

Invertebrate survey of pools on  
Cambridge Golf Course  
2011

## Methods:

The site was visited on 30<sup>th</sup> July 2011. Weather conditions were suitable for invertebrate survey with maximum temperatures around 20 Celsius and light winds.

Seven ponds and water bodies were sampled using a standard pond net, emergent vegetation was sampled using a sweep net. Ponds were sampled for a maximum of one hour. The ponds and water bodies selected for survey were those with the best assemblage of rare aquatic beetles as found in the Norfolk Wildlife Services report of 2006 (Smith, 2006).

## Results:

Two water beetles with a current status of Nationally Scarce<sup>1</sup> were found, one of these *Berosus affinis* was found in good numbers while *Hygrotus nigrolineatus* was found in only one location.

Two Nationally Scarce weevils were found, one associated with brooklime *Veronica beccabunga* and one with blue water-speedwell *Veronica anagallis-aquatica*, both were at pond 16.

A soldierfly in the family *Odontomyia* was seen briefly but not identified to species, this will have conservation significance as all species in this family are of Red Data Book<sup>2</sup> status.

### Pond at TL39856740 (Site 1 in Smith, 2006)

A pond with very steep sides, vegetation includes rigid hornwort *Ceratophyllum demersum*, greater reedmace *Typha latifolia*, water mint *Mentha aquatica* and willow *Salix* sp. A dead fish thought to be a moderate sized roach *Rutilus rutilus* was floating in the centre of the pond.

In contrast to the 2006 survey only one species of water beetle, the local<sup>3</sup> *Haliphus immaculatus* was found, a nymph of a pond skater *Gerris* sp. was also present.

The 2006 survey found four Nationally Scarce species and the conservation importance was rated as low to moderate. Of the water bodies containing water at time of survey in 2011 this was thought to have the least potential for a good assemblage of water beetles.

### Pond at TL40176708 (Site 3 in Smith, 2006)

A long and narrow pond, vegetation includes amphibious bistort *Polygonum amphibium*, false fox sedge *Carex otrubae* and willows.

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<sup>1</sup>Nationally Scarce species are found in 16 to 100 ten km squares in the UK. This status replaces Nationally Notable A (those found in less than 30 ten km squares in the UK) and Nationally Notable B (species found in 31 to 100 ten km squares).

<sup>2</sup>Red Data Book invertebrates were formerly those found in 15 or fewer ten km squares in the UK. This status has now been replaced by various categories related to threat and decline.

<sup>3</sup>Locally distributed (local) species are found in 101 to 300 ten km squares.

Carp *Cyprinus* sp. are present and Canada geese are said to breed.

Common aquatic bugs included *Gerris lacustris*, *Micronecta scholtzi*, *Callicorixa praeusta* and *Notonecta viridis*. Only two water beetles were found, the local (Nationally Scarce-B until last review) *Anacaena bipustulata* and the common *Helophorus minutus*. The willow leaf beetle *Galerucella lineola* was also present.

Water quality appeared relatively poor, possibly as a result of the presence of carp and also nutrient enrichment from Canada geese, the drought conditions possibly exacerbating this. Eight Nationally Scarce water beetles were found in the 2006 survey and the conservation importance was said to be moderately high.

#### **Pond at TL40686739 (Site 8 in Smith, 2006)**

This pond was found to be dry during the current survey. Plants included a species of water stonewort *Chara* sp. that was desiccated, small amounts of greater reedmace was present along with creeping buttercup *Ranunculus repens*, common ragwort *Senecio jacobaea*, bristly oxtongue *Picris echinoides* and common vetch *Vicia sativa*.

No water beetles or other aquatic invertebrates were found despite digging into areas of damp ground. Insect life was restricted to common terrestrial species including common wasp *Vespa vulgaris*, black ant *Lasius niger*, the hoverfly *Scaeva pyrastris* and common green grasshopper *Omocestus viridis*.

Nine Nationally Scarce water beetles were found during the 2006 survey and it was rated of very high conservation value. It is likely that in a year with normal amounts of rainfall the water beetle fauna may return.

#### **Pond at TL40496762 (Site 13 in Smith, 2006)**

This is an open, deep pond with greater reedmace at the edges approaching 20% cover, a water stonewort *Chara* sp. was frequent and often dense throughout, common water-plantain *Alisma plantago-aquatica* was also present.

Eight species of water beetle were found during the current survey. These included the Nationally Scarce *Berosus affinis* and *Hygrotus (Coelambus) nigrolineatus*. The local *Hydroporus nigrita* and *Haliphus (Haliplinus) heydeni* (formerly Nationally Scarce-B) were found along with the common *Hygrotus inaequalis*, *Haliphus fluviatilis*, *Helophorus minutus* and *Haliphus (Neohaliphus) lineatocollis*. Common water bugs included *Plea leachii* and *Sigara lateralis*.

Eight Nationally Scarce water beetles were found in the 2006 survey amongst a total of thirty species. The conservation value was assessed as high and the current findings support this.

Three-spined stickleback *Gasterosteus aculeatus* was present.

