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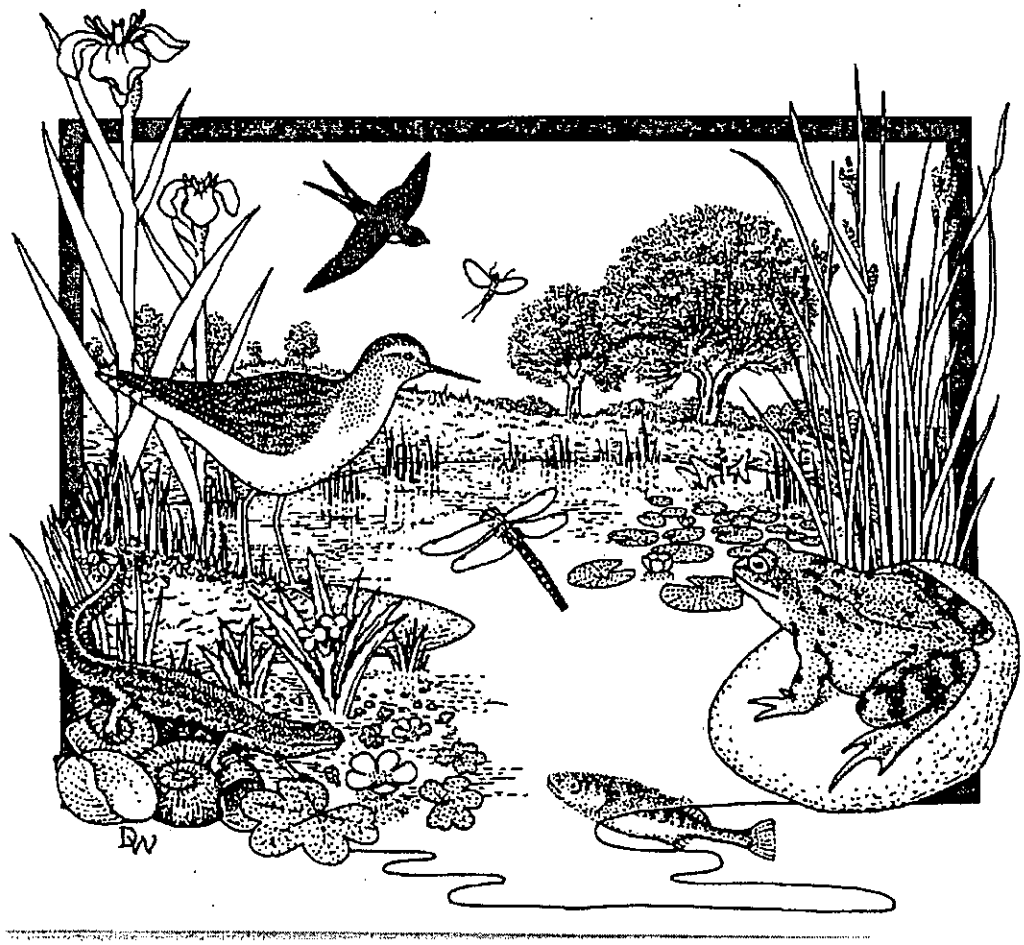
Ecological Survey of Joes Pond



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ECOLOGICAL SURVEY OF JOES POND

1. Aims and objectives

This report describes the results of a plant survey undertaken by Pond Action at Joes Pond (Grid reference NZ 328 486) near Houghton le-Spring (near Durham).

The work was commissioned by The Ponds Conservation Trust in order to give information about the ecological value of the site and to help provide the basis for decisions about its future management.

The current study forms part of The Ponds Conservation Trust's (PCT) 'Ponds for People' project. The first phase of this project is currently running in the NE of England as a collaborative venture between the PCT, the Environment Agency, local authorities, water companies and local community groups. The project's overall objective is to help deliver local Biodiversity Action Plan objectives with respect to ponds.

2. Methods

The site was surveyed for wetland plants, by Penny Williams, on 28th September 2000. Note that the survey was carried out relatively late in the year, and that additional species, particularly aquatic plants such as stoneworts, water-buttercups and pondweed species, may have been present at the site earlier in the season.

