

# Wadelows Nature Reserve

Management Plan.  
2011 to 2016



Wadelows Nature Reserve – Reflects the ancient hamlet of Wadelows occupied by the family of John de Wadelowe at least from 1227 and possibly earlier. Wadelows comprised a fine house and subsequently the mansion of Thomas Peyvre giving rise to the name “Old Park” for the adjacent farmland

## Wadelowes Nature Reserve

Site Boundary—red outline



Alternative access for  
management purposes

Garden centre run-  
off facility

Waste management  
system

Emergency car parking  
area

## **1. Ownership and management**

Grassland owned by J&B Little and Poplars Nursery Garden Centre Ltd being the land comprising the existing County wildlife site but excluding the buttercup meadow adjacent to the house. Woodland owned by Central Bedfordshire Council.

The nature reserve management is steered by a management committee which decides policy, allocates budget, represents potential users and draws in volunteer support. Members of that group in 2011 were:

|                                      |                               |
|--------------------------------------|-------------------------------|
| Central Bedfordshire Council         | Trevor Smith and Steve Halton |
| Wildlife Trust                       | John Comont                   |
| Private Landowners                   | John Little & Bridget Little  |
| Poplars Nursery                      | David Little                  |
| Bedfordshire Natural History Society | John Pitts                    |
| The Greensand Trust                  | Erika Pratt                   |
| The Bedfordshire Bird Club           | Sonnie Wing                   |

The group meets approximately four times a year to decide policy, allocate budget and review progress. Meetings are at Poplars Nursery Garden Centre unless otherwise decided by the committee.

Landowners have a veto on proposals relevant to their own holdings.

## **2. History**

The 1891 Ordnance Survey Map shows the land at that time to comprise two larger fields (one fronting the road and which today has the garden centre) and two smaller fields, all separated by hedgerows, together with a small patch of roadside woodland. The woodland, boundary hedgerows, and remnants of the internal hedgerows, all survive to this day.

The two large fields known as Betons (or Beadons) Demesne (a piece of land surrounding a house or manor retained by the owner for his own use) comprise about 13 acres and were purchased by Jesse Little in 1924 for the sum of £650 (£50 per acre). He built a glasshouse nursery where the garden centre now stands but retained the meadow adjacent to the river which was occasionally grazed by horses but never actively farmed. The field at that time retained a clear ridge and furrow profile generated by many years of mediaeval ploughing. The land dropped sharply in the corner where the owl box now stands on a pole and so in the 1980's the field was levelled by importation of soils mostly of garden origin and high fertility. This has encouraged the growth of some vigorous species especially thistle and nettle which are currently being controlled by mowing. In addition the area where the owl box stands was the site for many years of an annual bonfire the ash from which further enriched the soil. When the nature reserve was created the remaining ash was cleared and taken to landfill but the effect is still visible.

The two smaller paddocks or closes together known as Chickgraves {Chigrove (1581), Chickgroves (1796) Chigrove (1841)} were purchased in 1922 from Mr W J Hobbs, a cattle Salesman of Newport Pagnell, by Wesley Dolemore a farmer from Tebworth for the sum of £300. Mr Dolemore used the field to rest his cattle as they were driven on foot to Harlington station. In 1960 his successors sold the land to George Harmer for £1250 as grazing for his children's ponies. The current owners John and Bridget Little purchased the land for a considerably higher sum in 1986. There was no evidence of ploughing or ridge and furrow in Chickgraves and it is presumed to have remained unchanged as meadow for many years, possibly several hundred.

In 2006 the main pond and attendant marsh were created, partly elevated from the original levels by deposition of excavated clay. At the same time the lined reservoir was installed together with the sewage treatment plant which serves all the premises within the garden centre complex. In 2009 a further broadly rectangular pond was excavated adjacent to the lined reservoir

Toddington borehole gains its name from an abortive attempt in 1934 to establish a public water supply for the village of Toddington. The contractor drilled to a depth of 127 feet when the Greensand was met. With great difficulty drilling continued, despite the influx of running sand, to a depth of 197 feet after which the project was abandoned. The contractor never received payment of his £198:18:0 bill. For interest the Garden Centre water supply comes from a borehole sunk in 1948 to a depth of 180 feet which met sand at about 110 feet. The water level in the bore then stood at about 60 feet and has steadily dropped to around 70 feet today.

