<i>Notonecta sp</i>	A water bug	15/06/2020	J Hawkins
<i>Ilycorus cimicoides</i>	Saucer bug		
<i>Noterus clavicornis</i>	A water beetle	15/06/2020	J Hawkins
<i>Helophorus brevipalpis</i>	A water beetle	15/06/2020	J Hawkins
<i>Gammarus sp</i>	Freshwater shrimp	15/06/2020	J Hawkins
<i>Triturus cristatus</i>	Great Crested Newt	15/06/2020	J Hawkins
	Smooth newt	15/06/2020	J Hawkins & D Casey
<i>Libellula quadrimaculata</i>	Four-spotted Chaser	15/06/2020	J Hawkins & D Casey
<i>Pyrrhosoma nymphula</i>	Large Red Damselfly	15/06/2020	J Hawkins & D Casey
<i>Anax imperator</i>	Emperor dragonfly	15/06/2020	J Hawkins & D Casey
<i>Agrostis stolonifera</i>	Creeping Bent	15/06/2020	J Hawkins & D Casey
<i>Carex hirta</i>	Hairy Sedge	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	15/06/2020	J Hawkins & D Casey
<i>Juncus articulatus</i>	Jointed Rush	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Lemna minor</i>	Common Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lemna trisulca</i>	Ivy-leaved Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins & D Casey
<i>Populus alba</i>	White Poplar	15/06/2020	J Hawkins & D Casey
<i>Potamogeton natans</i>	Broad-leaved Pondweed	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis agg.</i>	Water crowfoot sp	15/06/2020	J Hawkins & D Casey
<i>Ranunculus repens</i>	Creeping Buttercup	15/06/2020	J Hawkins & D Casey
<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	15/06/2020	J Hawkins & D Casey
<i>Rorippa nasturtium-aquaticum</i>	Water-cress	15/06/2020	J Hawkins & D Casey
<i>Salix cinerea</i>	Common Sallow	15/06/2020	J Hawkins & D Casey
<i>Solanum dulcamara</i>	Bittersweet	15/06/2020	J Hawkins & D Casey
<i>Sparganium erectum</i>	Branched Bur-reed	15/06/2020	J Hawkins & D Casey
<i>Typha latifolia</i>	Bulrush	15/06/2020	J Hawkins & D Casey
<i>Veronica beccabunga</i>	Brooklime	15/06/2020	J Hawkins & D Casey
<i>Zannichellia palustris</i>	Horned Pondweed	15/06/2020	J Hawkins & D Casey
<i>Potamogeton trichoides</i>	Fine-leaved pondweed	15/06/2020	J Hawkins & D Casey

Pond 3: 17th July 2017: Water levels were quite low, leaving a beach of emergent species and a concentrated thick 'soup' of blanketweed algae, duckweed and *Azolla* water fern and very little open water (see photo over page). Water quality was very clear beneath and there was a lot of invertebrate activity with dragonflies and hoverflies. Smooth and Great Crested Newt were found in every pond dip. Thus whilst the pond is very densely vegetated, it appears to be healthy. Table below demonstrates how the pond has remained healthy with similar species but surveying the actual water body when the vegetation is so dense is difficult to do so I suspect other species were present too, simply not found.

Recommendations

- *Azolla* is a non-native (and often quite invasive) species that occasionally appears on very sheltered ponds but it can quite easily disappear too another year so don't worry about this whilst the competitive broadleaved pondweed is there to shade it out.
- Continue to keep accessible to visit and monitor by occasionally cutting back rank vegetation and bramble on the accessible banks.
- Remove tree seedlings as they appear.
- Occasionally remove a scoop of leaf litter organic matter from the most shaded side when the farmer adjacent has a digger in. Take care with hygiene for any machine used and wash it down afterwards to avoid contaminating other water bodies with *Azolla*.



Freshwater invertebrates and molluscs P3 - 17th July 2017

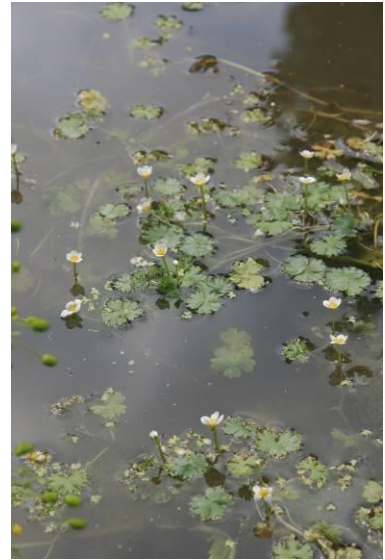
Smooth ram's-horn snail	<i>Gyraulus laevis</i>
Marsh pond snail	<i>Lymnaea fusca</i>
Cherry stone beetle	<i>Hyphidrus ovatus</i>
A crawling beetle	<i>Halplus ruficollis</i> group
A crawling beetle	<i>Halplus obliquus</i>
A water beetle	<i>Anacaena limbata</i>
A water beetle	<i>Laccobius minutus</i>
A water beetle	<i>Hydroporus</i> sp
Pond skater sp	<i>Gerridae</i>
Greater water boatman sp	<i>Notonectidae</i>
Lesser water boatman	<i>Corixidae</i>
Mayfly nymphs	
Pea mussel sp	
Saucer bug	<i>Ilyocoris cimicoides</i>

8th July 2013: Well-restored pond with clear water where previously it was covered in duckweed. The gentle edges, previously much steeper, have been colonised by celery-leaved crowfoot. There are now 14+ plants where previously only 2.

2 GCN larvae were found and I would estimate a small recovering population. In addition to this, 20 smooth newt larvae were recorded. Table 3.1 lists all the species recorded.

Recommendations

- Keep accessible to visit and monitor by occasionally cutting back rank vegetation and bramble on the accessible banks.
- Remove tree seedlings as they appear.