The method used for the assessment was based on a standard technique developed for the National Pond Survey.

Wetland plants[1] were surveyed by walking and wading the perimeter and open water areas less than 1 m deep noting the species present.

The pond's conservation value was assessed in terms of:

(i) the number of species of plants recorded,

(ii) the number of uncommon plant species found.

Plant data from the site were compared with information from other UK sites that have been surveyed using the same methodology (see Appendix 2).

[1]The term 'wetland plant species' refers to species defined as wetland plants on the National Pond Survey field recording sheet list. Terrestrial plant species are not recorded.

3. Plant survey results

Joes Pond supported a very rich plant assemblage with a total of 34 wetland plant species recorded during the current survey. This is considerably higher than the average number of wetland plant species recorded in high quality, unpolluted ponds protected from human impacts (average number of wetland species in unpolluted ponds = 23; see Appendix 2).

None of the species recorded from Joes Pond were rare or Nationally Scarce plants. However six of the species noted can be considered to be "local" at a national level, in that they have been recorded in less that about a quarter of all 10 x 10 km squares in Britain. These species are listed in Table 1. Most of the local plants are submerged aquatic species, which is a reflection of the fact that there is a paucity of unpolluted water in Britain capable of supporting rich submerged plant communities. The occurrence of the two local emergent plant species, Grey Club-rush (*Schoenoplectus tabernaemontani*) and Sea Club-rush (*Bolboschoenus maritimus*, reflects a broad maritime influence on the site, with the North Sea only about five miles east.

The most diverse area of the pond for wetland plants was the shaded wet woodland and marsh area which occurs in the pond's drawdown area on the western margin of the site. This area supported a mixed plant community including: Water-plantain (*Alisma plantago-aquatica*), Wild Angelica (*Angelica sylvestris*), False Fox-sedge (*Carex otrubae*), Yellow Iris (*Iris pseudacorus*), Soft Rush (*Juncus effusus*), Hard Rush (Juncus inflexus), Water Mint (*Mentha aquatica*), Tufted Forget-me-not (*Myosotis laxa*) and Bittersweet (*Solanum dulcamara*).

Other marginal areas of the pond supported locally extensive mono-dominant stands of tall emergents, particularly Bulrush (*Typha latifolia*), but also stands of Grey Club-rush (*Schoenoplectus tabernaemontani*) and Sea Club-rush (*Bolboschoenus maritimus*).

Submerged plants were abundant in shallow water around the margin of the pond. They included the alien Canadian Waterweed (*Elodea canadensis*) and a range of natives such as Mare's-tail (*Hippuris vulgaris*), Spiked Water-milfoil (*Myriophyllum spicatum*), Fennel Pondweed (*Potamogeton pectinatus*) and Lesser Pondweed (*Potamogeton pusillus*). The narrow leaved, Small Pondweed (*Potamogeton berchtoldii*) also occurred but was much more uncommon. The composition of the flora in the deeper and more open-water areas of the pond could not be ascertained without a boat.

Table 1. Uncommon plant species recorded

Plant species	English name	Status
Hippuris vulgaris	Mare's-tail	Local
Myriophyllum spicatum	Spiked Water-milfoil	Local
Potamogeton berchtoldii	Small Pondweed	Local
Potamogeton pusillus	Lesser Pondweed	Local
Bolboschoenus maritimus	Sea Club-rush	Local
Schoenoplectus tabernaemontani	Grey Club-rush	Local

4. Discussion

Joes Pond is clearly a high quality site, a factor which has been recognised by the pond's SSSI status and the known interest of the site's marsh communities.

The detailed future management of the site has not yet been discussed with Durham Wildlife Trust, but is likely to include partial tree clearance around the margins of the pond in order to let more light reach the pond edges.

On the evidence of this brief survey, such work is likely to be broadly beneficial, particularly if carried out around (i) the northern and eastern margins, which typically have rather steep banks and few marginal wetland plant species, or (ii) in *places* around the margins of small ponds and pools to the south of the southern bank.

