

Sywell Country Park

Five Year Wildlife Management Plan – 2009-2014

Northamptonshire County Council



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County Council

With support from



The Wildlife Trust for Bedfordshire,
Cambridgeshire, Northamptonshire and
Peterborough

1: VISION STATEMENT & EXECUTIVE SUMMARY

This document details the management prescriptions necessary to protect and enhance the biodiversity resources of Sywell Country Park. It will be used in conjunction with the overall park management plan to help balance the needs of conservation and recreation, and to ensure best practice in land management.

2: POLICY STATEMENTS

Northamptonshire County Council owns Sywell Country Park. The Countryside Services section, part of the Customer and Community Services Directorate, manages the park.

The corporate vision of Northamptonshire County Council is to “Make Northamptonshire an excellent place to live and work”

1. Relevant corporate outcomes and priorities

Corporate Outcomes	Corporate Priorities 2008-09
A cleaner, greener and more prosperous county	We will protect and promote the heritage of Northamptonshire
A more secure, healthy and independent future for our children, for our young people, and for our adults	We will enable more people to engage in music, sports, leisure and cultural activities
	We will improve the achievement of children at school, and of those in care; improve attendance and reduce the number of children excluded from education
	We will enable older people and those with disabilities who need support to exercise personal choice and live more independent and fulfilled lives
A smaller, more enabling council focused on our customers	We will ensure that we have outstanding and valued employees
	We will provide better access to, and choice of services, targeting our resources on our customers and communities, improving our efficiency and maintain council tax increases at or below the rate of inflation, provided that changes in central government funding do not prevent this.

The Countryside Services contributes to the above aims by:

- Providing attractive, accessible and well managed Country Parks, countryside sites and through the provision of the Pocket Parks scheme.
- Encouraging the maximum use of the parks for healthy recreation.
- Encouraging understanding and enjoyment of the country parks and the county’s natural and cultural heritage through providing outdoor environmental activities for schools and groups, information and interpretation and a programme of public events.
- Promoting active citizenship by providing opportunities for countryside volunteering in Country Parks and by facilitating the Pocket Park scheme.

3: GENERAL DESCRIPTION

3.1: General information

3.1.1: Location & site boundaries

Sywell Reservoir, as shown on Map 1, is situated between Northampton and Wellingborough, due north of Ecton Village (Grid Ref: SP832654). The site lies within a shallow valley fed by two brooks running from south from Sywell.

The site boundaries are shown on Map 2. Much of the land surrounding the site is under arable cultivation and runoff from these fields will have a direct impact on the grassland and aquatic habitats of the site. The Country Park staff holds ownership and contact details for the surrounding land.

Access to the site is from Washbrook Lane, which is very narrow for two-way traffic. There is also a farm gate access at the northern end, which has been used by the grazier. There are no public rights of way crossing or entering the park, although at present some de facto access occurs from the northern end.

3.1.2: Tenure

Northamptonshire County Council purchased the land from Anglian Water Authority in April 1983.

In order to proceed with the designation as a Country Park NCC also acquired the sporting rights across the reservoir and day/season ticket coarse fishing is made available on the reservoir.

One of the conditions imposed on the purchase of Sywell Country Park includes the exclusion of boating activities from the western arm of the reservoir in order to provide a wildlife refuge.

3.1.3: Management/organisational infrastructure

The Park is owned by Northamptonshire County Council and is managed by the Countryside Services section, which is part of the Customer and Community Services Directorate. On the ground the site is run in conjunction with Brixworth Country Park and the Brampton Valley Way by a team consisting of one Country Parks Officer, two Countryside Rangers, two Assistant Rangers, one estate worker and various part-time Information Assistants employed on a supply basis.

The park engages a variety of volunteers and voluntary groups to undertake much of the habitat work. Volunteers range from individuals and college placements to organised teams such as the BTCV New Deal and Community Service.

3.1.4: Map coverage

Ordnance Survey 1:50,000 Landranger Series, sheet 152, Northampton and Milton Keynes.

3.1.5: Photographic coverage

Aerial photos are held for the park from June 1974, September 1996 and from the county-wide survey which was flown in the summer of 1999. A variety of general photos are also held, but no formal fixed-point photographs have been taken.

3.1.6: Zones or compartments

To assist with the designation of management objectives the site has been subdivided into 7 compartments chosen to reflect habitat, management activities and existing boundaries. These compartments are shown on Map 3.

3.2: Environmental information

3.2.1: Physical

The total area of the site is 143 acres (58 ha), of which 68 acres (28 ha) is open water. The lake was formed when two valleys were flooded by the damming of the Sywell Brook and Mears Ashby Bottoms brook.

The narrow band of land surrounding the reservoir is open, rather exposed grassland which, in the past has been variously grazed, mown and taken for hay. Several woodland Blocks have been planted at intervals surrounding the reservoir. At the western side of the reservoir mature woodland and patchy thorn scrub can be found and it is likely that this was present before the reservoir was created.

Two streams enter the park and are the main feeds for the reservoir. However several land drains enter the site from adjacent farmland and a spring enters the park at the eastern boundary in compartment 4. Water level in the Reservoir is controlled via control structures in the Valve Tower and an overflow is located at the western end of the dam. Water leaving the reservoir continues along Sywell Brook along a narrow course close to the western boundary of the site before passing under Washbrook Lane.

There is a requirement to maintain flows along the Sywell Brook throughout the year. The compensation water supplied for down-stream users must not fall below 100,000 gallons per day. The overflow is likely to prove sufficient most of

the winter, and extra flow can be maintained at all times through the closed pipe to the valve tower (valve 4). The correct flow should be just over 4,000 gallons/hour on the gauge in the recording house.

3.2.2: Biological

3.2.2.1: Habitats/communities

The wildlife value of the site is associated with the large area of open water and the site has long been known as an important site for wintering wildfowl.

Several blocks of marsh habitat are also located within the park. Dominated by floating sweet grass (*Glyceria maxima*) and reed mace (*Typha latifolia*), these areas represent habitats identified in the Northamptonshire BAP and are likely to support valuable invertebrate assemblages as well as important refuge and breeding areas for bird species.

The site supports a large area of unimproved grassland which although generally species poor (see DEFRA report by Adam Kwoleck 2002), does support a good mix of grasses and some interesting herbs including ladies bedstraw (*Galium verum*) and knapweed (*Centaurea nigra*). In 1998 green winged orchid (*Orchis morio*) was also recorded from the grassland areas by Gill Gent, the County Botanical Recorder. Although flowering spikes have not been seen in recent years the presence of this, and other species, may suggest that the sward may have been richer in the past but has declined due to lack of sympathetic management. The downstream side of the dam is covered by a steep grassed bank which appears to be relatively species rich and being south facing appears to support a population of grasshoppers.