Species recorded on 8th July 2013 in Pond 3, Great Common, Ilketshall St Andrew

Submerged & floating leaved aquatic plants 2013		2017
<i>Ranunculus aquatilis</i>	Water crowfoot	Y
<i>Chara</i> sp	Stonewort	
<i>Zannichelia palustre</i>	Horned pondweed	
<i>Potamogeton natans</i>	Broadleaved pondweed	Y - dominant
<i>Agrostis stolonifera</i>	Creeping bent	Y
Additional species		<i>Azolla filiculoides</i> - water fern - frequent
		<i>Lemna trisulca</i> - ivy leaved duckweed
		Blanketweed algae
Emergent plants in marginal zone		
<i>Juncus inflexus</i>	Hard rush	Y
<i>Epilobium hirsutum</i>	Hairy willowherb	Y
<i>Solanum dulcamara</i>	Bittersweet	Y
<i>Rorippa nasturtium</i>	Watercress	Y
<i>Veronica beccabunga</i>	Brooklime	Y
<i>Mysotis scorpioides</i>	Water forget-me-not	
	Celery leaved crowfoot – dominant on edges	Y
Additional species		Branched bur-reed = <i>Sagittaria erecta</i>
		Reedmace - <i>Typha latifolia</i>
Amphibians		
L2+	Great Crested Newt	Frequent efts
L20+	Smooth newt	Frequent efts
Freshwater inverts and molluscs		
Tbc	Water beetle sp	
Additional species		Saucer bug, ramshorn snail sp see list over page
	Freshwater shrimp	Y
	Lesser water boatman sp	Y
	Greater water boatman sp	Y
	Pond snail sp Abundant	Y
Dragonflies and damselflies		
	Common blue damselfly	Y
	Blue-tailed damselfly	Y
	Broad-body chaser	
Additional species		Migrant hawkler, brown hawkler, common darter, emperor
		Small copper, meadow brown, green-veined white

May 2008: GCN eggs: 10 counted on only submerged plant (fools' watercress) Estimate: 11-25 – tiny remnant population

Fish – not apparently present

Duckweed covered water indicating silted bottom

Whilst, fairly steep-sided, this pond has good potential being linked via hedge and ditch to pond 2, and adjacent to scrub, copse and species-rich grassland of the common. It also has no *Crassula*.

HLS status: potentially HQ2 but de-silting and possibly re-profiling of the north-eastern and eastern edges to create one bank edge that has a gentle gradient.

HLS recommendations

- De-silt and ideally spread spoil on adjacent arable land.
- Consider re-profiling a small section of the edge to allow emergent plants to get established and to let more light in to edges.

Pond 4 – North-west of Great Common Farm – TM3773986766 (prevTM37734 86790) – 800m2

High Value Pond for: Tubular Water Dropwort, Great Crested Newt, Grass Snake, *Helophorus lividus* (a water beetle)

15th June 2020: This large shallow pond is looking lovely again with clean water and well vegetated shallows amongst the Reedmace which has spread along 90% of the perimeter of the pond and covers c50% of the pond itself. The pond margins support a good variety of emergent plants including a couple of Tubular Water Dropwort (priority species) but the submerged vegetation appears to be dominated by a moss and several species recorded previously were not evident such as Curled and Horned Pondweed. About 40% of the margin has Grey Willow and Ash along it casting shade on the shallowest pond margins so will need some rotational management. Great Crested and Smooth Newt efts (larvae) were recorded frequently and a Grass Snake was observed too, no doubt feasting on the newts. Several species of water beetle and dragonfly were recorded too but less than in previous years. Great effort has gone into successfully keeping the north-western edge free of young Grey Willow and open which is excellent.



2020 Records

<i>Hydroporus palustris</i>	A water beetle	15/06/2020	J Hawkins
<i>Hygrotus inaequalis</i>	A water beetle	15/06/2020	J Hawkins
<i>Hydroporus planus</i>	A water beetle	15/06/2020	J Hawkins
<i>Plea minutissima</i>	A water bug	15/06/2020	J Hawkins
<i>Notonecta glauca</i>	A corixid bug	15/06/2020	J Hawkins
<i>Hippeutis complanatus</i>	A ram's horn snail	15/06/2020	J Hawkins
<i>Physa fontinalis</i>	A pond snail	15/06/2020	J Hawkins
<i>Noterus clavicornis</i>	A water beetle	15/06/2020	J Hawkins
<i>Laccophilus minutus</i>	A water beetle	15/06/2020	J Hawkins
<i>Helophorus lividus</i>	A water beetle	15/06/2020	J Hawkins
<i>Agabus bipustulatus</i>	A water beetle	15/06/2020	J Hawkins
<i>Gerris odontogaster</i>	Toothed pond skater	15/06/2020	J Hawkins
<i>Lissotriton vulgaris</i>	Smooth Newt	15/06/2020	J Hawkins & D Casey
<i>Triturus cristatus</i>	Great Crested Newt	15/06/2020	J Hawkins & D Casey
<i>Anax imperator</i>	Emperor Dragonfly	20/07/2020	S Piotrowski & D Casey
<i>Anax imperator</i>	Emperor Dragonfly	15/06/2020	J Hawkins & D Casey
<i>Enallagma cyathigerum</i>	Common blue damselfly	20/07/2020	S Piotrowski & D Casey
<i>Ischnura elegans</i>	Blue-tailed damselfly	20/07/2020	S Piotrowski & D Casey
<i>Libellula maculata</i>	Four spotted chaser	20/07/2020	S Piotrowski & D Casey

