

## Ecological Survey of Rainton Meadows Lower Pond



November 2000

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*Report produced for:*  
Ponds for People

# ECOLOGICAL SURVEY OF RAINTON MEADOWS LOWER POND

## 1. Aims and objectives

This report describes the results of a plant survey undertaken by Pond Action at Rainton Meadows Lower Pond (NZ324485) 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 28<sup>th</sup> 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 standard techniques developed for the National Pond Survey.

Wetland plants<sup>1</sup> 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).

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<sup>1</sup>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

Rainton Meadows Lower Pond is the lowest in a series of four new ponds created c.1997.

The survey suggests that the pond supports a good wetland plant assemblage. A total of 20 wetland plant species were recorded (see Appendix 1), although some had clearly been planted at the site. The number of species recorded is similar to 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 Rainton Meadows Lower Pond were rare or Nationally Scarce plants. However four of the species noted can be considered to be "local" at a national level, in that they have been recorded in less than about a quarter of all 10 x 10 km squares in Britain. These species are listed in Table 1. Three of the local species were submerged aquatic plants. The most abundant was the fine-leaved Lesser Pondweed (*Potamogeton pusillus*), a plant which often colonises new ponds and which, at the site, occupied approximately 70% of the open water area of the pond. Horned Pondweed (*Zannichellia palustris*) was moderately common along the eastern bank, growing in shallow water approximately 20 cm deep. Spiked Water-milfoil (*Myriophyllum spicatum*) and Curled Pondweed (*Potamogeton crispus*) occurred more rarely around other edges of the waterbody. The fourth local species was the low-growing wetland grass Small Sweet-grass (*Glyceria declinata*) which occurred rarely along the southern pond margin.

In addition to the local species, the pond was beginning to colonise well with emergent plants. This included an outer fringe of Creeping Bent (*Agrostis stolonifera*) and a range of rush species (*Juncus articulatus*, *J. bufonius*, *J. effusus*, *J. inflexus*). Other plants such as Common Spike-rush (*Eleocharis palustris*), Reed Canary-grass (*Phalaris arundinacea*), Celery-leaved Buttercup (*Ranunculus sceleratus*) and Water-plantain (*Alisma plantago-aquatica*) occurred more rarely.

The most abundant tall marginal species was Bulrush (*Typha latifolia*), which occurred in a 40 m stand along the northern bank, where it had almost certainly been planted. Small planted stands of Common Reed (*Phragmites australis*) also grew next to the jetty on the southern bank.

### 4. Conclusion

Rainton Meadows Lower Pond is a new site which appears to be colonising well. It already supports a valuable submerged aquatic plant community, and probably also a rich aquatic macroinvertebrate assemblage.

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**Table 1. Uncommon plant species recorded**