Although several blocks of woodland have been planted surrounding the reservoir the most important area of this habitat is located in Hayes wood within compartment 2 at the western side of the site. The age of the oak trees in this area and the presence of bluebells (*Hyacinthoides non-scripta*) in the ground flora indicate that this woodland was in place before creation of the reservoir in 1903.

3.2.2.2: Flora

Although much of the grassland is relatively species poor and approximates to MG1 more interesting species have been recorded the most significant being green winged orchid (*Orchis morio*). Other species of note include pignut (*Conopodium majus*), sweet vernal grass (*Anthoxanthum odoratum*), lady's bedstraw (*Galium verum*) and birds foot trefoil (*Lotus corniculatus*).

Marsh habitats are dominated by reed sweet grass and reedmace and also support gypsywort (*Locopus europaeus*), jointed rush (*Juncus articulatus*) and occasional yellow flag (*Iris pseudacorus*).

3.2.2.3: Fauna

A full list of species known to occur on the site is given in Appendix 1. The site is best well known for its bird species especially great crested grebe (*Podiceps cristatus*), and common tern (*Sterna hirundo*). The area supports good populations of lapwing (*Vanellus vanellus*) and snipe (*Gallinago gallinago*) are often recorded. Grasshopper warbler (*Locustella naevia*) and kingfisher (*Alcedo atthis*) have been recorded to breed on site.

The site has been noted as a potentially important breeding area for amphibians especially toads (*Bufo bufo*). Information on this group is limited and further assessment of population numbers and value as a breeding site would be useful. However, the management proposals suggested in this plan will also enhance the value of the site for these species.

There is a badger (*Meles meles*) sett located within compartment 4 and the unimproved grassland is likely to provide a valuable feeding habitat for this species. As they are also protected by a range of legislation care must be taken whenever works are undertaken which may impinge on the badgers, particularly within close range of the sett. Guidance and advice are available from English Nature, and whenever there is any doubt about works which may disturb badgers English Nature should always be consulted.

3.2.3: Past management for nature conservation

Management for nature conservation did not begin until the freehold of the land passed to NCC.

Tree and shrub planting has been carried out in an attempt to improve the landscape setting and to reduce the exposure of the reservoir, especially along the northern boundary. This work also seeks to provide cover and habitat for waterfowl, and screening between the activity areas and wildlife refuges.

Under planting has been carried out in the western woodland to create a more diverse structure.

3.3: Human impact, use & interest

3.3.1: Archaeology

The Country Park itself and its constituent habitats are formed as the result of industrial activity. Other than the structures associated with the reservoir and its control and maintenance there are no known sites of archaeological interest within the boundaries of the Country Park.

3.3.2: Present land use

Part of a proposed larger woodland has been planted on the western bank of compartment 4. This area will be called Homeopathic Wood and it is proposed that the woodland extends around much of the banks bordering the marsh in this compartment. If this proposal is carried out as proposed it is likely to have a significant negative impact on the biodiversity interest of this area. This management plan proposes that the planting proposals are altered so that the woodland is not planted within compartment 4. In addition any future tree planting should be kept only to the tops of the banks and at distance from the waters edge – NB Why? Drying effect or shading? What distance exactly?? – redefine woodland boundary to suitable distance up banks and amend agreement with Homeopathy Trust? Mark on a map

Sheep grazing has continued within the grassland although in recent years this has been sporadic.

Several tern rafts have been constructed for placement within the reservoir and have been successful in encouraging breeding of common tern.

3.3.3: Present legal status of site

The entire site is designated as a Country Park under the 1968 Countryside Act. The majority of the site is designated as a County Wildlife Site; however, this is a non-statutory designation.

3.3.4: Current services & facilities provision

A large car park has been established within the Washbrook entrance to the Country Park. There is a visitor centre and ranger's office here also which is manned between specified hours throughout the week and weekend, with interpretation and leaflets available.

Structures important for the previous operational use of the reservoir have been retained and include the Valve Tower, sand filter beds, a pump house and the old coal shed.

The three disused filter beds have been redesigned to provide an amphibian pond, children's play area and butterfly garden.

3.3.5: Past management relevant to biodiversity interest.

Prior to the sale of the land to NCC the grassland was let to a local farmer for grazing purposes although hay may have been taken at times. The area below the dam was also grazed during this time.

Shooting and Fishing rights were held and exercised by local landowners until these were acquired by NCC. Although shooting rights were felt to be incompatible with the use as a Country the fishing rights have been maintained with some restriction in use, both spatially and temporally.

3.4: Landscape

Much of the surrounding land is gently rolling and under arable cultivation however, sitting within the valley the site has a relatively enclosed nature. Boundary hedges woodlands and feature trees break up much of the skyline. Several neighbouring farms are the only buildings visible from a few places around the lake, so the site has a remote and peaceful character.

3.5: Bibliography

- Kwoleck A (2002). Ecological file note following visit to Sywell Reservoir. Rural Development Service.

4: CONSERVATION FEATURES

4.1: Identification/confirmation of conservation features

Feature 1 - Breeding and Wintering wading birds and wildfowl

Sywell reservoir is noted as an important refuge both for wintering and passage birds. This is especially true for the wildfowl that are attracted by the large expanse of relatively undisturbed open water. During the summer the reservoir will provide breeding opportunities for resident wildfowl. There is also opportunity to increase the value of the site for wading bird such as snipe and redshank. Although breeding opportunities may be limited the site should provide valuable feeding habitat throughout the year.

Feature 2 - Marshland habitat

These marshy habitats are relatively uncommon in the wider countryside and will support valuable and interesting communities. They are likely to support interesting invertebrate assemblages, which will in turn support other groups. They are also quite vulnerable habitats that are subject to scrub encroachment and excessive drying.

Feature 3 - Unimproved grassland

It appears that the grassland surrounding the reservoir has not been ploughed or treated with high doses of fertilizers or herbicides for a long time. As with other reservoirs in the county although the grassland does not appear to be species rich it does support a range of interesting species. Unimproved grassland of this kind is becoming increasingly uncommon within Northamptonshire and will support valuable invertebrate and small mammal communities. The presence of some botanical species may suggest that there may be potential to increase the value of this grassland through sympathetic management.

Feature 4 - Notable species

The site supports several species which are of note either due to their local or national importance or due to the interest they may generate from visitors to the Park. These include bats, terns, kingfishers and badgers.

5: SERVICES & FACILITIES

5.1: Identification/confirmation of services & facilities

Country Parks are by their nature multi-purpose. This plan is intended to deal only with the wildlife aspects of the country park, and therefore consideration of other services and facilities is not made here.