Additional notes are included below.

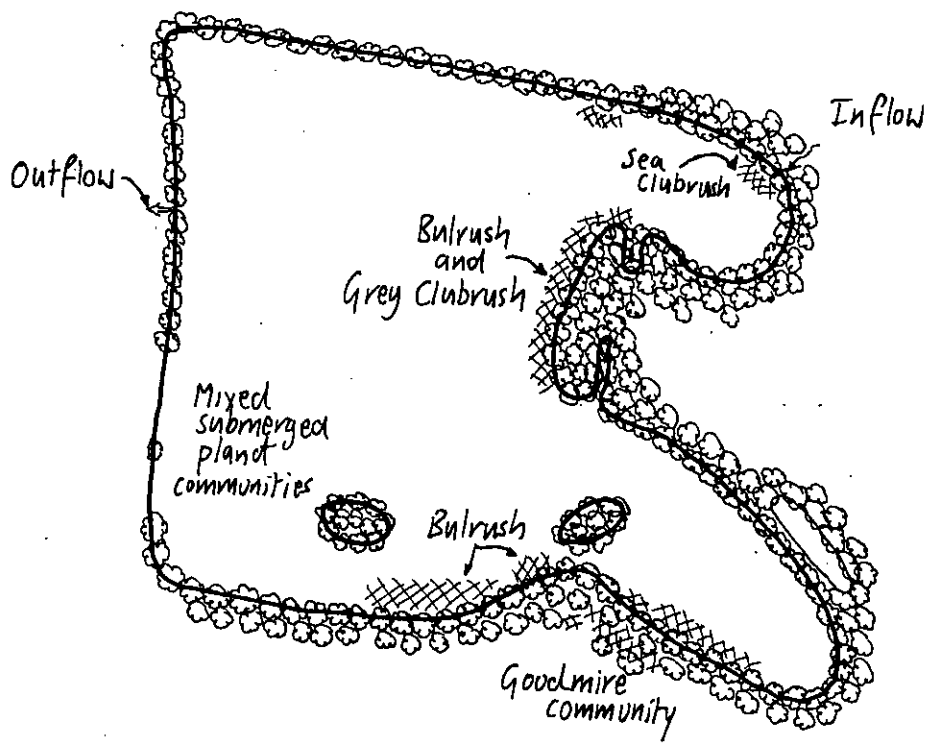
1. Considerable care should be undertaken if trees are to be removed from the western margin where diverse marsh communities exist. It is likely that the community here, including many low growing wetland herbs, is partially maintained by shade. If extensive clearance is undertaken, there is a risk that tall emergents, particularly Bulrush, will begin to dominate these areas to the exclusion other species. If tree removal is felt to be important in this area it is recommended it should either take the form of: (i) selective thinning, or (ii) experimental clearance of larger areas, followed by monitoring for at least five years to assess the medium-term impact of tree removal, before other clearance is undertaken.

2. Many of the willows on the northern and eastern margins of the pond have submerged roots bundles that are likely to provide an important aquatic habitat for invertebrates. If tree clearance is undertaken along these banks, it would be preferable if most of these willows were coppiced rather than removed.

3. The northern and eastern margins of the pond are relatively steep. Given the value of the low angled, marshy western margin, there is some potential for local habitat creation work to reduce the steepness of some bank areas around the pond so as to extend the marsh community areas.

Joes Pond site details

Location	Grid reference: NZ 328 486. Adjacent to Durham Wildlife Trust offices. South-west of Houghton le-Spring, near Durham.
Date of visit	28th September 2000.
Description	A complex site comprising one large pond (2ha) and a range of semi-connected adjacent ponds and pools. The site, which is a SSSI, is partly surrounded by marshy woodland with wetland plant communities that are uncommon in the area.
Shade	Approximately 75% of the margin and 5% of the pond are directly overhung by trees.
Depth and permanence	The pond is permanent but silt and sediment depths were too deep to measure without use of a boat.
Water clarity	The water was clear with a Secchi depth in excess of 1.5 m.
Water source	Inflows were present along the south-east of the pond. The quality of their catchment could not be easily assessed, but they appeared to drain from areas that are currently not under intensive land use.
Impacts	None apparent.
Invertebrate habitats	The quality of the pond suggests that it is likely to support important aquatic and wetland invertebrate communities, including uncommon species. Particularly valuable habitats for invertebrates are likely to include: (i) areas of wet/flooded woodland, particularly along the western bank, (ii) stands of tall emergents growing in shallow and moderately deep water, (iii) submerged macrophyte stands, (iv) submerged root bundles growing into the water from willows, particularly on the north and east banks.