<i>Libellula quadrimaculata</i>	Four-spotted Chaser	15/06/2020	J Hawkins & D Casey
<i>Sympetrum sanguineum</i>	Ruddy darter dragonfly	20/07/2020	S Piotrowski & D Casey
<i>Natrix helvetica</i>	Grass Snake	15/06/2020	J Hawkins & D Casey
<i>Agrostis stolonifera</i>	Creeping Bent	15/06/2020	J Hawkins & D Casey
<i>Alisma plantago-aquatica</i>	Water-plantain	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Eleocharis palustris</i>	Common Spike-rush	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Fraxinus excelsior</i>	Ash	15/06/2020	J Hawkins & D Casey
<i>Galium palustre</i>	Marsh-bedstraw	15/06/2020	J Hawkins & D Casey
<i>Glyceria fluitans</i>	Floating Sweet-grass	15/06/2020	J Hawkins & D Casey
<i>Juncus articulatus</i>	Jointed Rush	15/06/2020	J Hawkins & D Casey
<i>Juncus effusus</i>	Soft-rush	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins & D Casey
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins & D Casey
<i>Myosotis scorpioides</i>	Water Forget-me-not	15/06/2020	J Hawkins & D Casey
<i>Oenanthe fistulosa</i>	Tubular Water-dropwort	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis agg.</i>	Water crowfoot sp	15/06/2020	J Hawkins & D Casey
<i>Rumex conglomeratus</i>	Clustered Dock	15/06/2020	J Hawkins & D Casey
<i>Salix cinerea</i>	Common Sallow	15/06/2020	J Hawkins & D Casey
<i>Solanum dulcamara</i>	Bittersweet	15/06/2020	J Hawkins & D Casey
<i>Sparganium erectum</i>	Branched Bur-reed	15/06/2020	J Hawkins & D Casey
<i>Typha latifolia</i>	Bulrush	15/06/2020	J Hawkins & D Casey

2020 Recommendations

- Remove tree seedlings as they appear or cut and paint with glyphosate.
- Continue to keep pond open and sunny, accessible to enjoy and to monitor by occasionally cutting back rank vegetation and seedling grey willow on the accessible banks. Consider selectively treating the stumps of grey willow once you have cut them by painting the cut stumps with glyphosate. Always retain a few willow along pond margins as willow emerald damselflies (recorded in 2017) lay their eggs on the leaves and the larvae drop off into the pond on hatching.
- Occasionally gently winter patch-scrape to reduce the spread of Reedmace and willow seedlings, and to create some bare terrestrial banks for dragonflies. Avoid any deepening or steepening of the gentle banks.
- Take care with hygiene for any machine used and ensure it is totally clean when it arrives and wash it down afterwards.
- Avoid encouraging duck or fish.

July 2017 Pond 4: This shallow pond had 30cm or so of clear water above a quite muddy pond bottom. The records below demonstrate the dramatic change in plantlife in this pond since 2013 when it looked glorious. Whilst most of the emergents were still evident around the higher pond margins and sallows are creeping around, the pond was devoid of all aquatic vegetation except a little algae. Neither Tubular water dropwort (BAP species), nor the rather scarce in Suffolk lesser spearwort were evident either but these may have simply flowered early and not be visible during a quick survey. I did not net a single Great Crested

Newt eft although they may well be there amongst the reedmacro roots but not caught, and I only caught a few smooth newt. *Crassula* is not evident and think I must have mis-identified this back in 2008 as it would have spread everywhere by now - I suspect it was starwort!

Species recorded on 8th July 2013 in Pond 4, Great Common, Ilketshall St Andrew and in the third column those species present on 17th July 2017

Submerged/floating leaved aquatic plants 2013		2017 - Y = still present in 2017
<i>Ranunculus aquatilis</i> agg	Water crowfoot	
<i>Ranunculus trichophyllus</i>	Threadleaved water crowfoot	
<i>Ranunculus peltatus</i>	Pond water crowfoot	
<i>Fontinalis</i>	Moss	
<i>Potamogeton crispus</i>	Curled pondweed	
<i>Potamogeton trichoides</i>	Hair-like pondweed	
<i>Agrostis stolonifera</i>	Creeping bent	Y
<i>Glyceria fluitans</i>	Float grass	
Emergent plants in marginal zone		
<i>Typha latifolia</i>	False bulrush/reedmacro	Y
<i>Sparganium erectum</i>	Branched bur-reed	Y
<i>Iris pseudocorus</i>	Yellow flag iris	Y
<i>Juncus inflexus</i>	Hard rush	Y
<i>Epilobium hirsutum</i>	Hairy willowherb	Y
	Bittersweet	Y
<i>Alisma plantago-aquatica</i>	Water plantain	Y
<i>Mentha aquatica</i>	Water mint	Y
<i>Myosotis scorpioides</i>	Water forget-me-not	Y
<i>Eleocharis palustre</i>	Common spike rush	Y
<i>Lycopus europaeus</i>	Gypsywort	Y
<i>Ranunculus flammula</i>	Lesser spearwort	
<i>Juncus artice/subnod</i>	Jointed rush	Y
<i>Galium palustre</i>	Marsh bedstraw	Y
<i>Deschampsia cespitosa</i>	Tufted hair grass	
<i>Oenanthe fistulosa</i>	Tubular water dropwort BAP species	
<i>Carex otrubae</i>	False fox sedge	Y
Amphibians		
L20	Great Crested Newt	
L100+	Smooth newt	Y few
Freshwater invertebrates & molluscs		
	Pond skater sp	
Tbc including <i>Hyphydrus ovatus</i>	Water beetle sp including Cherrystone beetle	
	Beetle larvae sp	
<i>Hyphydrus ovatus</i>	Cherrystone beetle	
	Freshwater shrimp	Y
	Lesser water boatman sp	Y
	Greater water boatman sp	Y
	Pond snail sp	Y
	Dragonfly nymph sp	