Objectives

Feature/Facility 1 - Breeding and Wintering wading birds and wildfowl

Description

The damming of the Sywell Brook and Mears Ashby Bottoms brook has created approximately 68 acres (28 ha) of open water. As the two valleys flooded, the topography of the land created a reservoir with two distinct arms, the eastern and western arms and a central area of open water in front of the dam. The shoreline of the reservoir has a variety of habitats, including open grassland, woodland, a small cliff, marshes and the gently sloping, stone faced dam wall. Shallow water areas exist at several locations around the edges of the reservoir. The deeper water is located in the central area. Water levels in the reservoir can be controlled by a system of valves located in the former waterworks structures. There is also a spillway at the western end of the dam.

Objective 1 Provide habitat conditions on the reserve which support waders and wildfowl

Prescription & Rationale

Sywell reservoir is noted as an important refuge both for wintering and passage birds. This is especially true for wildfowl which are attracted by the large expanse of relatively undisturbed open water. During the summer the reservoir will provide breeding opportunities for resident wildfowl.

The value of this Country Park could be significantly enhanced through positive water level control. Gradual dropping of the water height during the spring and summer would provide valuable feeding habitat for wading birds and other species which will feed on invertebrates within the damp mud. The creation of extensive areas of bare ground may encourage ground nesting species such as redshank and ringed plover to nest within the Country Park and can also provide valuable habitat for rarer wetland invertebrates. Extensive summer draw down zones have also been shown to have significant positive knock on effects for winter wildfowl which are attracted by the abundant flooded seed source available during the winter.

This objective therefore seeks to maintain the value of the site during the winter by maintaining water levels. The site will be enhanced through gradual dropping of the water height from April onwards with the lowest point being reached in August or September. The area of drawdown should be as large as possible and is to be defined by factors such as angling provision, consultation with the Environment Agency, aesthetic appeal and engineering limitations. The final extent of drawdown will therefore need to be achieved gradually each year and over a number of summers to test the above factors.

Prescription List

1 - Initiate draw down zone during spring and summer.

RP13/1-Collect data, hydrological, monitor - Monitor water levels in eastern marsh and reservoir

Gauge boards should be installed in the reservoir and also within the eastern marsh. Water levels should be measured weekly throughout the spring and summer as the water level is allowed to drop.

The loss of water from the marsh and from the reservoir as a whole can therefore be controlled to allow a gradual draw down throughout the season.

ML20/1-Liaise, right-holders - inform visiting public and anglers

It will be important that visitors to the Country Park are fully informed about the decision to create draw down zones. These large expanses of bare mud may be seen as an eyesore by visitors and may cause problems for anglers if swims are dry.

Visitors should therefore be given an understanding of the value of this habitat both as an important feeding resource and as a potential breeding area for ground nesting birds.

MH60/1-Manage habitat, open water, by water level control - Control water level in reservoir

The water level in the reservoir is controlled through a series of valves in the Valve Tower; the maximum water height is set by the overflow on the west end of the dam. The minimum water level in the reservoir will need to be agreed and will be dependant on legal requirements especially those associated with supply of water along the Sywell brook.

The control of water levels within Sywell reservoir provides an excellent opportunity for biodiversity enhancement not only within the Park but also in a county context as there are few sites where water levels can be controlled specifically for wildlife. The main benefit would be the creation of a draw down zone which will provide feeding (and potentially breeding areas) for wading birds at the reservoir edge and also allow the establishment of annual plant communities which can support rare plant and invertebrate species.

Water levels should be allowed to drop gradually from April onwards to reach the minimum height by July. From September onwards water levels can be raised to reach the maximum height by November. Natural fluctuations due to excessive rain fall during these times should be allowed to proceed so long as flooding of nests is avoided.

2 - Minimize disturbance to some areas by visitors

MI30/1-Inform visitors, specialist - exclude fishing in east and west arms

The presence of people at the waters edge will have significant impacts of the birds using the open water but will also discourage the birds from breeding in these areas.

MI30/2-Inform visitors, specialist - maintain boat free reservoir

The presence of boats on such a small area of open water will have profound impacts on the use of the reservoir by ducks and wading birds.

The use of boats on the reservoir should therefore be avoided.

MI40/1-Inform visitors, recreational - prevent access by all visitors to no go areas

Access to the waters edge particularly within the two arms of the reservoir has been minimized through the erection of stock fencing. This should be maintained.

Other areas should also be protected from disturbance especially during the breeding season. These areas include:
the bank above the kingfisher breeding cliff
the main areas of marsh habitat
main blocks of dense scrub and woodland

These exclusion zones are marked on Map 4.

ME01/1-Boundary structures - maintain fence along waters edge

A fence has been erected set back from the water edge to discourage access by visitors and dogs. It will important to maintain this to minimize disturbance to birds and other wildlife on the open water and at the reservoir edge.

When grazing is taking place stock should be encouraged to graze these areas to prevent the build up of coarse vegetation.

3 - Encourage establishment of dense marginal habitat and marshy areas.

MH10/1-Manage habitat, grassland, by controlled grazing - implement aftermath grazing in Compartments 1 and 3

Following the removal of the hay crop from compartments 1 and 3 livestock should be introduced to remove the flush of grass. This is a very effective way of reducing the dominance of grasses in a sward which will in turn allow the propagation of more herbaceous species.

Sheep and or cattle are preferred and should be introduced between August and March in order to achieve an average sward height of 10-15cm at the end of the grazing period. The maximum stocking density permitted under the Countryside Stewardship Scheme is 2 LU/ha.

MH55/1-Manage habitat, swamp/fen/inundation, by excavation - extend bird hide scrape

Although initially intended to provide exposed mud to attract birds this scrape now supports an interesting marsh habitat. Re-excavation of this scrape is unlikely to attract significant numbers of birds due to its enclosed nature and would result in losing what has become an interesting habitat.

Removal of higher ground adjacent to the scrape will provide some more visible bird interest and also provide habitat which will complement the existing marsh.

MH55/4-Manage habitat, swamp/fen/inundation, by excavation - create further areas of low lying ground alongside reservoir edge

The creation of shallow margins at the edge of the reservoir will encourage the expansion of existing marsh habitat and provide additional bare mud feeding areas when first formed.

Excavated material can either be pushed into the reservoir to create shallow water at the lake edge or formed into bunds impounding a section of water to create pools which remain wet as the reservoir water level drops during the summer.

MH60/1-Manage habitat, open water, by water level control - Control water level in reservoir

The water level in the reservoir is controlled through a series of valves in the Valve Tower; the maximum water height is set by the overflow on the west end of the dam. The minimum water level in the reservoir will need to be agreed and will be dependant on legal requirements especially those associated with supply of water along the Sywell brook.