Toddington Borehole was planted on the former arable paddock owned by the County Council in 1983

### **3. Landform, hydrology, geology and soils**

The land is highest along the road frontage and falls towards the river with a change in relief of about 5m.

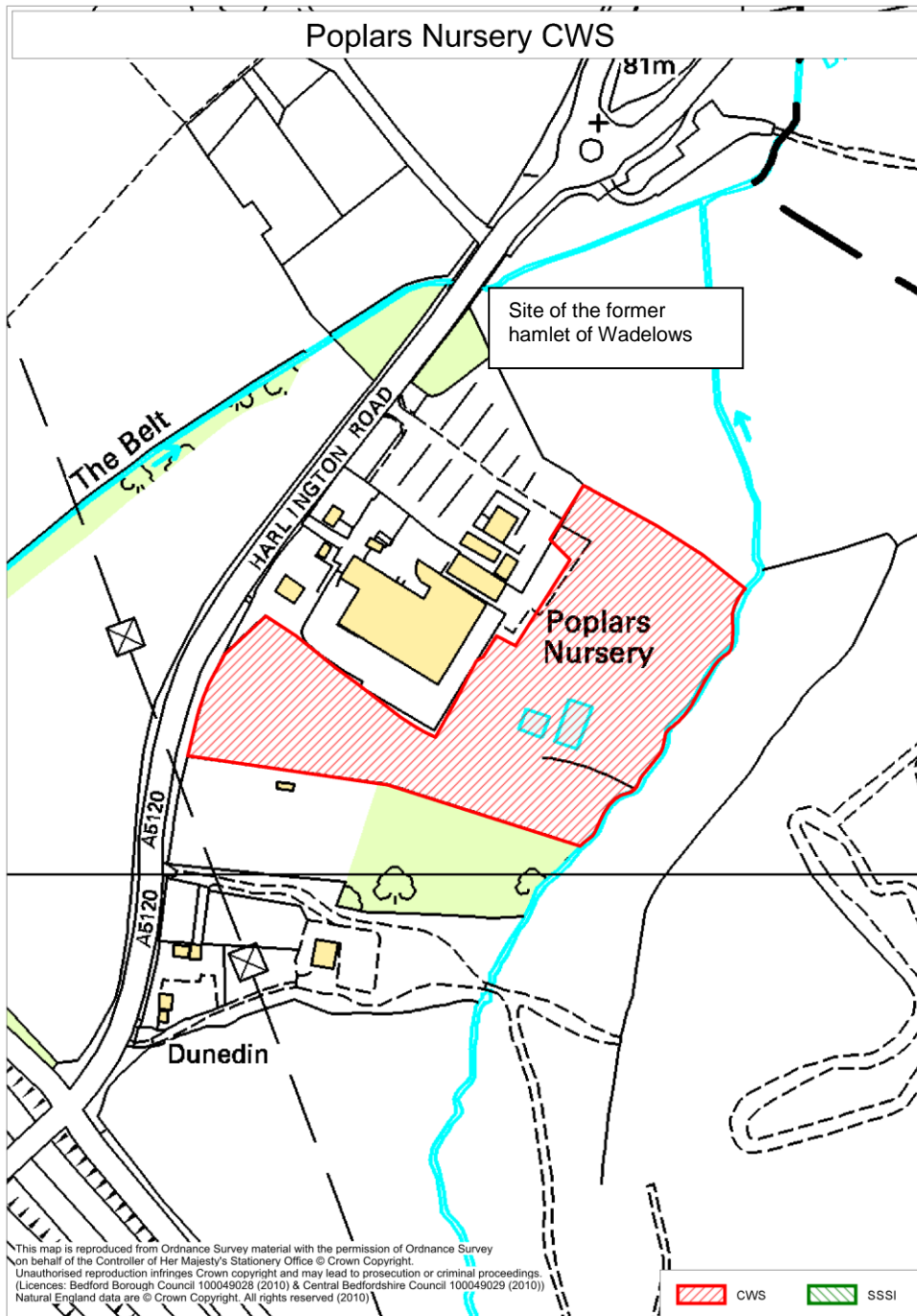
The south-eastern boundary is formed by the River Flit, which in turn leads to the River Ivel and so to the River Great Ouse. The stream arises from springs about 2km to the south at the base of the Chalk but water flow is massively supplemented by the output from Chalton sewage works.

