Tormarton pond, Tormarton (ST779786)

Management Plan

Prepared for Tormarton Parish Council
April 2005

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Management Plan

Remit
To produce a management plan for Tormarton pond which acknowledges both the nature conservation and public access value of this site. To identify priority areas for both nature conservation and public access, to balance the requirements of these two demands, with nature conservation being foremost, and to recommend management works which maintain and enhance the integrity of the site.

Methodology
A brief survey and mapping exercise was carried out by PQ on 25th March 2005 during dry and sunny conditions. This was undertaken to re-familiarise the surveyor with the site as PQ had undertaken a more detailed survey here in 2003 as part of an Avon Wildlife Trust survey team. More detailed management requirements were available in 2005and the nature and potential impact of these were assessed during the 2005 survey.

Description
This large pond is located in the centre of Tormarton village in the right angle formed by High Street and Rectory Lane. Covering approximately 0.28ha the pond is believed to date from at least 1637 when the name *Pool Orchard* was recorded from this site. The pond overlies a thin band of Jurassic Fuller's Earth Clay: a substrate which will enhance its natural water retaining properties. The depth of the pond increases from a shallow shelf on the eastern edge to a deeper area covering much of the pond; a small island is present between the centre and the north bank. A small stream flows along the northern edge of the pond, takes the outflow from the pond and is mostly culverted, emerging as a spout in the eastern boundary wall.

Apart from a single narrow vantage point the pond is not visible to pedestrians from the footpath alongside the road and is not visible at all to passing motorists. However visual access is excellent from Rectory Lane which is both a residential access track and a public footpath. An open belt of mature trees and scrub occupies much of the northern and western margins of the pond site. The southern margin is essentially a narrow sloping bank which supports a tall herb vegetation. The eastern margin also has some tall herb vegetation but also bare areas where members of the public stand to feed ducks or sit on the adjacent wall; stone walls, both mortared and unmortared, border the site on the northern, eastern and western sides. The southern boundary is a post and wire fence.

The western third of the site comprises a shallow pond area with abandoned withybed and much scrub. This area is separated from the main pond by a narrow bund.

Adjacent land use includes a private garden to the south, public house car park to the west, metalled road on the north and an un-metalled track on the east; in effect the pond is surrounded by residential properties and infrastructure.

Management history
In 2004 the pond came into the possession of Tormarton Parish Council; it was formerly owned by Anthony Grigg, (the Earl of Altrincham), and the executors of the estate of Mr John Grigg. During the ownership of the Grigg family the pond and its surrounds were managed on an ad hoc basis by local villagers who undertook limited works as and when necessary.

A team from Avon Wildlife Trust surveyed the pond in June 2003 and produced a brief report which incorporated management recommendations. A management plan for the site was produced by Habitat Practice in 1997 when many recommendations to maintain and enhance the quality of the pond were made; however it is believed few of these recommendations were enacted. Limited tree surgery took place around the pond following a tree survey in 1994 whilst in 1984 and 1985 works were undertaken on the water flow through the pond. In 1976 the pond entirely dried out and some silt excavation took place as well as the creation of the island from building rubble. At some point between 1976 and the present a number of plant species are believed to have been introduced to the site from a site on the Kennett and Avon Canal; this may explain the presence of a number of notable plant species (see below). It is believed there is no recorded management history of the site prior to 1976 although the presence of the withy bed suggests that at least this western third of the site supported small scale coppicing.

Public access
At present the public have free access to the pond and its margins. In practice however, due to difficult topography and dense vegetation growth, public access is mostly limited to the eastern margin where there is relatively easy access from Rectory Lane over the partially collapsed stone boundary wall. A memorial gateway is present in the northern boundary wall of the site; steps lead up from this gateway to the level of the pond margin and a poorly used rough path leads east from the top of these steps to the eastern margin of the pond. However it is believed that it is primarily children who use this rough path.

Detailed description –vegetation communities

Approximately half of the site consists of the pond whilst the remainder comprises tall herb vegetation with many mature trees and shrubs, and an area of swamp / former withy bed in the west.