#### **Pond at TL40516769 (Site 14 in Smith, 2006)**

This is a small round pond with steep banks, vegetation includes a light cover of greater reedmace across approximately 80% of the pond, *Chara* sp. was found throughout with occasional common water-plantain. Water levels were quite shallow being only approximately 40-50 % of the 1 metre found in the 2006 survey.

Six species of water beetle were found. The local *Haliphus obliquus*, *Haliphus immaculatus* and *Noterus clavicornis* along with the common *Haliphus fluviatilis*, *Agabus nebulosus* and *Ilybius fuliginosus*. Water bugs included the local *Cymatia bonsdorffii* along with the common *Plea minutissima*, *Callicorixa praeusta*, *Corixa punctata* and *Notonecta glauca*. Other invertebrates included the shore bug *Saldula saltatoria* and the reedmace associated beetle *Telmatophilus typhae*.

Smooth newt *Lissotriton vulgaris* was present in this pond.

Four Nationally Scarce water beetles were found during the 2006 survey and the conservation value was assessed as medium to high which is a fair assessment. Despite the lack of scarce species currently found the habitat quality was good and the pond may support a better water beetle fauna than could be found in the current survey.

#### **Pond at TL40627646 (Site 16 in Smith, 2006)**

This is a long and narrow, ditch-like pond that was dry at the time of survey. Vegetation included greater reedmace, *Chara* sp. (desiccated), hard rush *Juncus inflexus*, false fox sedge, brooklime *Veronica beccabunga* and blue water-speedwell *Veronica anagallis-aquatica*.

No water beetles were found despite digging into damp ground. However, water plants supported two Nationally Scarce species. The Nationally Scarce-A weevil *Gymnetron beccabungae* was present on brooklime and the related Nationally Scarce-B *Gymnetron villosulum* on blue water-speedwell. Other species included the common ground beetles *Amara familiaris* and *Demetrias atricapillus*.

The 2006 survey found five Nationally Scarce water beetles and the conservation value was ranked as very high. The presence of two scarce species associated water plants supports this despite the absence of aquatic species during the survey. It is expected that the water beetle fauna would quickly recolonise once the water levels were replenished.

#### **Pond at TL40796768 (Site 17 in Smith, 2006)**

This is a long and narrow, ditch-like pond similar to the above. Greater reedmace was frequent along with great willowherb *Epilobium hirsutum*, hard rush and common water-plantain.

This site supported the most species rich water beetle fauna with 15 species found. The Nationally Scarce *Berosus affinis* was present along with local *Haliphus heydeni*, *Haliphus obliquus*, *Haliphus flavicollis*, *Haliphus immaculatus* and *Cymbiodyta*

*marginellus*. Common water beetles were *Helophorus minutus*, *Helophorus grandis*, *Haliphus fluviatilis*, *Haliphus ruficollis*, *Anacaena limbata*, *Anacaena globulus*, *Anacaena lutescens*, *Hydroporus palustris* and *Hydroporus planus*. Two common terrestrial species were found to be associated with greater reedmace, the ground bug *Chilocoris typhae* and the beetle *Telmatophilus typhae*.

In addition a wetland soldierfly in the family *Odontomyia* was seen briefly but not identified to species, all species in this family are of Red Data Book status in the UK.

The 2006 survey rated this site as of very high conservation value and this is supported by the findings of the current survey.

### **Discussion:**

Many of the Nationally Scarce species found in the Norfolk Wildlife Services report (as listed in Foster & Eyre, 1992) have since been downgraded in status so a comparison is not possible. Less extensive surveying techniques and differences in the timing of the visit, prevailing rainfall affecting water levels and probably also dissolved oxygen and nutrient status of the pools would further confound a comparison.

Aquatic invertebrate sampling in July is outside the optimum period as some species of water beetle may be in a larval stage rather than adults. Sustained drought in spring and early summer meant that water levels were depleted and two of the ponds were completely dry at the time of survey.

The water bodies sampled and those elsewhere on the site continue to form a valuable collection of aquatic invertebrate habitats.

It should be noted that despite some of the habitat being completely dry at the time of survey this can be a long term advantage for some aquatic invertebrates and other groups such as amphibians. Sporadic drying up of ponds means that fish cannot form permanent populations, fish are significant predators of both aquatic invertebrates and amphibians. Some (often scarce) species have adapted to take advantage of ephemeral water bodies that will dry out periodically or on an annual basis. As many water beetles are mobile species using flight to colonise or recolonise suitable habitat it is likely that the fauna of dry ponds may be quickly replenished.

### **References and resources:**

Friday, L.E. 1988: *A Key to the Adults of British Water Beetles*. FSC Publication 189. Richmond publishing, Richmond.

Foster, G.N. & Eyre, M.D. 1992: *Classification and Ranking of Water Beetle Communities*. UK Nature Conservation Series 1. JNCC. Peterborough.

Foster, G.N. 2010: *A review of the scarce and threatened Coleoptera of Great Britain Part (3)- Water beetles of Great Britain*. JNCC. Peterborough.

Savage, A.A. 1989: *Adults of the British Aquatic Hemiptera Homoptera*. Csientific publication no. 50. Freshwater Biological Association. Ambleside.

Smith, C. 2006: *Aquatic Macro Invertebrate Report*. Report prepared by Norfolk Wildlife Services on behalf of WPS Environmental. Unpublished.