The site is underlain by Cretaceous Gault Clay. Sheet 6 of the 1:250 000 scale National Soil Map '*Soils of Eastern England*' indicates that the soils are part of the Evesham 3 soil association. These soils are described in the legend to the soil map and accompanying Bulletin as mostly slowly permeable clayey and fine loamy over clayey soils, usually calcareous and seasonally waterlogged. Some non-calcareous clayey soils occur locally.

Because of their slowly permeable subsurface layers, the soils quickly become saturated in winter remaining wet and unworkable typically from late November to early April. Rainfall either runs off down-slope or, on level land, passes laterally through the saturated topsoils perched above the shallow underlying clayey layers.

#### 4. Conservation Importance

Part of the site falls within the poplars Nursery County Wildlife Site. The neutral grassland CWS, recognized in 1990 is 3.8 hectares in extent. It is an example of the United Kingdom Biodiversity Action Plan priority habitat – Lowland Meadow. Species rich lowland meadow is now a very rare habitat in central England.



Lowland meadow is also listed as a “habitat of principle importance for biodiversity” by the UK government via the provisions of section 41 of the Natural Environment and Rural Communities Act 2006.

| Key species  |                          |                                 |                    |
|--|--------------------------|---------------------------------|--------------------|
|  | Special Legal protection | Biodiversity action plan listed | Local significance |
| Barn owl (breeding)                                  | ✓                        |                                 |                    |
| Badger   | ✓                        |                                 |                    |
| Alchemilla filicaulis<br>ssp vestita<br>Ladys mantle |                          |                                 | ✓                  |
| Kestrel (breeding)                                   |                          |                                 | ✓                  |
| Stock Dove   |                          |                                 | ✓                  |
| Common toad  |                          | ✓                               |                    |
| Small Heath butterfly                                |                          | ✓                               |                    |
| European otter                                       | ✓                        | ✓                               |                    |

### **Alchemilla filicaulis**



Photo – J Pitts

## **5. Management Objectives**

To conserve and enhance the lowland meadow habitat.

To encourage Biodiversity by the creation and maintenance of a wide variety of habitats in so far as this is compatible with the maintenance of lowland meadow in a favourable condition.

To manage the borehole woodland to maximise structural variety and both ecological and educational value.

To enable controlled access by special interest groups, schools and the friends group while protecting the interests of wildlife.

To raise awareness of the environment by providing an educational facility including interpretation boards, topical interest indicators, an outdoor classroom and pond dipping opportunities backed up by car parking, toilet and refreshment facilities on the garden centre.

To enable special interest groups to use the site for meetings, habitat creation, experiments and observation.

### **Marbled White butterfly**



Photo – J Pitts

## 6. Management

### 6.1 Restoring the hedgerow network

A hedgerow was planted in 2007 by members of the management committee using locally sourced plants. It was to separate the private part of the meadow from the nature reserve and to restore the historic hedgerow alignments. Hedgerow trees and shrubs were also inserted in the gaps of the main hedge which separates the two meadows. Replanting included a range of native trees and shrubs typical of those existing in the hedgerows today. These were:

|              |                 |
|--------------|-----------------|
| Field Maple  | Common Hawthorn |
| Blackthorn   | Hazel           |
| Dogwood      | Buckthorn       |
| Dog Rose     | Spindle         |
| Guelder Rose | Wayfaring tree  |
| Rowan        | Crab Apple      |

This hedge will need little attention and, whilst it may eventually be laid to create a thicker hedge this will not happen during the life of this plan (2011-16)

The hedgerow separating the borehole from the meadow is dominated by mature hawthorn. Its lower reaches have been periodically trimmed but higher up the hedgerow is broad and may eventually become top heavy and cast excessive shade on the grassland. To prevent this happening ideas for reducing the height and width of the hedge have been explored. It was agreed that a flail mower should be used to cut the encroaching side back as hard as possible when conditions allow. Subsequently the hedge should be re-assessed to see what further trimming could be done. The ultimate aim would be a tall dense hedge tapering to the top. Cut material from any height reduction work will need to be burnt or stacked to rot in the plantation and it is recognised that labour and space constraints may limit the amount of work that can happen in any one winter period.