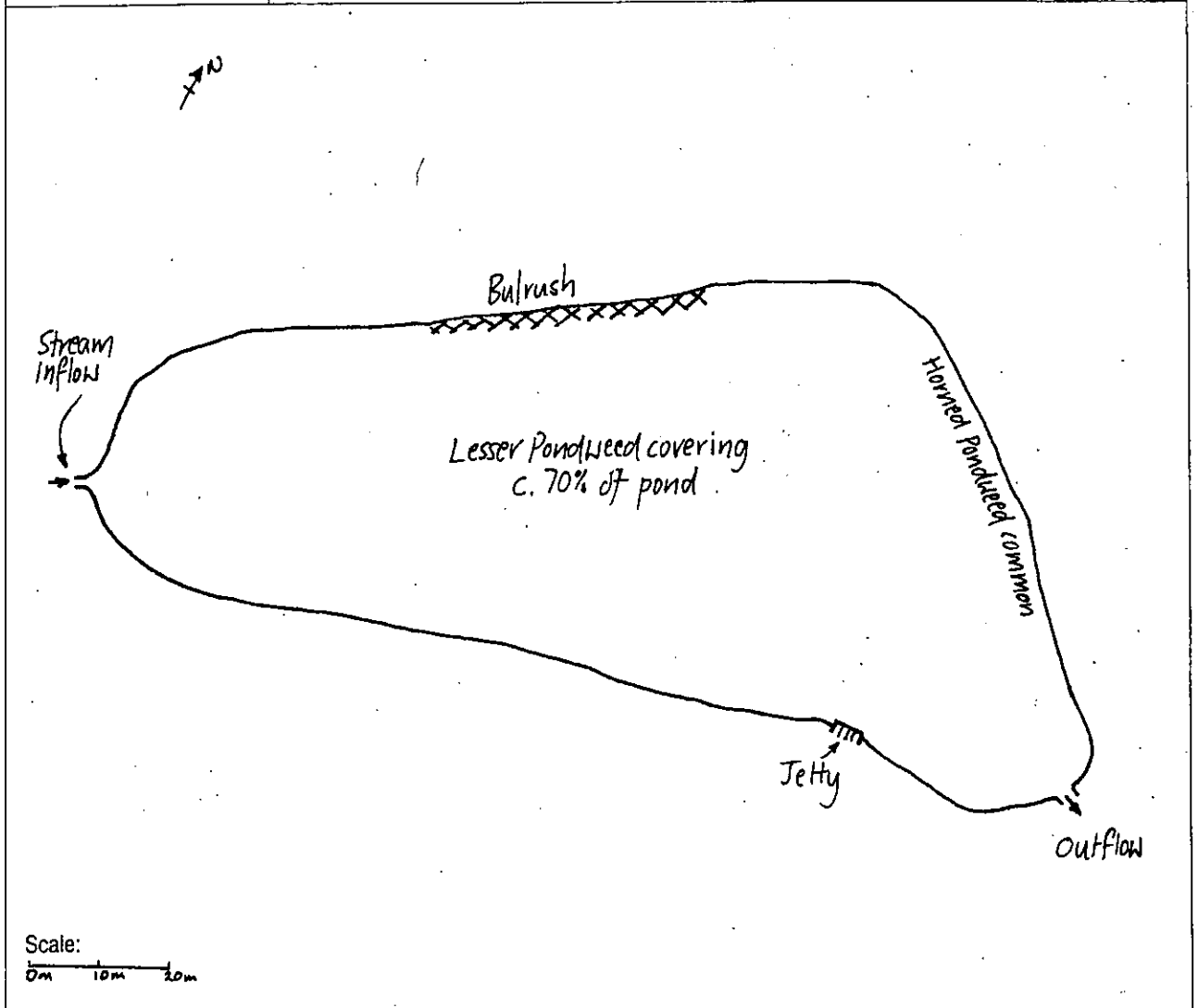
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<b>Plant species</b>	<b>English name</b>	<b>Status</b>
<i>Myriophyllum spicatum</i>	Spiked Water-milfoil	Local
<i>Potamogeton pusillus</i>	Lesser Pondweed	Local
<i>Zannichellia palustris</i>	Horned Pondweed	Local
<i>Glyceria declinata</i>	Small Sweet-grass	Local

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## Rainton Meadows Lower Pond site details

Location	Grid reference: NZ 324 485. Small valley adjacent to Durham Wildlife Trust offices. South-west of Houghton le-Spring (near Durham).
Date of visit	28 <sup>th</sup> September 2000.
Description	Lowest of four new on-stream ponds created c. 1997 in grassland area.
Pond area	ca. 0.7 ha
Shade	The pond and its margins are unshaded.
Depth and permanence	Permanent pond with average water depths of c. 1m and little silt.
Water clarity	The water was moderately clear.
Water source	The pond is mainly fed by an inflow, but also receives run-off from the surrounding grassland.
Impacts	None apparent.
Invertebrate habitats	The site is probably already rich in aquatic invertebrates. The best habitats are probably: (i) marginal grasses and rushes in the water (ii) stands of bulrush, and (iii) extensive submerged aquatic plant stands.



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## Appendix 1. Plant species recorded

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Plant species	English name	Status
Submerged plants:		
<i>Myriophyllum spicatum</i>	Spiked Water-milfoil	Local
<i>Potamogeton crispus</i>	Curled Pondweed	Common
<i>Potamogeton pusillus</i>	Lesser Pondweed	Local
<i>Zannichellia palustris</i>	Horned Pondweed	Local
Floating-leaved plants:		
<i>Lemna minor</i>	Common Duckweed	Common
Emergent plants:		
<i>Agrostis stolonifera</i>	Creeping Bent	Common
<i>Alisma plantago-aquatica</i>	Water-plantain	Common
<i>Carex otrubae</i>	False Fox-sedge	Common
<i>Deschampsia cespitosa</i>	Tufted Hair-grass	Common
<i>Eleocharis palustris</i>	Common Spike-rush	Common
<i>Epilobium hirsutum</i>	Great Willowherb	Common
<i>Glyceria declinata</i>	Small Sweet-grass	Local
<i>Juncus articulatus</i>	Jointed Rush	Common
<i>Juncus bufonius (sensu stricto)</i>	Toad Rush	Common
<i>Juncus effusus</i>	Soft Rush	Common
<i>Juncus inflexus</i>	Hard Rush	Common
<i>Phalaris arundinacea</i>	Reed Canary-grass	Common
<i>Phragmites australis</i>	Common Reed	Common
<i>Ranunculus sceleratus</i>	Celery-leaved Buttercup	Common
<i>Typha latifolia</i>	Bulrush	Common
<b>Number of Submerged species</b>	<b>4</b>	
<b>Number of Floating species</b>	<b>1</b>	
<b>Number of Emergent species</b>	<b>15</b>	
<b>Total number of species</b>	<b>20</b>	

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## 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, overstocking 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**

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

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