Dragonflies and damselflies	Damselfly nymph sp	
	Flat worm sp	
	Azure damselfly	
	Common blue damselfly	Y
	Blue-tailed damselfly	Y
	Broad-body chaser	
	Emperor dragonfly	Y
	Black-tailed skimmer	
	Common darter	
	Emerald damselfly	

**Freshwater invertebrates and molluscs
in addition to table above**

Pond 4 17th July 2017

Common bladder snail	<i>Physa fontinalis</i>
Freshwater shrimp sp	
A crawling beetle	<i>Haliphus ruficollis</i> gp
A crawling beetle	<i>Haliphus lineatocollis</i>
Greater water boatman	<i>Notonectidae</i>
Lesser water boatmen	<i>Corixidae</i>
Saucer bug	<i>Ilycoris cimicoides</i>
A water beetle	<i>Enochrus testaceus</i>
A water beetle	<i>Anacaena limbata</i>
A water beetle	<i>Laccophilus minutus</i>
A water beetle	<i>Noterus clavicornis</i>
Pea mussel sp	

Willow emerald damselfly

Dragonfly activity was excellent with 8 different species readily evident and maybe more. However, pond dipping yielded very few invertebrates or newts (mainly from the margin with the spike rush) and this is likely to be a reflection of the lack of aquatic plants. I really don't know why the pond is so lacking in aquatic plants so suddenly since 2013. Were there aquatic plants earlier in the year and then did it dry up completely? Management appears to be good - the pond is open and sunny, water quality is clear. Some questions - were there pond plants earlier in the year? Has anything different been done to the pond such as spraying it?

Gatekeepers, commas and meadow brown butterflies were observed on the bramble edge to the north of the pond.



Recommendations

- Occasionally remove invading reedmace in the winter where accessible but avoid any management in summer months when newts and invertebrates are breeding.

- Remove tree seedlings as they appear or cut and paint with glyphosate. Retain a few willow along pond margins as willow emerald damselflies lay their eggs on the leaves and the larvae drop off into the pond on hatching.
- Consider water testing by the Environment Agency.

8th July 2013: The pond has clearly had some work done to it including the removal of some reedmace. This pond was looking superb with an amazing diversity of vegetation with 23+ species of aquatic/emergent plant (12+ in 2008) which is a really excellent number for a Suffolk pond. This included **Tubular Water Dropwort (*Oenanthe fistulosa*) – classed as Vulnerable and now a priority BAP species**, found in one small patch. Reedmace (*Typha latifolia*) was not as dominant as in 2008 but still provides a good stand of vegetation. There was a large bed of water crowfoot (*Ranunculus peltatus*) – I could only see pond water crowfoot up close but the large stand of it could have been a second species, common water crowfoot (*R. aquatilis*). *Crassula* was not evident from the accessible edges (I wonder what control method you used?) and there was no blanketweed algae.



20 GCN larvae were found very quickly and I would estimate a large, thriving population. In addition to this, hundreds of smooth newt larvae were recorded. Table 4 lists all the species recorded.

Recommendations

- Occasionally remove reedmace in the winter where accessible but avoid any management in summer months when newts and invertebrates are breeding.
- Monitor *Crassula*.
- Remove tree seedlings as they appear.

May 2008: GCN eggs: only 50 counted on water mint despite extensive edge search. Estimate: 101-500 – small but healthy population. They may, however, be laying elsewhere eg on fragments of rotting reedmace.

Smooth newt: adult netted

Fish – not apparently present

Good clean water

Plants: Starwort, fine-leaved pondweed, Typha bulrush (dominant over 50-75%), yellow iris, yellow water lilies, gipsywort, water mint, water plantain, bittersweet, willowherb, hard rush, creeping bent

Invasive non-native: *Crassula* – started to come in at the edges.

This large shallow, open pond is dominated by invasive Typha and *Crassula* has started to come in too. Good quality water with some blanketweed algae. Good habitat for dragonflies, pond skaters, water boatmen.



HLS status: HQ2 but *Crassula* needs dealing with to restore/maintain value

HLS recommendations

- It's not really urgent but, if a digger is in doing other jobs, consider removing a couple of accessible scoops of reedmace to slow down the spread of Typha. Spread spoil on arable.
- Otherwise, in a droughty year, remove accessible areas of Typha with a digger and consider spraying off exposed *Crassula*
- Regularly remove *Crassula* if it gets very dense. Remove off site and destroy.

Pond 6 – Opposite Hawthorn farm buildings – TM37906 86854 – 200m2

High VaLue Pond: Great Crested Newt (historically), *Helophares lividus* & *Helophorus griseus* (water beetles)

This pond remains much the same every year with a fairly good variety of plants in this fluctuating waterbody and, rather surprisingly, two Nationally notable water beetles and caddis larvae were recorded this year, sampled from the quite anaerobic shallow muddy and quite murky water. I still suspect seasonal runoff from the farm buildings opposite which brings nutrients/pollutants but the marginal vegetation is doing well. Grey willow is seeding in at the margins and needs controlling.



