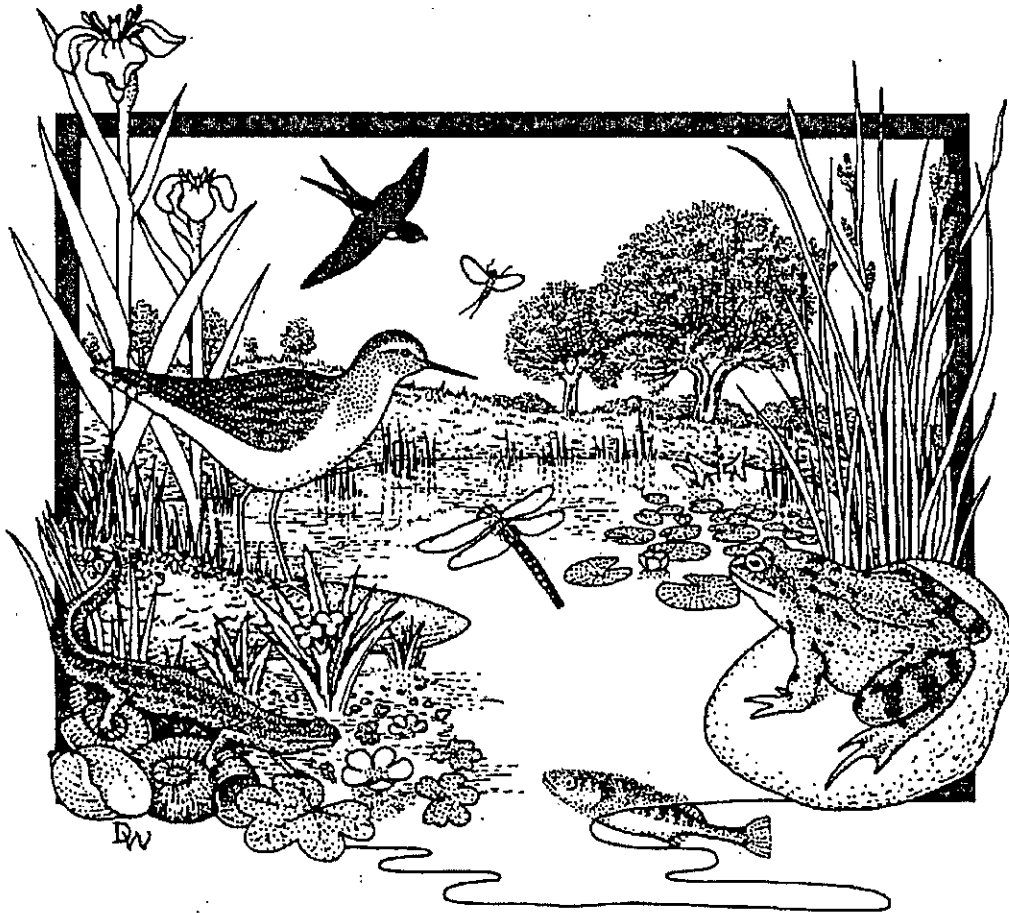


Ecological Survey of Rossmere Park



November 2000

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Report produced for:
Ponds for People

ECOLOGICAL SURVEY OF ROSSMERE PARKPOND

1. Aims and objectives

This brief report describes the results of a plant survey undertaken by Pond Action at Rossmere Park Pond (NZ503298) in Hartlepool.

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

Wetland plants¹ 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).

¹The 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

Rossmere Park pond has a stepped, concrete-reinforced bank that drops vertically into water usually more than 0.5 m deep. The occurrence of vertical margins has prevented colonisation by marginal wetland plant species. However, in 1999 large willow-framed planting baskets were introduced along two areas of the bank and these were planted up with a range of native species (see Appendix 1).

The pond has a large central island with natural banks. However, these also support no wetland plant species probably as a result of: (i) shade from trees that overhang all margins, (ii) grazing by waterfowl, and (iii) to a lesser extent water turbidity which inhibits growth of marginal emergents in shallow water. In order to protect the island margins from waterfowl grazing, in 1999, the entire perimeter of the island was surrounded by a woven willow fence positioned approximately one metre out from the bank. A number of "planting mattresses" were introduced behind the fence and planted up with a range of wetland species. However, none of these wetland plants survived for more than a few months.