The control of water levels within Sywell reservoir provides an excellent opportunity for biodiversity enhancement not only within the Park but also in a county context as there are few sites where water levels can be controlled specifically for wildlife. The main benefit would be the creation of a draw down zone which will provide feeding (and potentially breeding areas) for wading birds at the reservoir edge and also allow the establishment of annual plant communities which can support rare plant and invertebrate species.

Water levels should be allowed to drop gradually from April onwards to reach the minimum height by July. From September onwards water levels

can be raised to reach the maximum height by November. Natural fluctuations due to excessive rain fall during these times should be allowed to proceed so long as flooding of nests is avoided.

Feature/Facility 2 - Marshland habitat

Description

Several areas of marsh habitat are located around the edge of the reservoir. These are of various sizes and have become established through a variety of processes.

Fringes of emergent vegetation dominated by reed sweet grass and reed canary grass have become established at the immediate edge of the reservoir defined by the mean summer water level.

Several reed sweet grass swamps have been established where streams flow into the site and have deposited silt. Within the eastern arm of the reservoir a large area of swamp has become established over silt and the abundance of willow herb in this area may suggest that it is becoming dryer.

At the edge of the western arm, in front of the bird hide, a scrape has been created which is now well vegetated with reed mace, reed sweet grass and gypsywort. Although this area appears to be flooded infrequently it does appear to be damp throughout the summer.

At several points around the reservoir what appear to be land drains arise within the grassland areas, at one point on the eastern arm a significant water flow arises within the site. At these points marshy habitat has been established and where possible this should be enhanced.

These marshy habitats are relatively uncommon in the wider countryside and will support valuable and interesting communities. They are likely to support interesting invertebrate assemblages which will in turn support other groups. They are also quite vulnerable habitats which are subject to scrub encroachment and excessive drying.

Objective 2 Maintain and enhance the areas of marsh habitat.

Prescription & Rationale

Several areas of marsh habitat are located around the edge of the reservoir. These are of various sizes and have become established through a variety of processes. These areas are fragmented and generally small in area making them vulnerable to habitat change.

Sympathetic management of water levels and vegetation control as well as removal of invasive species (willow and willow herb) will be important in maintaining these habitats. However, without more active intervention these areas will change over time through natural processes, and in fact, the progression of these natural processes can have a positive influence on the biodiversity of the site. Where possible, steps should be taken to increase the area of these features by further excavation work or damming of some water flows.

Prescription List

1 - Map the extent of marsh habitat and implement invertebrate survey.

RF02/1-Collect data, vegetation, survey - Map extent of marsh habitats

It will be important to have an understanding of the distribution of the marsh habitats within the Country Park. In the first year this work can guide the management of these areas and also the creation of additional area. Over time this mapping will assess the changes taking place in the distribution and extent of these areas as a result of management activities.

RA82/1-Collect data, other/general invertebrates, survey - assess invertebrate assemblage of marsh habitat

It is possible that the marsh habitat supports a valuable invertebrate assemblage and the importance of these features is in part assumed due to the likely invertebrate value.

This survey should be able to identify key species which can be monitored in future years in order to assess the effectiveness of the management practices applied to these habitats. For example some species of beetle and fly are dependant on the presence of standing water within the vegetation throughout the year, whereas other beetles are prefer the high temperatures found in areas of bare mud created as the water level drops.

2 - Create additional areas of marsh habitat

MH49/1-Manage habitat, bog/mire/flush, by other activities - encourage spreading of springs

Before any work on this spring is implemented an invertebrate and hydrological assessment should be carried out.

A significant spring arises in the eastern bank of compartment 4. A short section of the watercourse has been culverted to allow the path to cross it. This spring appears to support an interesting community of plant species

and may support interesting invertebrate fauna. The volume of water exiting the spring and its confined nature suggest that steps could be taken to enhance its value. Removal of soil from the edges of the channel will allow the water to spread out and create a wider area of marsh habitat. It may also be useful to create a couple of pools in the slope to ensure that there is standing water throughout the summer. The steps taken will need to be guided by the species recorded in the existing spring and by the volume of water available throughout the year.

MH50/1-Manage habitat, swamp/fen/inundation, by water level control - create dam across eastern arm

The marsh in the eastern arm appears to have been formed through the build up of silt from the inflowing stream. The value of this area can be enhanced through by increasing the retention of water both in terms of volume and duration. It is likely, in fact that the bund will become necessary to prevent rapid loss of water from this marsh as the creation of a draw down zone is implemented within the reservoir as a whole.

Creation of a bund will also have the added benefit of providing a raised path across this arm which should be easier to maintain and provide better views than the existing boardwalk.

Soil should be won from the lake edge and used to form a bund from bank to bank at a height above the maximum reservoir height. The top of the bank will need to be of sufficient width to allow the creation and maintenance of the path. The removal of soil from the reservoir edge should be designed to create shallow fringes or lagoons.

Although raising the water level in compartment 4 is an objective it will be important to ensure that the Sywell road is not flooded or that drainage from the upper stretch of the stream outside the Country Park is not impeded. Water level in the marsh area will therefore need to be controlled by a sluice or gated culvert.

MH55/1-Manage habitat, swamp/fen/inundation, by excavation - extend bird hide scrape

Although initially intended to provide exposed mud to attract birds this scrape now supports an interesting marsh habitat. Re-excavation of this scrape is unlikely to attract significant numbers of birds due to its enclosed nature and would result in losing what has become an interesting habitat.

Removal of higher ground adjacent to the scrape will provide some more visible bird interest and also provide habitat which will complement the existing marsh.

3 - Maintain Visitor Centre marsh

MH50/2-Manage habitat, swamp/fen/inundation, by water level control - Manage sluice

The input of water into the visitor centre marsh is controlled by a downstream sluice which causes water to be pushed into the marsh when the boards are put in place.

Water level in the marsh should be increased from September onwards by adding more boards as the season progresses to reach the maximum retained height by November. The reverse process should be carried out from mid April onwards to June to allow a gradual drop in water level. It will be important that the maximum and minimum water heights are set to minimize flooding (beyond the marsh) in the winter and retain wet conditions in the marsh during summer.

Sluice boards will need to be removed for short periods to allow management of the marsh area.

MH53/1-Manage habitat, swamp/fen/inundation, by mowing - Mow one fifth every year

It will not be possible to implement grazing within the visitor centre marsh. This area will therefore need to be mown to limit the build up of vegetation and eventual drying of the marsh. Total removal of all of the vegetation in one go will have a negative impact of the species which use the area and therefore one fifth should be cut and removed each year.