In both 2003 and 2005 the pond could only be surveyed from the shore as no boat was available. A thin band of emergent vegetation fringes the southern bank whilst a large raft of amphibious bistort *Persicaria amphibia* fringes the eastern bank as well as the central island. The island itself supports several young ash *Fraxinus excelsior*. Of particular note on the eastern fringe is a plant of water dock *Rumex hydrolapthum*; this species is scarce in the Bristol region and mostly found on the Somerset Levels. An area of marsh marigold *Caltha palustris* is also present near the outflow as well as in the margins of the withy bed pool; a smaller clump of this species is also present on the north western margin of the pond along with a small population of flag iris *Iris pseudacorus*. Emergent vegetation is scarce around the other banks of the pond where trees and shrubs cast considerable shade and the edge of the pond shelves deeply.

A substantial area of tall herb vegetation is present in the north of the site. Most of this consists of nettles, docks and other species that are usually thought to be of low value and little interest. However this vegetation is what one would naturally expect to find around ponds and watercourses. As such it is utilised by a large number of species

(mostly invertebrates). Another important area of tall herb vegetation is present around the southern edge of the site; this consists largely of nettle *Urtica dioica* with willowherb species *Epilobium* spp.

The dominant impression of the pond is of a wooded site. Trees and shrubs occupy much of the northern and western edges of the pond as well as the southwestern and south eastern corners. Crack willow *Salix fragilis* and ash are the dominant trees with few of the willow showing past evidence of pollarding; hawthorn *Crataegus monogyna* and elder *Sambucus nigra* along with bramble *Rubus fruticosus* agg. are the most common shrub species. Several large trees extend their canopy some distance over the pond.

Within the former withy bed area there is a shallow pool possibly formed from the siltation of a small pond; this open water area has and been partially colonised by emergent vegetation and willow species. Flag iris occurs in two large stands but the most interesting plant here is almond willow *Salix triandra*, a scarce species in the Bristol region with most records coming from the South Gloucestershire lowlands.

Where tree cover is sparse there is a dense tall herb vegetation dominated by nettle *Urtica diocia*.

Given the location of this site –high on the Cotswold ridge of South Gloucestershire – there are a surprising number of uncommon wetland plant species present here which are more typical of the lowlands. The presence of at least some of these species may be explained by the introduction of plants from the Kennett and Avon Canal.

Detailed description –trees

Many of the mature crack willow show signs of disease or stress; several have been felled or subject to tree surgery over the past five years. The ash are generally in good condition as are the shrub species. However although largely in good condition the ash and hawthorn are casting considerable shade onto the pond. The subsequent reduction in sunlight reaching the pond and its margins will impoverish both the botanical and invertebrate interest of the site.

The withy bed area is currently a dense network of fallen and snagged almond willow, erect grey willow, much bramble, hawthorn and elder as well as a healthy six-stemmed semi-mature crack willow.

Detailed description – fauna

Mammals

In 2003 several scattered droppings which appeared to be those of the endangered water vole *Arvicola terrestris* were recorded; however it was not possible to get close enough to them to confirm this. No evidence of water vole was recorded in 2005. It is felt likely that water voles could have been present here until the recent past given their confirmed presence on several of the headwater streams in the Tormarton area. Local residents (recorder unknown) ascertain that water voles were definitely recorded here 5 or 6 years ago.

In addition the following mammals have been recorded from the site although details of these records are not available:

“Bat”	“Shrew”	Rat	Hedgehog
“Mice”	“Vole”	Grey squirrel	

Birds
During the 2005 survey four moorhen and two mallard drakes along with a mallard duck were recorded here; it is believed that the mallards at least are encouraged by villagers feeding them. The moorhen appeared to be demonstrating territorial behaviour and it is felt that the site could well support two breeding pairs of this species.

In addition the following species were recorded on the site during the 2005 survey:

Long-tailed tit	Collared dove	Great tit	Greenfinch
House sparrow	Blackbird	Jackdaw	Blue tit
Robin	Chiffchaff		

Odonata
During the 2003 survey damselflies were frequent on the southern margin of the pond, in particular azure blue *Coenagrion puella* and large red *Pyrrhosoma nymphula* were abundant on the tall herb and emergent vegetation on the southern fringe.

