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**PINKHILL MEADOW WETLAND ENHANCEMENT PROJECT -  
FARMOOR**

**PHASE 2. - 1991/92**

**RECOMMENDATIONS GIVEN FOR THE PINKHILL  
MEADOW WETLAND ENHANCEMENT SCHEME: PHASE 2.**

Pond Action  
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# **RECOMMENDATIONS GIVEN FOR THE PINKHILL MEADOW WETLAND ENHANCEMENT SCHEME: PHASE 2.**

## **1. AIMS**

This short report gives a summary of the recommendations and advice given to Richard Hellier (NRA, Recreation and Conservation Department) in 1991 during the drawing up of Phase 2 plans for the Pinkhill Meadow Wetland Enhancement Scheme.

## **2. RESULTS FROM PHASE 1**

### **2.1 Aims of Phase 1**

The main design aims for Phase 1 of the Pinkhill Enhancement Scheme were to:

- (i) provide an area of deep water (to ensure that water was present on the site all year round).
- (ii) give areas of shallow water and mud providing feeding areas to wading birds.
- (iii) provide a number of small pools with variable water regimes to give a variety of habitats for wetland plants, aquatic invertebrates and amphibians.

### **2.2 Results of Phase 1**

Monitoring of the Phase 1 scheme during 1990 and 1991 showed that water levels on the site remained high throughout the year. Groundwater levels were relatively stable (varying approximately 250mm during the year). As expected surfacewater levels were more variable (varying 400-500mm between spring and autumn).

By spring 1991 analysis of monitoring results showed that the Pinkhill ponds were (in relation to their size) relatively more attractive to wading birds than the rest of the Farmoor site (mainly because of the presence of Little Ringed Plovers). However the numbers of birds on the new wetland at any one time was small. In autumn 1991 the Pinkhill ponds were, in relation to their size, less attractive to waders than other parts of the Farmoor site, perhaps because of the lush growth of the meadow which made the ponds rather enclosed.

Little-ringed Plovers were regularly seen on the site during spring 1991 but did not remain to breed (although mating was observed). During the spring migration Common Sandpiper, Greenshank, Temminck's stint, Whimbrel and Bar-tailed Godwit also visited the Pinkhill wetlands, as did little and common terns. Surprisingly dunlin (one of the two most abundant waders at Farmoor), were not attracted to the site either in spring or autumn.

Results of aquatic macroinvertebrate monitoring at the site showed that the Phase 1 ponds were rapidly colonised by a wide variety of animals. One rare species (the diving beetle *Coelambus nigrolineatus*) colonised two ponds and another 8 other uncommon invertebrate species were recorded. A wide variety of wetland plants also rapidly colonised the ponds and by early summer 1991 at least 28 aquatic and marginal wetland plant species were present.

### **2.3 Main problems with the Phase 1 scheme**

The Phase site was proving an important habitat for wetland plants and invertebrates, although there was still considerable scope to create a more varied mosaic of wetland habitats for plants and animals across the site as a whole.

For wading birds it was likely that the main disadvantages of the site were:

- (i) the relatively small area of water (only approximately 0.5ha).
- (ii) the relatively small area of shallows - restricted to the Scrape and the mud flats to the west of the Main Pond.
- (iii) the lack of seclusion around the site - it was noticeable that the open mud flats and bund area of the Main Pond were more attractive to wading birds than the similar, but more enclosed, Scrape.
- (iv) the immaturity of the site in terms of nutrients and vegetation.
- (v) the lush growth of the meadow, which was not cut in summer 1991, making the ponds rather enclosed during autumn 1991.

### **3. GENERAL RECOMMENDATIONS FOR PHASE 2**

Bearing in mind the observations from Phase 1 of the scheme, the main requirements for Phase 2 of the Pinkhill Wetland Enhancement Scheme were:

- (i) the provision of a greater area of water, especially shallows.
- (ii) prevention of disturbance.
- (iii) creation of a greater variety of wetland habitats.
- (iv) enrichment of some areas to provide an initial nutrient base for the site.

#### **3.1 Creation of large areas of shallow water habitats**

It was recommended that creation of large areas of shallow water and wet meadow would almost certainly increase the site's attractiveness to wetland birds and other wetland wildlife.

Creation of irregularly undulating microtopography just above, at, and just below average water level (+200mm to -200mm) could form the physical basis for the development of a rich habitat mosaic on the site. This could include areas of mud-flats and temporary water as well as a variety of pools of different size and water regime. Not only would this create areas suitable for all feeding waders (and possibly breeding waders such as redshank) but it would provide diverse habitats for wetland plants, invertebrates and amphibians.

The main disadvantage of these extensive areas of shallows and wet meadow would be the need for adequate management, almost certainly by grazing, in order to restrict the growth of tall emergent plants and maintain the open aspect and diversity of the site.