Cut vegetation should be removed from the marsh and pile in an area of low biodiversity value.

MH55/2-Manage habitat, swamp/fen/inundation, by excavation - excavate a small area

The build up of silt and litter is an inevitable process within the marsh habitat. This can be slowed and reversed through excavation of the ground and will also provide shallow pools used by dragonflies and other invertebrates.

Two small pools of 10 square meters should be excavated during the period of this plan. The success and longevity of these pools should be assessed during this plan period before more pools are dug. The excavated material should be removed to an area of low conservation value.

ME40/1-Provide/maintain paths/rides/roads - install length of boardwalk

A short length of boardwalk can be installed in the visitor centre marsh to allow visitors closer access to this habitat and the species present.

4 - Initiate light grazing of eastern arm marsh and edges of reservoir.

MH10/1-Manage habitat, grassland, by controlled grazing - implement aftermath grazing in Compartments 1 and 3

Following the removal of the hay crop from compartments 1 and 3 livestock should be introduced to remove the flush of grass. This is a very effective way of reducing the dominance of grasses in a sward which will in turn allow the propagation of more herbaceous species.

Sheep and or cattle are preferred and should be introduced between August and March in order to achieve an average sward height of 10-15cm at the end of the grazing period.

MH54/1-Manage habitat, swamp/fen/inundation, by controlled grazing - Graze eastern arm marsh

Grazing of the marsh will be essential in order to prevent the eventual drying of the habitat through litter build up. Grazing animals also tend to create a diverse structure in the vegetation with short areas interspersed with longer clumps and will also cause some poaching of the wet mud creating areas where new species will seed in and habitat for invertebrates.

Light summer grazing by cattle is preferred as these animals will push through the dense vegetation and eat coarser vegetation. If cattle are not available equines can be used for a few seasons so long as they are encouraged to graze the marsh areas. Prolonged horse grazing can have a detrimental effect on a sward and should therefore only be used as an interim measure or when combined with cattle.

A stocking rate of 1 cow per hectare should be applied from May to September to minimize the risk of trampling of any bird nests. Approximately 10 cows should therefore graze compartment 4.

5 - Maintain existing areas of marsh through willow removal.

MH52/1-Manage habitat, swamp/fen/inundation, by scrub control - remove willow scrub from marsh

Willow scrub is encroaching on the marsh habitat in Hays Wood and in the hide scrape. If this is not removed it will eventually dominate the marsh habitat.

All willow and other scrub should be removed from the marsh habitat annually during winter. Cut vegetation should be removed or burnt on sacrificial sites.

MH52/2-Manage habitat, swamp/fen/inundation, by scrub control - Coppice scrub surrounding bird hide scrape and Hayes Marsh

Scalloping of the scrub surrounding these marsh habitats will reduce shading and encourage the development of herbaceous edges which can provide nectar sources of resident invertebrates.

The perimeter of scrub blocks should be coppiced on a 7-10 year rotation to allow gradual re-growth before re-coppicing. The size of the coppice blocks should be around 20x5m.

Cut material should either be disposed of back within the dense scrub or burnt within designated areas of low biodiversity interest.

6 - Monitor effectiveness of habitat management.

RV10/1-List/collect photographs, general - implement fixed point photography of marsh areas

Habitat changes within the marsh areas can be picked up relatively easily over time through the use of photography. Defined stations can be set up at the edge of the marshland areas from which photographs can be taken which view the whole or part of the habitat block. Photo's can be taken annually (in summer when the vegetation is most obvious) from the same location. Over time changes in density of invading scrub and even in relative density of species found in the marsh (e.g. reed mace and reed sweet grass) can be assessed. Habitat management can therefore be guided.

RP13/1-Collect data, hydrological, monitor - Monitor water levels in eastern marsh and reservoir

Gauge boards should be installed in the reservoir and also within the eastern marsh. Water levels should be measured weekly throughout the spring and summer as the water level is allowed to drop.

The loss of water from the marsh and from the reservoir as a whole can therefore be controlled to allow a gradual draw down throughout the season.

RF02/2-Collect data, vegetation, survey - carry out NVC survey

A full National vegetation Survey should be carried out every five years as this can provide a valuable tool for assessing the gross changes occurring

within the terrestrial communities. This tool can also give an indication of the factors which are effecting the changes taking place.

RH80/1-Collect data, management, by owners/tenants/public bodies/neighbours - Monitor effectiveness of grazing

Whilst stock are on site it will be important to assess whether they are having the desired effect and ensure that enough vegetation is being removed within the available timeframe. Conversely, it will be important to ensure that the stock do not over graze the vegetation or cause excessive poaching.

Feature/Facility 3 - Unimproved grassland.

Description

It appears that the grassland surrounding the reservoir has not been ploughed or treated with high doses of fertilisers or herbicides for a long time. As with other reservoirs in the county although the grassland does not appear to be species rich it does support a range of interesting species, including ladies bedstraw and black knapweed. There have also been records of green winged orchid which is a species associated with ancient, species rich grasslands. The southern slope of the dam also supports a diverse flora with areas of bare ground which provides valuable sunning sites for invertebrates such as grasshoppers.

Objective 3 Maintain and enhance unimproved grassland.

Prescription & Rationale

Established management regimes for the grassland should be retained wherever possible. In some areas of the site grazing or mowing has been carried out whereas some areas are grazed and mown. However, it is proposed that this should be altered slightly in some areas where the grassland can be enhanced either by creating tussock pasture or by increased removal of nutrients to encourage herbaceous species.

In all cases the intention would be to remove at least that season's grass growth and prevent the build up of nutrients which encourage the growth of out competing coarse grasses.

It will not be feasible to implement grazing or mowing in some compartments such as Cpt 2 and Cpt 5 and it is proposed that these areas are managed through scrub removal and woodland planting respectively.

Prescription List

1 - Initiate mixed grazing in grassland areas.

MH10/1-Manage habitat, grassland, by controlled grazing - implement aftermath grazing in Compartments 1 and 3

Following the removal of the hay crop from compartments 1 and 3 livestock should be introduced to remove the flush of grass. This is a very effective way of reducing the dominance of grasses in a sward which will in turn allow the propagation of more herbaceous species.

Sheep and or cattle are preferred and should be introduced between August and March in order to achieve an average sward height of 10-15cm at the end of the grazing period. The maximum stocking density permitted under the Countryside Stewardship Scheme is 2 LU/ha.

MH12/1-Manage habitat, grassland, by mowing - Implement Hay removal in compartments 1 and 3

Hay has been taken from these areas on several occasions in the past and it is likely that this has been carried out traditionally. Without the removal of the season's growth either through mowing or grazing grassland will tend to become more species poor as coarse grasses dominate.

