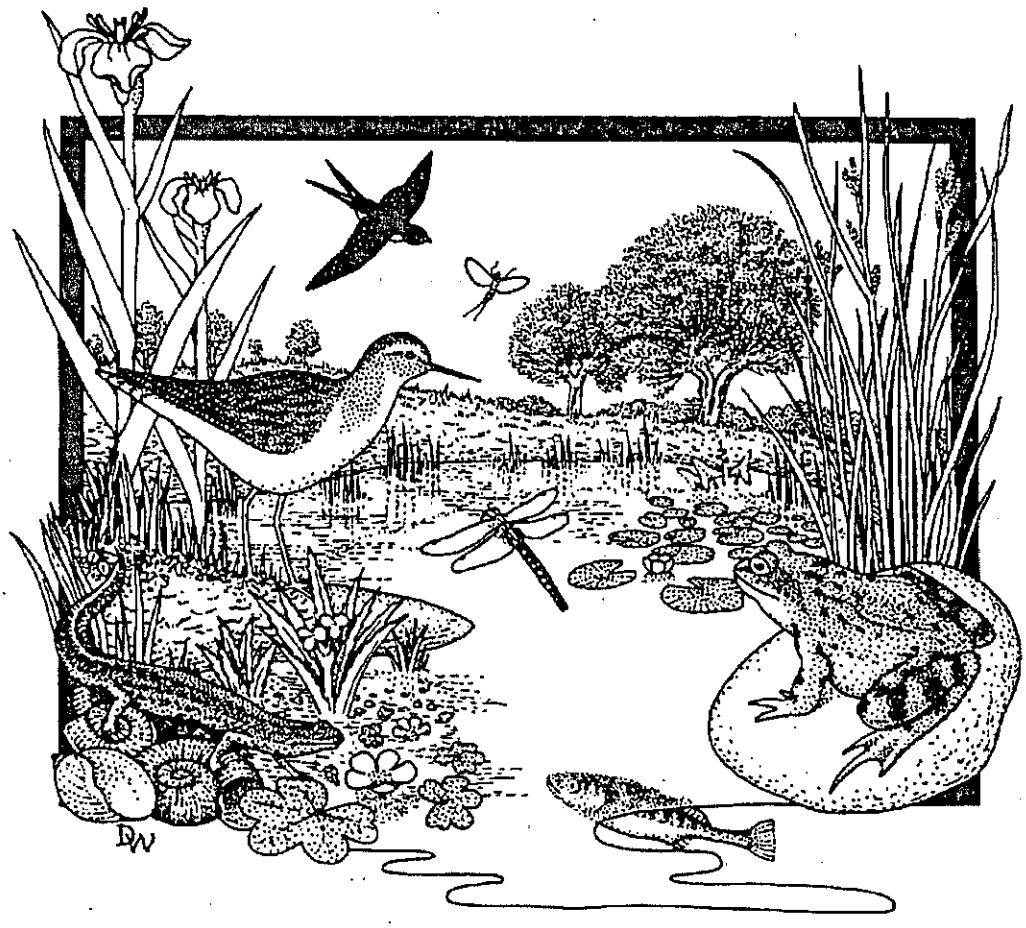
5286

Ecological Survey of Lillands ORSU



November 2000

Pond Action
c/o Oxford Brookes University
Gipsy Lane
Headington
Oxford OX3 0BP
Tel: 01865 483249
Fax: 01865 483282
www.brookes.ac.uk/pondaction

Report produced for:
Ponds for People

ECOLOGICAL SURVEY OF LILLANDS ORSU

1. Aims and objectives

This report describes the results of a plant survey undertaken by Pond Action at Lillands Off River Spawning Unit, near Brighouse (West Yorkshire).

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 29th September 2000. Note that the survey was carried out relatively late in the year, and that additional species, particularly aquatics such as stoneworts, water-buttercup species 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 and 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.

Data from the site were compared with other sites from the UK that have been surveyed using the same methodology (see information summarised in Appendix 1).