2020 Records

<i>Lissotriton vulgaris</i>	Smooth newt	15/06/2020	J Hawkins
<i>Helophorus griseus</i>	A water beetle	15/06/2020	J Hawkins
<i>Helophares lividus</i>	A water beetle	15/06/2020	J Hawkins
<i>Planorbis planorbis</i>	A ram's horn snail	15/06/2020	J Hawkins
<i>Anax imperator</i>	Emperor Dragonfly	15/06/2020	J Hawkins
<i>Coenagrion puella</i>	Azure Damselfly	15/06/2020	J Hawkins
<i>Ischnura elegans</i>	Blue-tailed Damselfly	15/06/2020	J Hawkins
<i>Berula erecta</i>	Lesser Water-parsnip	15/06/2020	J Hawkins & D Casey
<i>Callitriche aggregate</i>	a Starwort	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Iris pseudacorus</i>	Yellow Iris	15/06/2020	J Hawkins & D Casey
<i>Juncus effusus</i>	Soft-rush	15/06/2020	J Hawkins & D Casey
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins & D Casey
<i>Phalaris arundinacea</i>	Reed Canary-grass	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis agg.</i>	Water crowfoot	15/06/2020	J Hawkins & D Casey
<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	15/06/2020	J Hawkins & D Casey
<i>Rorippa nasturtium-aquaticum</i>			J Hawkins & D Casey
	Water-cress	15/06/2020	
<i>Solanum dulcamara</i>	Bittersweet	15/06/2020	J Hawkins & D Casey
<i>Berula erecta</i>	Water parsnip	15/06/2020	J Hawkins & D Casey
<i>Veronica catenata</i>	Pink Water-speedwell	15/06/2020	J Hawkins & D Casey

2020 Recommendations

- Allow the spread of flag iris and other invasive emergent plants as these will help absorb any excess nutrients/pollutants that might be in the system and stop them spreading down the ditch.
- Remove Grey willow seedlings that become established along the margins.

Pond 6 Great Common: 17th July 2017: This pond is little changed since 2013 - open and sunny and fringed by yellow flag iris on the roadside and pink water speedwell where the water level has gone down and left a beach. The water however is brown, murky and devoid of aquatic plants and may well still be receiving pollutants from livestock yard run off. A moorhen nest was evident but no other wildlife was noted.

Recommendations:

- Until potential pollutants are prevented from getting into this pond, this should remain a low priority for any restoration work.
- Allow the spread of flag iris and other invasive emergent plants as these will help absorb excess nutrients/pollutants in the system and stop them spreading down the ditch.

8th July 2013: This pond has been opened up a little but is clearly still polluted from farmyard run off. There were no aquatic plants, it was full of organic matter and a scum on the pond surface. No netting was carried out.

Recommendations

- As in 2008 stop pollution and remove organic matter.

Table 6: Species recorded on 8th July 2013 in Pond 6

	2013	2017
Epilobium hirsutum	Hairy willowherb	Y
Rorippa nasturtium	Watercress	Y
Berula erecta	Water parsnip	
Veronica catenate	Pink water speedwell	Y
Phalaris arundinacea	Reed canary grass	Y

May 2008 GCN eggs: 8 counted on 3 leaves of reed canary grass. Estimate: 11-25 – tiny population.

Plants: yellow iris, reed canary grass

This small, linear roadside pond is heavily shaded, silted and only a few eggs were found. This pond has potential as a good stepping stone on to other ponds on other commons, but it is vulnerable to cattle yard run-off pollution in a low-way.

HLS status: potential HQ2 but at present only occasional newt egg-laying

HLS recommendations

- IF one can be sure that cattle yard run off will not go in the pond, or it could be diverted to avoid pond, this would be worth restoring
- Coppice/remove c6 x willow stools
- De-silt and spread silt on nearby improved grass fields.



Pond 8 – Eastern boundary of Little Common – Little Common Pond 8 TM38368718 – 280m2

15th June 2020: This pond is still devoid of aquatic plants but a similar community of emergent plants were recorded on the western pond fringe bordering the common where the scrub is kept back by regular strimming and a silt burden is trapped by the Reedmace. No amphibians, dragonflies or damselflies were recorded. Blanketweed was recorded in the water suggesting it is still receiving nutrients from upstream.



2020 Records

<i>Sympetrum sanguineum</i>	Ruddy darter dragonfly	20/07/2020	S Piotrowski & D Casey
<i>Agrostis stolonifera</i>	Creeping Bent	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Iris pseudacorus</i>	Yellow Iris	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins & D Casey
<i>Prunus spinosa</i>	Blackthorn	15/06/2020	J Hawkins & D Casey
<i>Rubus</i>	Bramble	15/06/2020	J Hawkins & D Casey
<i>Scrophularia auriculata</i>	Water Figwort	15/06/2020	J Hawkins & D Casey
<i>Typha latifolia</i>	Bulrush	15/06/2020	J Hawkins & D Casey

Recommendations

- As 2017, consider water testing by the Environment Agency if you suspect pollution and feel something can be done about preventing it. Otherwise leave the reedmace to absorb as much of the enriched water as it can to reduce pollutants carrying on downstream.
- Until any nutrient inflow burden can be reduced, I think this pond is a low priority to restore.
- Continue to keep the pond open and sunny on the Little Common side by regular strimming as you are doing now.

Pond 8 – 17th July 2017 Pond 8: The pond margins have changed little except to be predominantly reedmace. It was restored in 2011 but in the accessible 1m or so in from the pond edge, it is full of duckweed covering smelling anaerobic organic matter implying a heavy (possibly seasonal) inflow of organic matter that gets brought in by the ditch, and possibly some pollutants such as sewage from houses upstream. Dipping yielded very few invertebrates (no sample taken). It is a water source for wildlife in dry years.



Recommendations

- Consider water testing by the Environment Agency if you suspect pollution and feel something can be done about preventing it. Otherwise leave the reedmace to absorb as much of the enriched water as it can to reduce pollutants carrying on downstream.
- This is a low priority pond to restore again so soon by removing organic matter but if you do, I suggest you leave/place some reedmace near the inflow to act as a natural filter on nutrients coming down the ditch.

May 2008: GCN Eggs: difficult and inaccessible to survey. No eggs observed but plenty of aquatic wildlife on abundant vegetation so could be there but was not sure whether this is an on-stream pond or not. If it is then fish are likely to be present. Brown hawkers and large red damselfly nearby. Starlings, sparrows.

Plants: Starwort on muddy section. Rushes, Typha bulrush (abundant), yellow iris, water mint, watercress, brooklime, fool's watercress, figwort, false fox sedge.