Hay should be removed once the bulk of the herbaceous species have set seed (usually after the 15th July). Although hay removal is the preferred approach as this encourages seed fall as the crop dries, however if this is not possible the grass can be taken for silage.

MH16/1-Manage habitat, grassland, by enclosure/exclusion - stock fence all compartments

In order that grazing can be carried out within all compartments these areas will need to be stock fenced to keep the animals in the compartments. These fences should be checked regularly to ensure that any damage is repaired.

MH54/1-Manage habitat, swamp/fen/inundation, by controlled grazing - Graze eastern arm marsh

Grazing of the marsh will be essential in order to prevent the eventual drying of the habitat through litter build up. Grazing animals also tend to create a diverse structure in the vegetation with short areas interspersed with longer clumps and will also cause some poaching of the wet mud creating areas where new species will seed in and habitat for invertebrates.

Light summer grazing by cattle is preferred as these animals will push through the dense vegetation and eat coarser vegetation. If cattle are not available equines can be used for a few seasons so long as they are encouraged to graze the marsh areas. Prolonged horse grazing can have a detrimental effect on a sward and should therefore only be used as an interim measure or when combined with cattle.

A stocking rate of 1 cow per hectare should be applied from May to September to minimize the risk of trampling of any bird nests. Approximately 10 cows should therefore graze compartment 4.

2 - Mow selected grassland areas.

MH12/1-Manage habitat, grassland, by mowing - Implement Hay removal in compartments 1 and 3

Hay has been taken from these areas on several occasions in the past and it is likely that this has been carried out traditionally. Without the removal of the season's growth either through mowing or grazing a grassland will tend to become more species poor as coarse grasses dominate.

Hay should be removed once the bulk of the herbaceous species have set seed (usually after the 15th July). Although hay removal is the preferred approach as this encourages seed fall as the crop dries, however if this is not possible the grass can be taken for silage.

MH16/1-Manage habitat, grassland, by enclosure/exclusion - stock fence all compartments

In order that grazing can be carried out within all compartments these areas will need to be stock fenced to keep the animals in the compartments. These fences should be checked regularly to ensure that any damage is repaired.

3 - Create and manage scrub/woodland and grassland mosaic in Compartments 2 and 5.

MH00/1-Manage habitat, woodland/scrub, by coppicing - Coppice edges of scrub blocks in compartment 2

Without regular coppicing these scrub block will become taller and eventually become woodland. Coppicing of the scrub edge encourages the development of a graded edge so that there is a gradual increase in height from the open grassland through a herbaceous and regenerating scrub edge to the established scrub.

The perimeter of scrub blocks should be coppiced on a 7-10 year rotation to allow gradual re-growth before re-coppicing. The size of the coppice blocks will be dependant on the size of the scrub block but a rough guide would be 10x5m blocks which are sufficiently large to allow enough light in for adequate re-growth.

Cut material should either be disposed of back within the dense scrub or burnt within designated areas of low biodiversity interest.

MH01/1-Manage habitat, woodland/scrub, by planting/sowing - plant Homeopathic woodland in Compartment 5

The establishment of the Homeopathic Woodland has already begun within initial planting abutting the marsh in compartment 4. However, the present of trees adjacent to the marsh area will reduce its value as a refuge for wading birds and wildfowl which prefer an open landscape.

However, some planting has already become well established in compartment 5 and this area lies next to a mature block of woodland on a neighbour's land. Completion of the rest of the planting in compartment 5 will complement the existing planted areas and have less impact on the recognised conservation features of the site. Tree and shrub planting should be avoided within 15m of the waters edge to minimize impacts on the birds using the open water.

MH02/1-Manage habitat, woodland/scrub, by thinning/group felling - weed out sycamore and other non native species

Sycamore is an alien species which can invade and dominate native habitats. Sycamore is present in several adjacent woodlands as well as on site. Where time allows this species should be felled or pulled and the stump treated with Glyphosate. Where seeding trees are found within the Country Park (excluding the arboretum) these should be felled as a priority to discourage spread.

MH03/1-Manage habitat, woodland/scrub, by assisting natural regeneration - encourage natural regeneration within and adjacent to established woodland

Regeneration of oak and other native species appears to be limited within Hayes wood. This may be a result of browsing by deer or through cutting or weeding by contractors or the public.

Fencing of specific areas or protection of individual seedlings should be considered to allow regeneration to take place.

MH04/1-Manage habitat, woodland/scrub, by ride/path/glade maintenance - Mow glade and ride habitat in compartment 2 and 5

Valuable grassland habitats have been established within and adjacent to scrub and woodland blocks.

These grassland areas should be mown on a two year rotation to allow the establishment of a tall dense sward and robust invertebrate populations. Half acre mown areas should be placed next to uncut blocks which will be mown the following year. Cut grass should be raked up and removed from site or piled in sacrificial areas.

MH14/1-Manage habitat, grassland, by scrub control - remove scrub from grassland areas

Regenerating scrub within a grassland sward can enhance its biodiversity interest by providing small un-grazed winter refuges for invertebrates and also by creating micro topography which encourages hotspots during the summer. As the scrub gets taller it can provide valuable perching posts for birds. For example this scattered scrub within a grassland habitat is an attractive habitat for grasshopper warblers.

Once scrub increases in size and starts to shade out the grasses this value is lost. Unless controlled by the stock at this stage, the scrub will need to be removed by hand. As a general rule of thumb any regenerating scrub growing within the grassland which is over 1m high or which has a basal stem diameter greater than your thumb should be removed. Cut scrub should be removed from the grassland or burnt on sacrificial areas. If grazing is not preventing re-growth from the cut stumps these should be treated with Glyphosate.

MH16/1-Manage habitat, grassland, by enclosure/exclusion - stock fence all compartments

In order that grazing can be carried out within all compartments these areas will need to be stock fenced to keep the animals in the compartments. These fences should be checked regularly to ensure that any damage is repaired.

Feature/Facility 4 - Notable species

Description

The site supports several species which are of note either due to their local or national importance or due to the interest they may generate from visitors to the Park. These include bats, terns, kingfishers and badgers.

The dam may also support interesting species and habitats which should be encouraged.

Objective 4 Encourage the use of the site by notable species and encourage interactive opportunities with visitors where this does not compromise their status.

Prescription & Rationale

All of the species mentioned are protected by Law and steps will need to be taken to minimise disturbance by visitors to the site and during necessary management works. There will be opportunities whereby visitors to the Park can appreciate these species whilst avoiding unnecessary disturbance. Additional work can be implemented which will enhance breeding opportunities or minimise disturbance.