### **3.2 Areas of Pinkhill Meadow which should be retained**

It was recommended that the existing areas of high quality species-rich meadow on Pinkhill (occupying approximately 20% of the site) should be retained and protected during the Phase 2 excavation work. In addition it was recommended that some areas of wet meadow which already supported 'good' vegetation structure (particularly *Phalaris-Carex* stands at the north of the site) should be retained since they already provided an additional habitat for the site (and may be suitable for some ground nesting birds). The extent of these structurally-rich areas was identified in the field and a map with their location sent to Richard Hellier. Areas which were thought to be most suitable for the excavation of new shallow water or new wet meadow were also enclosed.

### **3.3 Increasing nutrient status**

The bare alluvium and gravel substrates left after excavation work is complete are initially nutrient poor and relatively inhospitable to plants and invertebrates. In the long term this will be of benefit to the conservation value of the site (high nutrient status wetlands are usually relatively species-poor). In addition nutrient concentrations and vegetation structure will obviously build-up with time as the wetland develops. However, since it is important that the site attracts wetland birds fairly rapidly it was recommended that some parts of the new excavation should be enriched with a nutrient-rich starting material. This could be achieved by locally placing topsoil, straw or even manure into the Scrape or smaller hollows and pools.

It was notable that the trial *Phragmites* trench (which was lined with topsoil) very rapidly developed a rich flora and fauna including a large population of darter dragonflies (family Libellulidae). It was suggested that similar pools could be created in front of the Hide to provide an additional attraction to birdwatchers.

## **4. SPECIFIC RECOMMENDATIONS FOR MODIFICATION OF THE PHASE 1 ENHANCEMENT AREA.**

### **4.1 The Scrape**

The Scrape was very successful in terms of water regime control but didn't attract many birds. This was almost certainly because of its small size, immaturity and proximity to areas of disturbance. It was possible that the Scrape and Main Pond could be joined by removing the bund between them. However since the site had not been given time to mature the benefits of the Scrape could not yet be fully evaluated (ie ability to give muddy areas when the rest of the site, especially the Main Pond, had become more vegetated). It was therefore suggested that:

- (i) the bund was reduced in height and width to reduce the isolation of the Scrape from the Main Pond.
- (ii) the Scrape was extended in area to increase the proportion of shallow water and wet grassland.

### **4.2 Main Pond**

It was recommended that the slightly undulating mud flats/shallows at the west of the Main Pond should be retained. This area was particularly attractive to Little Ringed Plovers which spent much of the time that they were on Pinkhill Meadow feeding in this area.

It was recommended that the complex of 3 islands on the eastern side of the Main Pond should be joined to give a second area of mud-flats.

### 4.3 Phragmites bed

Hand planting of the trial *Phragmites* trench was successful in that all the *Phragmites* plants survived. However, lining the trench with topsoil also enabled extensive colonisation by wetland ruderals. These will undoubtedly compete with the growth of *Phragmites* in the trench.

In view of the known problems of planting large areas of *Phragmites* rhizomes the use of 'pot-grown' *Phragmites* was discussed with R. Hellier. Discussion with Diana Ward from RSPB and Mark Robinson from London Aquatic Company (who grow *Phragmites* commercially) confirmed that pot-grown *Phragmites* were now thought to be a very successful way of establishing *Phragmites* beds. Information from the RSPB Reed Bed conference in Cambridgeshire gave further support to this view.

Information from London Aquatic suggested that pot grown *Phragmites* would grow in low nutrient status mediums. Bearing in mind the problems of colonisation by ruderals encountered in the trial *Phragmites* trench it was suggested that any new *Phragmites* beds were not lined with topsoil.

Information given at the reed bed conference suggested that the *Phragmites* plants would benefit from an application of nitrogen during the summer growing season. This could be undertaken at Pinkhill, but in view of the possible enrichment of the adjacent waterbodies it is an option which would have to be considered carefully.

## 5. MANAGING THE SITE

### 5.1 Introducing species to the site

Since the Phase 1 ponds were colonised by a wide variety of wetland plant species, it was recommended that there should be no seeding or planting up of the excavated wetland areas. Monitoring the colonisation of the site by wetland plants and invertebrates at Pinkhill forms part of the experimental work being undertaken by Pond Action, funded by the NRA.

Amphibians, especially frogs, are likely to colonise the site naturally. Newts may not colonise quickly, because of access difficulties and introduction of toads, crested newts and smooth newts could be considered. Amphibians should not be introduced before the newly planted hedges and scrub areas have become well established since these form an important part of the terrestrial habitat for amphibians. English Nature should be consulted if crested newts are introduced to the site. Almost nothing is known about the effect of translocating amphibians (ie the success of translocations, the effects of introduced amphibians on invertebrate populations) so, since the invertebrates on the Pinkhill wetlands are being monitored, this might provide one of the first opportunities to investigate the effects of such translocations.

### 5.2 Grazing

Low intensity grazing of the wetland area is likely to be essential once vegetation has become established at Pinkhill. Among the advantages of grazing are its ability to: (i) create, tussocky hummock structure in the grassland, (ii) create areas of poached mud for wetland birds and some wetland plants and invertebrate species (iii) remove tall lush marginal emergents in wetland areas which could not be cut by machine.

In the absence of grazing it is likely to be important to selectively remove some very invasive wetland species to prevent their dominance before other wetland plants have become established. In particular hand weeding of *Typha* is recommended in the first few years.