This on-ditch/stream pond obviously receives a fair amount of silt-laden water and thus silts up quite easily despite being open, sunny and quite unshaded.



HLS status: potential HQ2

HLS recommendations – accept that this pond will need more regular de-silting than others as I suspect the ditch carries in quite a lot of silt.

- De-silt and spread spoil on nearby arable field. Retain 2ft width of silt at western edge to create gentle gradient for emergent vegetation.

Pond 10 – Northern edge of Blacksmiths Common – TM38047 87709 – 250m2
High Value Pond: Norfolk Hawker dragonfly, Great Crested Newt, Berosus affinis (a water beetle)

15th June 2020: This pond was looking lovely with a range of aquatic and emergent vegetation, clear water and kept well open to the north and south. A shallow, currently dry, shelf supports a good bed of Common Reed and Reedmace which provide a good stand of tall emergent plants for supporting species such as reed bunting nearby. They are prevented from taking over the whole pond by the steep drop-off into deeper water. A Norfolk Hawker dragonfly (Red Data Book 1 Endangered) was recorded here which is excellent, along with Azure damselflies.

A long list of plant species was recorded here along with Great Crested Newt eggs and Smooth Newt larvae.



The Norfolk Hawker (Photo: Milo Bostock, Creative Commons Licence, Flickr)



2020 Records

<i>Lissotriton vulgaris</i>	Smooth Newt	15/06/2020	J Hawkins & D Casey
<i>Triturus cristatus</i>	Great Crested Newt	15/06/2020	J Hawkins & D Casey
<i>Planorbis carinatus</i>		15/06/2020	J Hawkins
<i>Corixa sp</i>		15/06/2020	J Hawkins
<i>Gyraulis crista/albus</i>		15/06/2020	J Hawkins
<i>Haliphus ruficollis gp</i>		15/06/2020	J Hawkins
<i>Hyphydrus ovatus</i>		15/06/2020	J Hawkins
<i>Laccophilus minutus</i>		15/06/2020	J Hawkins

<i>Anaciaeschna isoceles</i>	Norfolk Hawker	15/06/2020	J Hawkins & D Casey
<i>Anaciaeschna isoceles</i>	Norfolk Hawker	20/07/2020	S Piotrowski & D Casey
<i>Coenagrion puella</i>	Azure Damselfly	20/07/2020	S Piotrowski & D Casey
<i>Coenagrion puella</i>	Azure Damselfly	15/06/2020	J Hawkins & D Casey
<i>Enallagma cyathigerum</i>	Common blue damselfly	20/07/2020	S Piotrowski & D Casey
<i>Ischnura elegans</i>	Blue-tailed damselfly	20/07/2020	S Piotrowski & D Casey
<i>Sympetrum sanguineum</i>	Ruddy darter dragonfly	20/07/2020	S Piotrowski & D Casey
<i>Agrostis stolonifera</i>	Creeping Bent	15/06/2020	J Hawkins & D Casey
<i>Berula erecta</i>	Lesser Water-parsnip	15/06/2020	J Hawkins & D Casey
<i>Carex flacca</i>	Glaucous Sedge	15/06/2020	J Hawkins & D Casey
<i>Carex otrubae</i>	False Fox-sedge	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Glyceria fluitans</i>	Floating Sweet-grass	15/06/2020	J Hawkins & D Casey
<i>Juncus articulatus</i>	Jointed Rush	15/06/2020	J Hawkins & D Casey
<i>Juncus effusus</i>	Soft-rush	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Lemna minor</i>	Common Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lemna trisulca</i>	Ivy-leaved Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins & D Casey
<i>Ophrys apifera</i>	Bee Orchid	15/06/2020	J Hawkins & D Casey
<i>Phragmites australis</i>	Common Reed	15/06/2020	J Hawkins & D Casey
<i>Potamogeton crispus</i>	Curled Pondweed	15/06/2020	J Hawkins & D Casey
<i>Potamogeton natans</i>	Broad-leaved Pondweed	15/06/2020	J Hawkins & D Casey
<i>Pulicaria dysenterica</i>	Common Fleabane	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis</i>	Common Water-crowfoot	15/06/2020	J Hawkins & D Casey
<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	15/06/2020	J Hawkins & D Casey
<i>Rorippa nasturtium-aquaticum</i> agg.	Watercress	15/06/2020	J Hawkins & D Casey
<i>Rumex conglomeratus</i>	Clustered Dock	15/06/2020	J Hawkins & D Casey
<i>Typha latifolia</i>	Bulrush	15/06/2020	J Hawkins & D Casey
<i>Veronica beccabunga</i>	Brooklime	15/06/2020	J Hawkins & D Casey
<i>Veronica catenata</i>	Pink Water-speedwell	15/06/2020	J Hawkins & D Casey
<i>Zannichellia palustris</i>	Horned Pondweed	15/06/2020	J Hawkins & D Casey

Management recommendations

- Continue to trim and keep willow, rose and bramble scrub from spreading into the currently sunny open margins to the north and south.
- In a few years' time, start occasional shallow patch-scraping of spreading/invasive Common Reed and Reedmace that occurs on the arable field side and Common side, and a small section of the Common bank – without steepening or deepening any part of the pond.
- Management advice for Norfolk Hawker is to never clean all pond banks of vegetation in any one year which re-inforces the above patch-scraping advice to occasionally remove vegetation from small areas rather than do a wholesale restoration of a pond. It also likes trees and shrubs close to breeding sites to hunt and roost in. See appendix 1 for factsheet on habitat management for Norfolk Hawker.