Prescription List

1 - Create and maintain Tern breeding rafts

RA13/1-Collect data, birds, monitor - monitor use of tern raft

Use of the tern raft by terns (and other species) for breeding purposes should be monitored through the breeding season. The success of these structures in terms of eggs of fledglings produced can then be assessed.

This monitoring can also inform maintenance schedules for the rafts.

MA09/2-Manage habitat, artificial, by other activities - maintain tern rafts annually

Tern rafts should be brought ashore after the breeding season in order to carry out general maintenance. This may involve repairs to the structure, placement of fencing to discourage roosting by ducks and cormorants and washing or replacement of the gravel.

2 - Minimize disturbance to the badger sett.

MA05/1-Manage habitat, artificial, by path maintenance - maintain paths directing visitors away from badger sett

Disturbance to the badger sett should be avoided. At present some paths pass close to the sett and these should be diverted so that they run mid slope below the sett. The main circular walk around the reservoir should cross the arm at the new causeway which will lie to the south of the badger sett. Access to the north of the causeway should be discouraged to minimize disturbance to the sett and marsh by people and their dogs.

3 - Encourage breeding opportunities for Kingfisher and sand martin.

MI10/2-Inform visitors, general - consider installation of screen overlooking cliff

It may be useful to create a simple screen at the lake edge of the proposed picnic area at the eastern end of the dam. This would minimize disturbance to the birds using the cliff and also provide an opportunity for visitors to view the activities of the birds using this area.

MH09/1-Manage habitat, woodland/scrub, by other activities - reduce risk of wind blow above cliff

There are several tall trees growing above the kingfisher cliff. Although these trees provide valuable shade to the cliff they may cause major damage to the cliff if they are blown over. A tree surgeon should be brought in to assess the status of the trees and if necessary carry out crown reduction to reduce the risk.

MH19/1-Manage habitat, grassland, by other activities - allow erosion of bank to continue

The continued erosion of the kingfisher bank should be allowed to continue as this will maintain the conditions necessary for nest hole creation. Should the rate of erosion be so rapid as to risk the footpath then some remediation measures will need to be implemented.

MS40/1-Manage species, bird - consider creation of sand cliff close to existing one

It may be worth while considering the creation of an artificial sand bank close to the kingfisher cliff.

This structure could either be faced with or concrete or remain open to allow natural erosion.

ME40/2-Provide/maintain paths/rides/roads - minimize disturbance to cliff

The Kingfisher cliff and proposed sand martin bank are situated close to the circular walk and it will be important to ensure that access to this area by people and dogs is minimized.

Maintenance of the existing path is vital in order to encourage visitors to stick to it. The planting of a dense screen of thorny shrubs between the path and the water edge should be considered to prevent access to this area.

4 - Encourage roosting potential for bats.

RA02/1-Collect data, mammals, survey - carry out bat survey

Bats are known to use the reservoir and buildings for feeding as well as roosting areas. However little is known about the species which use the site and to what degree the site provides feeding and roosting sites.

A bat survey should be carried out in order to assess the following:

Species of bats using the site

Locations of winter roosts

Locations of summer roosts

Important flight paths

Important feeding areas

This work should inform the future management of the site and buildings and can guide the establishment of new potential roosts.

MI10/1-Inform visitors, general - minimize disturbance to bat roosts

It is unlawful to disturb bat roosts. Once bats roosts have been located these should be recorded and all relevant staff informed. The potential impact of disturbance by visitors should be assessed and steps taken to mitigate for this. When contractors are employed on site they should be informed if they are likely to come close to a bat roost so that potential disturbance can be avoided.

MH08/2-Manage habitat, woodland/scrub, by managing dead wood - retain and create dead wood features wherever possible

The Site wardens are obliged to make regular inspections of all the larger trees in the park, and record their results, taking action when necessary. This should reduce the likelihood of accidents involving tree or branch collapse.

Wherever possible dead wood features should be retained as these can provide important habitat for roosting bats and invertebrates. It is unlawful to recklessly disturb bat roosts and steps will need to be taken to prevent this occurring.

Where potentially hazardous branches are identified their removal should only be considered as a last resort. Strapping of the branch, partial removal to reduce weight or relocation of the path should be considered first.

Where branches are removed whether dead or alive (specifically if over 30cm diameter) they should wherever possible be left as close as possible to the location they were removed from. However, it is generally preferential if dead wood can be left in at least partial shade.

MA09/1-Manage habitat, artificial, by other activities - consider creation of new potential roosts

Following completion of the bat survey the creation of additional roosts should be considered to provide alternative roosts for existing populations and new roosts for additional populations.

These new roosts may take the form of boxes or specially designed chambers in existing buildings.

5 - Enhance maintenance of the dam to support valuable habitats.

MH12/2-Manage habitat, grassland, by mowing - create patchwork of grass heights on dam

The grassland on the south side of the dam is cut on a regular basis. This area appears to be relatively diverse and being south facing has potential to support an interesting invertebrate community. The value of this feature should be enhanced through sympathetic mowing regimes.

Only half of the grassland should be cut in any one year to allow the build up of invertebrate populations. Ideally cutting should take place only after the 15th of July and should result in a patchwork of cut and uncut areas (in the form of a checkerboard or in strips). Cuttings should be removed to an area of low biodiversity interest.

MA02/1-Manage habitat, artificial, by weed control/spraying - prevent excessive weed growth on dam wall

The growth of weeds between the paving slabs on the dam wall can constitute a threat to dam safety, and should therefore be controlled. Chemical herbicides are used and at present the whole wall is sprayed at once.