[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

Overall the pond supported relatively few plants with only eight wetland plant species recorded. This is considerably lower than the average number of wetland species recorded in high quality, unpolluted ponds protected from human impacts (average number of wetland species in unpolluted ponds = 23; see Appendix 1). All plant species identified are taxa that are common and widespread in Britain.

The pond supported three submerged aquatic plant species. Of these, the two water starwort species were widespread, growing in clumps that carpeted about 20% of the pond bottom. The third aquatic plant, the alien species Nuttall's Waterweed (*Elodea nuttallii*), occurred only sparsely.

The outer margin of the pond and island were partially fringed by tussocks of Soft Rush (*Juncus effusus*). The gradually sloping lower banks (which were submerged at the time of the survey), were dominated by low-growing grasses, particularly Creeping Bent (*Agrostis stolonifera*). Two other grasses (Floating Sweet-grass, *Glyceria fluitans* and Reed Sweet-grass, *Glyceria maxima*) and the floating plant Common Duckweed (*Lemna minor*) occurred rarely.

Table 1 Plant species recorded

Plant species	*English name*	*Status*
Submerged plants:		
Callitriche stagnalis	Common Water-starwort	Common
Callitriche hamulata/brutia agg[2]	Water-starwort species	None
Elodea nuttallii	Nuttall's Waterweed	Introduced
Floating-leaved plants:		
Lemna minor	Common Duckweed	Common
Emergent plants:		
Agrostis stolonifera	Creeping Bent	Common
Glyceria fluitans	Floating Sweet-grass	Common
Glyceria maxima	Reed Sweet-grass	Common
Juncus effusus	Soft Rush	Common
Number of Submerged species	**3**	
Number of Floating species	**1**	
Number of Emergent species	**4**	
Total number of species	**8**	

[2] Plants were fruiting, but fruit peduncles were <2mm which, given the current uncertainty over these two species, means that they cannot be separated with confidence (Lansdown, *pers. comm.*)

4. Discussion

The relatively low species richness of Lillands ORSU may, in part, be due to the fact that the site is new and likely to be still accumulating species. Currently the site has a species composition that is almost identical to nearby temporary pools that occur on the adjacent meadow. In the longer term the pond's floodplain location means that the site should, in theory, have the potential to be colonised by a range of species from adjacent wetland areas, including the river.