Pond 10 17th July 2017: The pond was cleaned out in autumn 2016, with spoil spread on the meadow to the south and left to naturally regenerate. **The pond has been transformed** and is now dense with stonewort and some water crowfoot and the muddy shallow areas, left drier as summer water levels have gone down, are being colonised by celery leaved crowfoot, gipsywort, water plantain, reedmace, hard rush and jointed rush. Smooth newt were numerous amongst the stonewort and I am sure Great Crested Newt will colonise soon if not already.

An emperor dragonfly was patrolling while another was ovipositing. Four-spotted chasers and common blue damselflies evident too. There were nine butterfly species observed in a very short time on the spoil and hedge adjacent including brown argus, small copper.



Recommendations

- When levelling off the spoil this autumn, consider spreading species-rich hay debris over the disturbed area to speed up the colonisation by local plants.
- Regularly re-coppice or even occasionally flail the pond edges to minimise/slow down the rate of regeneration of sallow and other shading shrubs - and possibly create a winding path that takes in the pond margin – and to enable visitors to see into the pond along some or all of its southern common margin.
- Allow patches of bramble and grass to grow up where it is not on species-rich grass as this provides really good roosting and hunting sites for dragonflies and good cover for snakes and amphibians. However, ensure that the pond does not get any shadier as this will simply shorten the time when you will need to restore it all over again!

Freshwater inverts and molluscs

Keeled ram's-horn snail
Freshwater shrimp sp
A whirligig beetle
A diving beetle
A diving beetle
A diving beetle
4-spot chaser dragonfly
Emperor dragonfly
Common blue damselfly

Plants

Common stonewort
Gipsywort
Jointed rush
Hairy willowherb
Brooklime
Creeping bent
Water plantain
Hard rush
Celery leaved crowfoot
Water mint

Pond 10 17th July 2017

Planorbis carinatus

Gyrinus substriatus
Berosus affinis
Hydrobius fuscipes
Agabus bipustulatus
Libellula quadrimaculata
Anax imperator
Enallagma cyathigerum

Chara vulgaris
Lycopus europaeus
Juncus articulatus
Epilobium hirsutum
Veronica beccabunga
Agrostis stolonifera
Alisma plantago-aquatica
Juncus inflexus
Ranunculus sceleratus
Mentha aquatica

Pond 10 30th July 2015: A large amount of scrub has been cut along the common side of this linear pond on the northern edge of the common and opened up part of the pond this last 2014/15 winter. The immediate common margin is now growing spear thistle, rank grass and nettles on the burn site. The response has been minimal except on the margins where hard rush, bittersweet, gipsywort and water figwort have germinated. The water is brown and full of leaf litter and organic matter – no aquatic plants. It is still not newt-friendly although they may have colonised the local area in the hope of some aquatic plants to lay eggs on!

The northern fairly steep field edge (neighbouring farmer's arable field, see 2008 picture above) has grown up with sallow along the



margin now so the sun is not getting to a sunny-facing margin. The eastern edge of the pond is still is scrub, bramble and a large ash tree with fairly clean sides to its trunk.



Recommendations

- This is a potentially lovely pond edging onto the common and further restoration work would be worthwhile.
- Continue to coppice along the common side but leave the ash tree as a feature as it allows plenty of light under its high branches. Consider treating stumps to minimise regrowth and effort in re-coppicing. Pile some cut logs to create a snake/amphibian winter refuge.
- Coppice accessible willow on northern edge or simply pull out the whole tree when you remove the organic matter but take care not to undermine the bank and make it steeper.
- Remove organic matter in the winter months October/November to February to minimise potential harm to any newts that may have moved into the area since it has been opened up. Retain gentle slopes wherever they exist and avoid over steepening the northern bank edge as this side is the one that is likely to receive the most sun. Do not make the pond deeper than its original clay profile.
- Remove spoil off site and consider scraping off a layer of top soil from the area of former burn site and thistles. Consider spreading species-rich hay debris over the disturbed area adjacent to the pond when you have finished work to speed up the colonisation by local plants.
- Thereafter regularly re-coppice or even occasionally flail the pond edges to minimise/slow down the rate of regeneration of willow and other shading shrubs – and to enable visitors to see into the pond along some or all of its southern common margin. Re-coppice willow on the northern edge regularly. Allow patches of bramble and grass to grow up where it is not on species-rich grass as this provides really good roosting and hunting sites for dragonflies and good cover for snakes and amphibians.



8th July 2013: Completely shaded and no work done.

Recommendations as 2008

May 2008 GCN Eggs – none and no plants except bittersweet and hard rush. Open on steep-edged arable bankside. This large pond has good potential but its gentle side to the common (ie south) has completely scrubbed over and most of the margins are shaded, the water is brown and murky with leaf litter and silt.

HLS recommendations

- Ideally use a circular saw to coppice c30m or so length of bramble, willow and thorn scrub on common side to open up.
- Ideally de-silt partly from neighbour's arable field and spread spoil on it. Otherwise de-silt all from common side but remove spoil. Remove some scrub stumps to reduce rate of re-growth.
- Buffer with grass margin.
- Regularly re-coppice on the common side to keep open.

Pond 11 – Midway down eastern edge of Mill Common TM37568753 - 300m2

15th June 2020: Like previous visits, the only part of the pond to support pond plants are the Mill Common margin which is supporting much the same emergent plants as before where pond water levels have gone down by 60cm or so. The northern and southern margins are still shaded by dogwood and grey willow. The water in the centre of the pond is still relatively clear but a bit brownish and a wide fringe of Water Crowfoot was growing along the shallower water margin. deep pond. Broad-bodied chaser dragonflies and Azure damselflies were recorded along with several hoverflies at the margins. I suspect the origins of this pond were a steep, deep clay pit dug for clay and as such the vegetation is characteristic of a deep and mostly steep-edged pond.