The open water areas of the pond were highly turbid and no floating-leaved or submerged plant species were recorded. Discussion with the park manager suggests that submerged species were present in considerable quantities in previous years, but were probably lost as a result of herbicide application to control their abundance (Clive Wetherall *pers. comm.*).

4. Other species of note

The pond has a confirmed Water Vole population, with most individuals seen below the steep earth cliffs along the north-west margin of the island. Since wetland plants and grasses usually make up a large proportion of the water vole's diet, and these are absent from the pond, it is not clear what the voles are using as their main food source.

Clive Wetherall recorded an adult Smooth/Palmate Newt in one of the planting baskets in 2000, suggesting that a newt population may be present at the pond, or at least in the area.

5. Discussion

Water Vole is a Biodiversity Action Plan species and the protection and maintenance of the site's existing vole population should clearly be a priority. The main factor that is likely to increase the population's viability is provision of a greater food resource, particularly wetland emergent plants and terrestrial grasses.

As noted above, an attempt has been made to establish plants on the margins of the island without success. With the establishment of the perimeter fence, waterfowl rarely get a opportunity to graze this area, so that the most likely reason for lack of growth is shade from overhanging trees, exacerbated by shade from the immediately adjacent willow fence.

It is suggested that a second attempt is made to establish plants around the island, using particularly robust emergent plants that are attractive to Water Vole. To do this the following protocol is recommended:

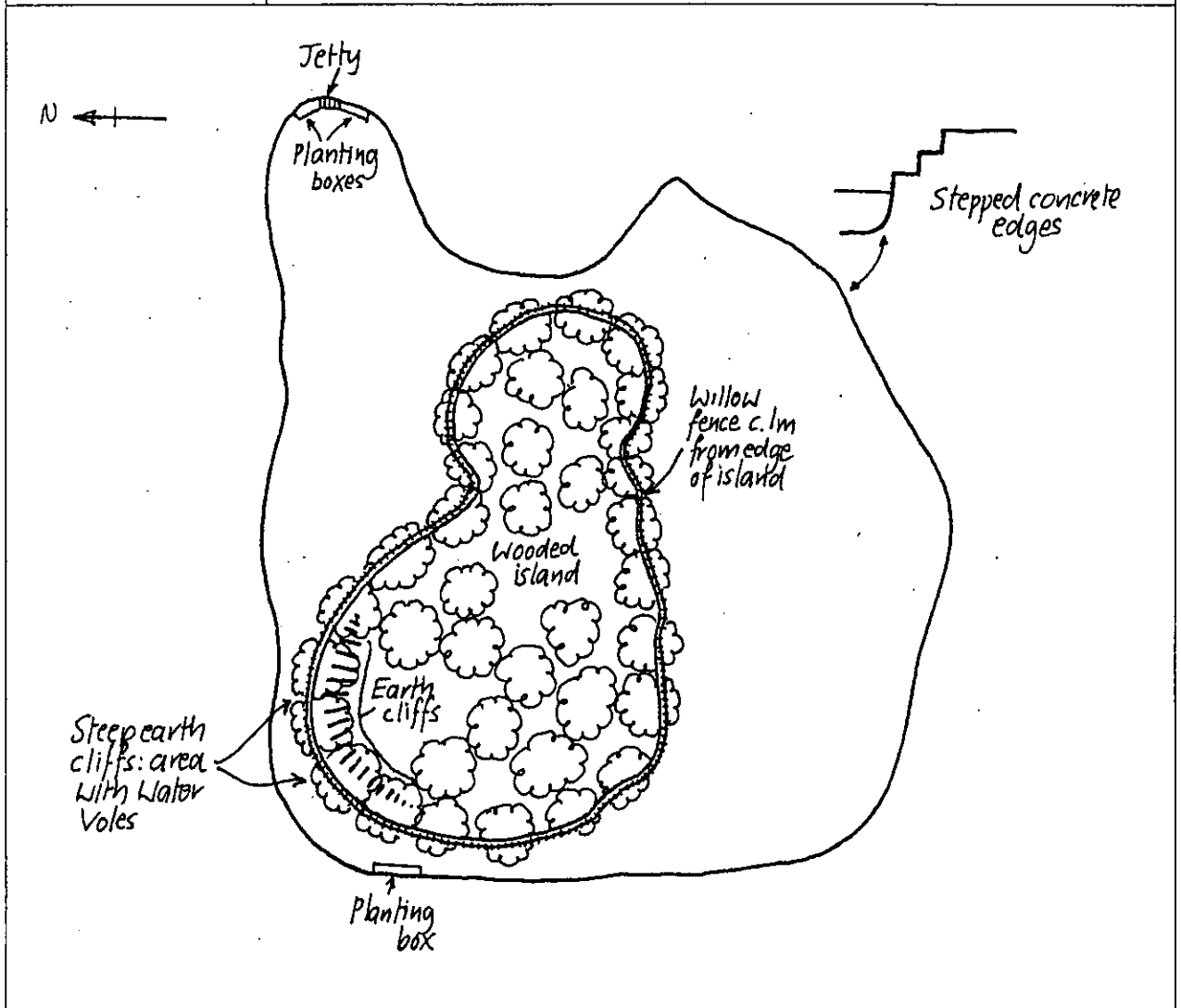
- (i) remove marginal wetland trees which currently shade the pond margin from selected areas of the island perimeter. The best option will be to create scalloped edges so that sunlight can penetrate to areas behind the willow fence. The stumps of species such as hawthorn should be treated or removed to prevent re-growth. Willows can probably be coppiced and left to regenerate.
- (ii) Introduce planting matrices at the pond edge and re-plant existing matrices. Make sure that only the basal half or two-thirds of the matrix is submerged so that the plants are introduced into damp, but not totally waterlogged soils. It is particularly important that young marginal plants are never fully submerged since they will drown.
- (iii) Plant-up the matrices with tall emergent plants, particularly Reed Sweet-grass (*Glyceria maxima*), Branched Bur-reed (*Sparganium erectum*), Reed Canary Grass (*Phalaris arundinacea*), Tussock Sedge (*Carex paniculata*) and Common Reed (*Phragmites australis*). Plant in clumps i.e. one or two species per mattress. Planting can be undertaken at any time of year. These plants should ideally be gathered from nearby waterbodies and wetlands (rather than being purchased) in order to maintain local genetic diversity and, more particularly, to avoid the transfer of alien species (such as *Crassula helmsii*) which are often introduced to sites via garden centre stock.
- (iv) Observe the planting carefully during the spring and summer to see (i) which plant species do best and (ii) how shade and location affects their growth.
- (v) Use this information to inform further planting.