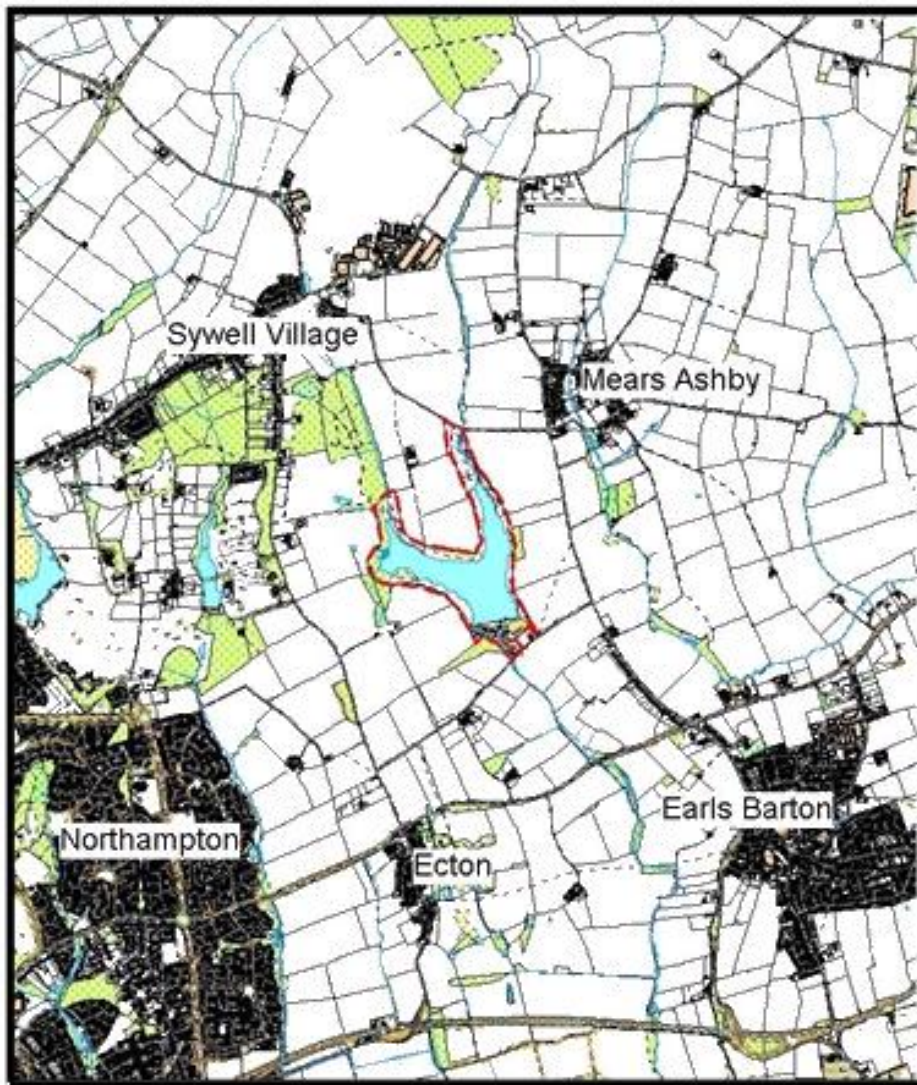
Other similar walls in the county support interesting species including mottled grasshopper and it appears that these structures may mimic baked habitats like heathland and sand dunes. Some sparse vegetation growth would obviously be required in order to maintain these species.

Two quarters of the dam wall should therefore be treated with herbicide at any one time with the remaining areas only treated once recovery of the other areas has begun. In this way only half of the wall will be treated at any one time.

**Sywell Country Park
Five Year Wildlife Management Plan 2009-2014**

Appendix A: Maps

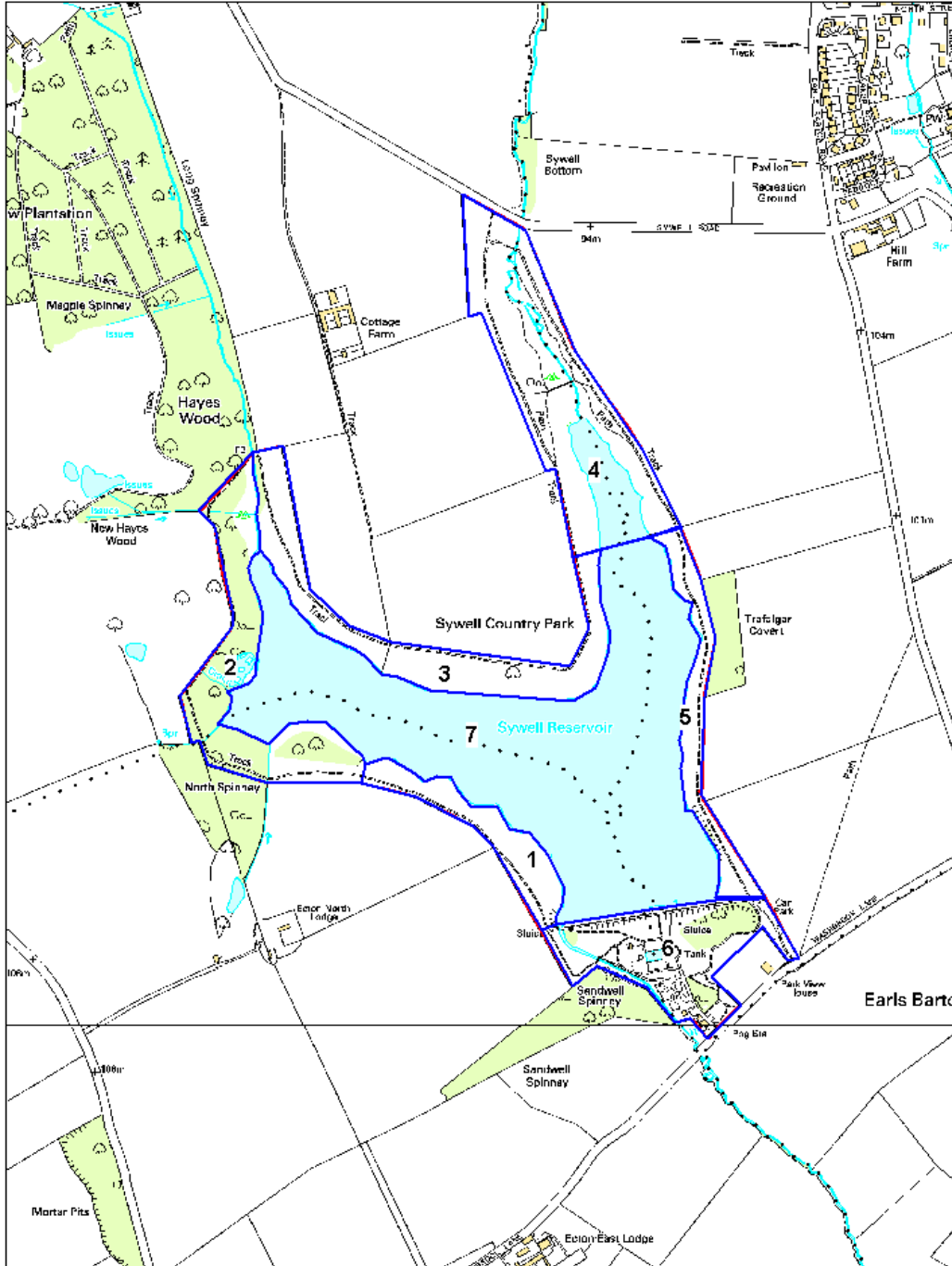
Map 1: Location of Sywell Country Park



Map 2: Site boundary (broken red line)



Map 3: Sywell Country Park compartments



Map 4: Selected Management Works and Exclusion Zones