All other hedges should remain to develop during the duration of this plan.

### 6.2 Managing the lowland meadow grassland

Management of lowland meadows in central England has traditionally been achieved either by low intensity grazing over a long period in spring/summer/autumn or by a mid summer hay cut followed by grazing of the aftermath growth in autumn. Stock have generally been removed from sites in winter to avoid damage to the sward when the ground is wet.

At this site management in recent years has involved an annual hay cut in early July. Whilst this removes grass growth each summer the site is relatively fertile and there can be substantial aftermath growth later in the year. This will form a mat of dead material over winter which may restrict growth, particularly of grassland herbs, in the spring. A mat of vegetation can however provide shelter for a range of invertebrates, mice and voles which may be an important food source for owls and kestrel in winter.

The original management plan proposed –*“Continue the existing late hay-cutting regime and to introduce light aftermath grazing. The objective is to restore the grassland sward to something like its original semi-natural state. Fencing would be required to keep livestock on site.”* At this site fencing costs are regarded as prohibitive so management will remain as an annual hay cut in July. The possibility of a second late summer cut with cut material removed will be investigated and implemented if it seems practical and is of limited cost.

In addition to this general prescription a path network will be cut regularly to enable visitors to move around the site. There will also be an area in the north-west corner kept short during the summer to form an emergency extra car parking area. Grass on the top of the bunds will also be cut relatively frequently to provide short grass habitat. All short grass area will provide extra options for environmental education.

Birds have been provided for in the hedgerows, the meadow and the woodland by use of a variety of bird nesting boxes to replicate cavities found in older trees. Owl and kestrel boxes have been used by barn owl, tawny owl, kestrel and stock dove. Within the woodland great and blue tits have been the major beneficiaries of the smaller nest boxes.



Barn owl chick from one of the nest boxes – J Pitts

Bat species are likely to use the area for foraging and may roost in larger trees. The original management plan suggested that *“Bats could be provided for in a similar way using handmade boxes or proprietary roosting boxes in durable materials”*, but there is no intention to do this at present. Bats are protected by law and once bat boxes are erected and used responsibility for their continued maintenance is something of a legal grey area. Unless bat boxes will be looked after by a licenced bat worker their addition to the site may not be a useful conservation exercise.

### **6.3 Managing the modern ‘Toddington Borehole’ plantation**

In order to improve the site for biodiversity, education and interpretation the original access ride has been opened up and small clearings be created in the centre and in the northern

and southern parts of the woodland, linked by rides. The non-native pine trees are not in keeping but do appear to provide nest sites for Sparrow hawks and so should be kept.

A key feature of the woodland is the two massive pollard willows on the river bank. These have recently been pollarded and require no further attention during the life of this plan. There is a similar, though smaller, willow in the centre of the wood. This will be pollard as soon as is practical.



The woodland floor does not support a rich variety of wild flowers as it is a recent plantation on former arable land and there are no nearby ancient woods to act as a seed source. Small scale experiments with cowslip seed collected from a nearby population indicates that these will readily colonise the woodland rides. Introduction of seed of woodland specialists such as bluebell has been agreed. There is abundant bare ground below the dense shade of the trees and the situation seems likely to be ideal for seeding with a range of woodland ground flora species. Target species will initially be bluebell, wood anemone and wild garlic.

#### **6.4 Wildlife ponds and river bank**

Three ponds have been created on the site. One is a steep sided plastic lined reservoir which collect rainwater run-off from the garden centre. This is an operational part of the garden centre and has negligible wildlife or aesthetic value. It was agreed that enhancement of this area would be difficult and would be limited to the planting of native species of hop, honeysuckle and clematis (old mans' beard) to scramble up some parts of the chain link fence.