2020 Records

<i>Notonecta</i> sp	Corixid bug	15/06/2020	J Hawkins
<i>Noterus clavicornis</i>	A water beetle	15/06/2020	J Hawkins
<i>Helophorus brevipalpis</i>	A water beetle	15/06/2020	J Hawkins
<i>Gammarus</i> sp	Freshwater shrimp	15/06/2020	J Hawkins
<i>Coenagrion puella</i>	Azure Damselfly	15/06/2020	J Hawkins & D Casey
<i>Enallagma cyathigerum</i>	Common blue damselfly	20/07/2020	S Piotrowski & D Casey
<i>Ischnura elegans</i>	Blue-tailed damselfly	20/07/2020	S Piotrowski & D Casey
<i>Libellula depressa</i>	Broad-bodied Chaser	15/06/2020	J Hawkins & D Casey
<i>Sympetrum sanguineum</i>	Ruddy darter dragonfly	20/07/2020	S Piotrowski & D Casey
<i>Agrostis stolonifera</i>	Creeping Bent	15/06/2020	J Hawkins & D Casey
<i>Callitriche aggregate</i>	Starwort sp	15/06/2020	J Hawkins & D Casey
<i>Carex muricata</i>	Prickly Sedge	15/06/2020	J Hawkins & D Casey
<i>Cornus sanguinea</i>	Dogwood	15/06/2020	J Hawkins & D Casey

<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	15/06/2020	J Hawkins & D Casey
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	15/06/2020	J Hawkins & D Casey
<i>Epilobium hirsutum</i>	Great Willowherb	15/06/2020	J Hawkins & D Casey
<i>Galium palustre</i>	Marsh-bedstraw	15/06/2020	J Hawkins & D Casey
<i>Iris pseudacorus</i>	Yellow Iris	15/06/2020	J Hawkins & D Casey
<i>Juncus effusus</i>	Soft-rush	15/06/2020	J Hawkins & D Casey
<i>Juncus inflexus</i>	Hard Rush	15/06/2020	J Hawkins & D Casey
<i>Lemna minuta</i>	Least Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lemna trisulca</i>	Ivy-leaved Duckweed	15/06/2020	J Hawkins & D Casey
<i>Lycopus europaeus</i>	Gypsywort	15/06/2020	J Hawkins & D Casey
<i>Mentha aquatica</i>	Water Mint	15/06/2020	J Hawkins & D Casey
<i>Pulicaria dysenterica</i>	Common Fleabane	15/06/2020	J Hawkins & D Casey
<i>Ranunculus aquatilis agg.</i>	Water crowfoot sp	15/06/2020	J Hawkins & D Casey
<i>Salix cinerea</i>	Common Sallow	15/06/2020	J Hawkins & D Casey
<i>Veronica catenata</i>	Pink Water-speedwell	15/06/2020	J Hawkins & D Casey

Recommendations

- Continue to trim along the Common margins to keep the margins open and free of regenerating scrub as now.
- Monitor pond for grey willow and other shrub invasion and invasive alien pond species such as New Zealand pigmyweed and Azolla.
- Consider an occasional patch-scape in a few years' time – mainly to the south where the margin was the most gently sloped. Avoid over steepening or deepening the pond.

Pond 11 17th July 2017: The pond was indeed coppiced and cleaned out in autumn 2013/2014 and the pond proved to be very deep indeed (14ft+). Strangely the pond is full of brown quite murky water and still, three years on, appears to have no aquatic plants at all but does have emergent plants along the season littoral zone: fleabane, gipsywort, willowherb, hard rush, flag iris. Whilst deep, steep-sided and thus somewhat colder than other ponds, I am surprised that no aquatic plants have colonised. Dipping yielded sludge and organic matter (freshwater shrimp, hoglice and common blue damselflies - all tolerant of pollution), so I think that the inflowing ditch is bringing organic matter or a fair amount was left when restored, and possibly seasonal pollutants, that may be affecting water quality and consequently the ecology.



Recommendations

- I note that back in 2008 I mentioned a much heap at the arable field edge and wonder whether this is still sited there and if so whether this is a source of pollution? Apart from sorting this out, I am at a loss to know why the pond appears to lifeless and suggest that water quality is tested by the Environment Agency.
- Keep the margins open as now. Monitor plant growth, water levels, possible sources of pollution.

13th July 2013: The pond appears to have been opened up on the CWS Mill Common side but organic matter has not been removed as there is no aquatic vegetation at all.

The only plants growing are willowherb, bittersweet, soft rush and flag iris along the margins. Hoglice, freshwater shrimp, water boatmen, ramshorn snail and red worms were recorded which will provide some food for newts and

other creatures which will continue to hang on in the pond in low numbers, breeding on fallen leaf litter and occasional submerged leaves of willowherb and bittersweet.

Recommendations

- Until the organic matter can be removed and spread off site, pond wildlife will be limited here as there is a thick layer of anaerobic matter on the pond floor.
- However, continue to keep the CWS common side open and free of trees and hopefully in time, the pond can be cleaned out. Regularly re-coppice accessible, owned trees/shrubs to minimise leaf fall.

May 2008: GCN Eggs – 1 egg found on algae, and 2 on folded broken willowherb leaf on the one open eastern arable field edge – indicating a tiny/remnant Great Crested Newt population attempting to breed but finding no suitable host plants. A wide ditch continues both north and south and thus links to a potentially polluting muck heap in the corner of the arable field. 75% of the pond is edged with thorn and dogwood scrub, overgrown ash coppice stools, fallen willow.

HLS status: potentially HQ2. HLS recommendations

- Coppice c30m or so length of bramble, sallow and thorn scrub on common side to open up.
- Ideally de-silt partly from neighbour's arable field and spread spoil on it. Otherwise de-silt all from common side but remove spoil. Remove some scrub stumps to reduce rate of re-growth. Spread some spoil on cut scrub if it is going to be allowed to re-grow.
- Regularly re-coppice on all sides to keep open.