Appendix 1. Plant species recorded

Plant species	English name	Status
Submerged plants:		
Elodea canadensis	Canadian Waterweed	Introduced
Hippuris vulgaris	Mare's-tail	Local
Myriophyllum spicatum	Spiked Water-milfoil	Local
Potamogeton berchtoldii	Small Pondweed	Local
Potamogeton pectinatus	Fennel Pondweed	Common
Potamogeton pusillus	Lesser Pondweed	Local
Floating-leaved plants:		
Lemna minor	Common Duckweed	Common
Lemna trisulca	Ivy-leaved Duckweed	Common
Persicaria amphibia	Amphibious Bistort	Common
Emergent plants:		
Agrostis stolonifera	Creeping Bent	Common
Alisma plantago-aquatica	Water- plantain	Common
Angelica sylvestris	Wild Angelica	Common
Apium nodiflorum	Fool's-water-cress	Common
Bolboschoenus maritimus	Sea Club-rush	Local
Carex otrubae	False Fox-sedge	Common
Carex pendula	Pendulous Sedge	Common
Deschampsia cespitosa	Tufted Hair-grass	Common
Eleocharis palustris	Common Spike-rush	Common
Epilobium hirsutum	Great Willowherb	Common
Equisetum palustre	Marsh Horsetail	Common
Hypericum tetrapterum	Square-stalked St Johns-wort	Common
Iris pseudacorus	Yellow Iris	Common
Juncus articulatus	Jointed Rush	Common
Juncus effusus	Soft Rush	Common
Juncus inflexus	Hard Rush	Common
Mentha aquatica	Water Mint	Common
Myosotis laxa	Tufted Forget-me-not	Common
Phalaris arundinacea	Reed Canary-grass	Common
Ranunculus sceleratus	Celery-leaved Buttercup	Common
Schoenoplectus tabernaemontani	Grey Club-rush	Local
Solanum dulcamara	Bittersweet	Common
Stellaria uliginosa	Bog Stitchwort	Common
Typha latifolia	Bulrush	Common
Veronica beccabunga	Brooklime	Common

Number of Submerged species	**6**
Number of Floating species	**3**
Number of Emergent species	**25**
Total number of species	**34**

Appendix 2. Comparative data for assessing pond conservation value

The following information gives a range of data about the conservation value of ponds in Britain. This information indicates the *typical* plant species richness of UK ponds based on standard surveys using National Pond Survey methods.

Note that National Pond Survey sites indicate the standard that ponds *should* reach in Britain when they are not exposed to damaging human impacts (e.g. water pollution, intensive land management, over-stocking with fish, artificial feeding of waterfowl). The two wider countryside surveys show the typical state of ponds in the "ordinary countryside" where ponds are often exposed to a variety of factors which reduce their conservation value.

Appendix Table 1. Number of plant species recorded from UK ponds

		Number of species:		
		Marginal plants	*Aquatic plants*	***Total plants***
National Pond Survey (high quality ponds mostly protected from pollution)	*Average*	18	5	**23**
	Range	(1-42)	(0-14)	(1-46)
Wider countryside ponds (DETR Lowland Pond Survey 1996)	*Average*	8.0	2	**10**
	Range	(0-30)	(0-10)	(0-35)
Wider countryside ponds (ROPA Survey*)	*Average*	11	3	**14**
	Range	(1-32)	(0-11)	(1-38)

*The ROPA survey was undertaken by Pond Action with funding from the Natural Environment Research Council.