The second pond receives overflow water from the first. It has been constructed in the form of a ring ditch with a central pond which itself has a central island. The feature is constructed to take the overflow from the reservoir and to filter out nutrients. There is a daily discharge from the plant sales area which may have high levels of nitrates. The rate of flow is slow and the eventual outflow from the system seeps away into the meadow towards the river. The seepage zone in the meadow has changed the character of the grassland at this point and has been colonised by tall marshland species such as reedmace. Willow trees

have begun to colonise the area. Willow and reedmace have also begun to colonise the ring ditch, associated banks and the central island. The remainder of the ring ditch and open water areas have begun to develop a rich and varied flora and are likely to support a developing invertebrate community which merits further study.

Tall vegetation, particularly trees will, through shading, leaf fall and water use, greatly decrease the ecological value of the pond. All trees should either be removed or kept as low bushes by regular management intervention. Reed mace and other vigorous marsh species have a similar ability to reduce structural diversity and need to be kept under control by regular intervention. Wet land management of this sort is best carried out in autumn when invertebrate activity is less but weather is still warm and nearby ground relatively dry. Work at this time of year allows active animals to escape without risk of desiccation and freezing conditions don't harm the workers.

The third pond was originally conceived as a shallow open "scrape" habitat which had the potential to harbour waders such as snipe. It is a deep pond with shallow margins. The banks of the pond leaked initially and have not yet sealed (Dec. 2012) but this remains the objective. Water levels can be managed by pumping water from the wildlife pond and manipulating a pipe outlet to create a shallow feeding area along the edge of the pond in spring and autumn. Marginal vegetation will need to be kept short during summer and growth of rushes may become a problem though occasional strimming or inundation via raised water levels could keep these under control.

The river Flit flows in a deeply cut channel. The banks of the channel are in the most part steep and vegetated by scrubby vegetation and long grass. There are a limited number of spots where the bank is less steep and it is possible to approach the stream. The relatively dense vegetation along the stream bank provides good shelter, feeding and nesting habitat as well as performing a safety barrier function. There should be no management of this fringe of habitat during the life of the plan except for the maintenance of access points to the waters edge where they presently exist to provide safe access for study.

A block work artificial otter holt was installed in circa 2006/07 on the crest of the bank at the edge of the meadow with the aid of the local Rotary Club. This has recently been occupied by a badger or badgers and in the past may have been used by mink. At present no particular maintenance is required.

## **7. Environmental interpretation and education**

The garden centre includes within it an education room with modern facilities. The nature reserve offers many opportunities for environmental education and interpretation. The owners and steering group members will seek to capitalise on any opportunities that come forward to involve school and youth groups in the site. To date there is use of the facilities by a number of local schools for a range of cross curricular activities. The Greensand Trust have also developed a programme of activities targeted at young people.

A number of open days have been run at the site and a list of "friends" has been compiled. These people will be given privileged access to the site during normal garden centre hours.

Coordination of the friends group and of educational activities will be via the landowners and Poplars Nursery.

## **8. Monitoring**

In order to detect changes in the important habitats and species at the site and to keep abreast of management challenges the management committee will include visits to the site in most of their scheduled meetings. To supplement this relatively subjective appraisal a simple monitoring programme should include:

A small number of fixed point photographs of key habitats recorded annually in summer. Occasional visits by Natural History Society and other species experts to record specific groups in detail.

Annual bird nest box checks and raptor ringing.

## **9. Budget**

The cost of setting up the J Little and Sons/PNGC Ltd nature reserve has been born by the site owners. From the start of this plan in late 2011 the management fund amounted to circa £5000 from an initial pot of £15,000. Additional expenditure on the maintenance of the borehole plantation has, and will continue to be, borne by Central Bedfordshire Council

The management committee will maintain a record of income and expenditure. The accounting year shall be the calendar year.

When works are proposed, Committee members will use their contacts to explore possibilities for external grant funding where ever appropriate.

## **10. Scheduling of works**

This shall be the responsibility of the management committee. Works shall only be put in hand after being properly costed and where appropriate at least two estimates obtained from contractors or suppliers.

This plan should be reviewed during 2015

JC, 2011 and 2012