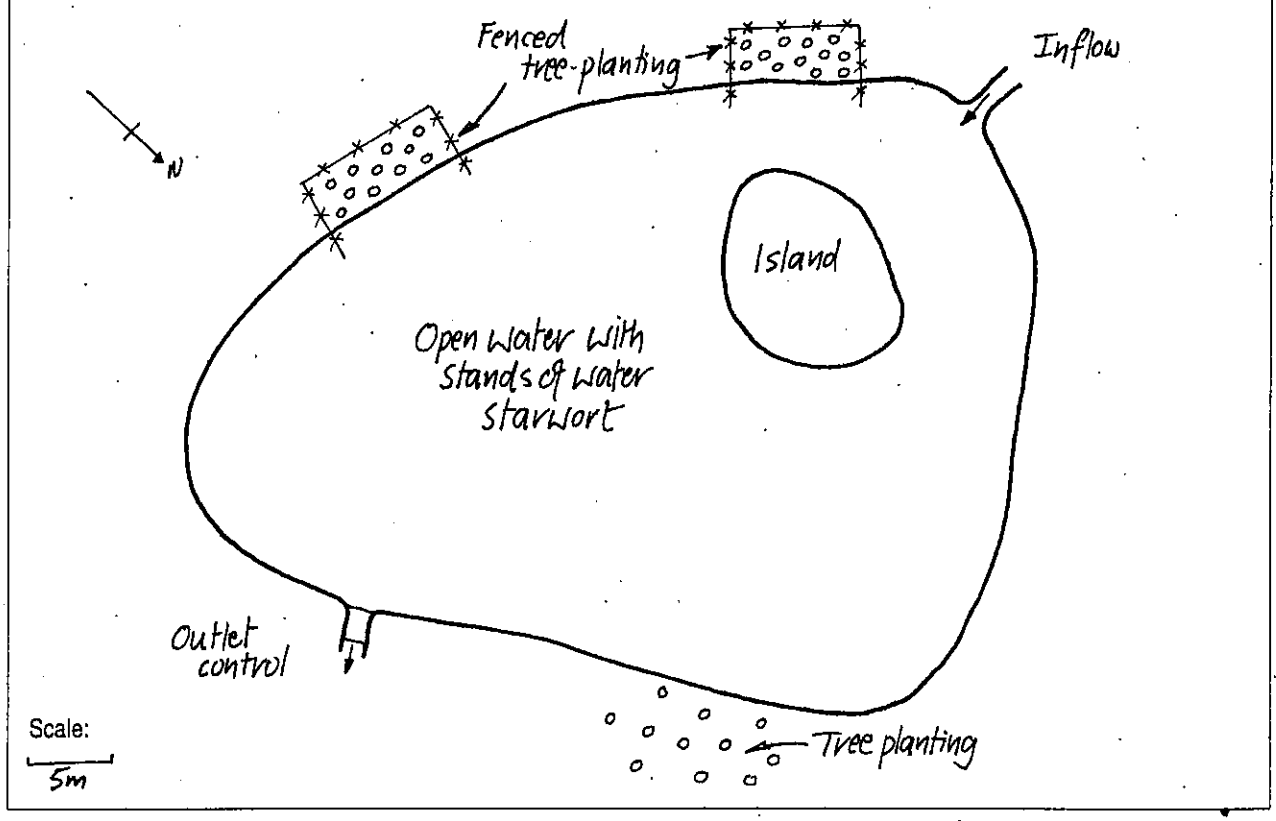
In practice, however, the long-term wildlife potential of the site is likely to be constrained by water quality from its river inflow which is likely to add a considerable nutrient loading to the pond and its sediments. In addition, the river itself appears degraded and botanically species-poor, so that the rate of plant colonisation from the surrounds may be slow.

Ideally the pond should be observed for a few more years to see whether it continues to colonise with wetland species. After this time, if plant species-richness and interest remain low, it might be beneficial to plant-up small areas of the pond with common water plants, such as Reed Sweet-grass, that are present in the nearby surrounds. This would at least enable the pond to develop a more interesting marginal structure for invertebrates. The best location for such planting is around the island, where sheep-grazing pressure is low.

Ideally, too, the inflow from the river should be minimised, so that nutrient accumulation in the pond is reduced as far as possible.

Lillands ORSU site details

Location	Grid reference: SE 138 228. Outskirts of Brighouse (West Yorkshire).
Date of visit	28th September 2000.
Description	Originally planned as an off-river spawning unit for fish in the R. Calder, but due to problems with construction it is now a wildlife area.
Surrounds	Located in sheep-grazed pasture adjacent to the River Calder.
Pond area	c. 0.2 ha.
Shade	The site was unshaded although groups of young whips had been planted in three areas around the margin.
Pond permanence	The pond is usually permanent but, at the time of the survey, it had an extensive flooded grassy drawdown zone suggesting rapid rises and falls in water level.
Water depth	The pond had an average water depth of 90 cm. An outflow to the R. Calder controls maximum water levels.
Sediment depth	The average silt depth was 5 cm.
Water clarity	The water was brown and rather turbid.
Water source	Probably mainly fed by an inflow from the R. Calder, with some surface run-off from the surrounds.
Impacts	The inflow is likely to be polluted by nutrients since the R. Calder has a sewage works upstream and the river's marginal plants show evidence of considerable nutrient enrichment (e.g. chlorosis).
Invertebrate habitats	The pond is relatively new and, as yet, has few good wildlife habitats for invertebrates. The best existing habitats are: (i) submerged water starwort stands (ii) flooded grasses (iii) the base of rush clumps which are submerged when pond water levels are high.



Appendix 1. 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.