In addition it would be useful to create glades on the island itself to encourage terrestrial grasses and other soft plants to grow.

The other main factor likely to increase the conservation value of the site is the establishment of a healthy submerged plant community. Currently the turbidity of the water prohibits submerged plant growth. The main ways of "clearing" the water are to: (i) manage the fish population to maintain densities of a mixed fish population at or below a biomass of c. 100 kg/ha (i.e. 0.1 kg biomass per square metre of water area), and (ii) to maintain waterfowl numbers at a minimum natural level (c. 2 - 4 individuals over the whole pond). The Environment Agency is currently carrying out fish manipulation at the site.

Rossmere Park Pond site details

Location	Grid reference: NZ 503 298. Urban park in Hartlepool.
Date of visit	28 th September 2000.
Description	Concrete edged pond with large central wooded island.
Pond area	1 ha.
Shade	The outer pond margin is largely unshaded, but the island has overhanging trees along all banks.
Depth and permanence	The pond is permanent with an average water depth of c 1.5 m and little silt.
Water clarity	The water was brown and highly turbid.
Water source	The pond's water source was not clear. The site receives surface run-off from a grassland park/recreation ground to the west. There are no discrete inflows, although the pond has a seasonal outflow along its south east margin. It is possible that the pond also has a spring or groundwater input.
Impacts	Stocked fish, ducks and waterfowl, some fed by locals.
Invertebrate habitats	The site currently has few invertebrate habitats.



Appendix 1. Plant species recorded

Plant species	English name	Status
<i>Agrostis stolonifera</i>	Creeping Bent	Common
<i>Caltha palustris</i>	Marsh-marigold	Common
<i>Carex sp. cf pendula</i>	Sedge species	n/a
<i>Lythrum salicaria</i>	Purple-loosestrife	Common
<i>Mentha aquatica</i>	Water Mint	Common
<i>Myosotis scorpioides</i>	Water Forget-me-not	Common
<i>Typha angustifolia</i>	Lesser Bulrush	Local

Number of Submerged species	0
Number of Floating species	0
Number of Emergent species	7
Total number of species	7

Note: all species were recorded from planting baskets.

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

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