Amphibians
A dead female great crested newt was recorded adjacent to the eastern boundary wall near the drive of Drake House during the 2005 survey. The newt appeared to have been run over by a vehicle but was clearly of this species. A confirmed breeding population of this species is believed to be present in a garden pond approximately 40m to the east of the site.

Frogs are said to be usually common in the pond although in both 2003 and 2005 very few were seen by local residents. Both toad and "common newt" are also reported from the pond although details of these records are lacking.

Fish
Both goldfish and minnows have been recorded in the pond in recent years by local people although it is believed that the goldfish have not been seen for over six months. The presence of large fish such as goldfish, which will predate juvenile amphibians and invertebrates, is undesirable.

Butterflies
During the 2003 survey the following butterflies were recorded:

Painted lady	Speckled wood	Holly blue	Small white

Ecological assessment
The pond and its surrounds is of high nature conservation value; there are relatively few ponds of this size, value and age within South Gloucestershire. The great range of habitats and plant communities present on such a small site - from open water of varying depths through fringes of emergent vegetation to tall herbs, mature trees, scrub and the withy bed- makes it especially diverse. Additional value is added to the site by the majority of trees and shrubs being present on the north and west sides. To maximise the nature conservation value of a pond it is important for the southern and eastern sides to be relatively free of trees and shrubs as these intercept sunlight and cast shade onto the water; ponds are of greater nature conservation value if more direct sunlight reaches them.

Public access assessment

At present the pond offers limited formal public access opportunities; able bodied members of the public can access the site from either the monumental gates in the north or through the stone wall on the eastern side. Less mobile members of the public would find the site difficult to access given the steps associated with the gates and the rough, unmade, nature of the path. Given the ability of unsupervised children to access the site there are health and safety issues resulting from the deep water and the lack of any life-saving equipment around the pond.

Management issues

The core aims of any management on this site will be to maintain the biodiversity value and range of habitat structure whilst also encouraging low key public access to the site. Within these general parameters there are individual issues relating to the pond and its environs which are best described separately.

1. Maintaining and enhancing the nature conservation value of the main pond and its margins

The varied structure of the pond considerably enhances its nature conservation value. Open water will be of value to the water fowl, many invertebrate species as well as submergent and floating plants. Daubenton's bat, which has been recorded in the general Bath area, also prefers to feed on flying insects over large bodies of still water clear of overhanging vegetation.

The current diversity of plant species is healthy and broadly representative of what one would expect from a Cotswold pond. However the emergent fringe is somewhat impoverished. This is the area of vegetation with its roots in the water but with its leaves and flowering parts above water. The emergent fringe is often the most productive and species-rich part of a pond for it is here that the water meets the land and many species can find a niche. The existing fringes on the south and east of the pond must be maintained and enhanced.

2. Treeworks

A number of the larger trees on the northern side of the site are either in a moribund state or are casting excessive shade onto the margins of the pond. Some shade is advantageous but at present the high levels of shading on the north bank are suppressing emergent vegetation. Emergent vegetation is frequently aesthetically attractive, softens the otherwise hard boundary between water and dry land, and is of great value for amphibians, water birds and invertebrates.

Some dying trees and standing dead wood is of great value to invertebrates, birds such as woodpeckers, and tree roosting bats such as the noctule.

However the dead and dying trees in this area present a potential public safety issue.

3. Boundaries

The eastern boundary wall is in a semi-derelict condition. Given its dry stone construction this presents an opportunity for stone thieves to easily remove attractive parts of the wall -especially the flat capstones which provide a significant character to the boundary and which will be very difficult to replace. The derelict condition of this wall also presents health and safety issues as children are believed to walk on and run along the top of the wall.

The northern, roadside, wall has several areas where the stonework has crumbled or has been displaced by ivy (which has now been removed). These areas of weakness will result in sections of the wall being more prone to collapse: not only an issue from the cost and resources required to repair it but also from a public safety perspective given its situation adjacent to a pavement.

4. Coppicing withy bed & removing alien species

At present the derelict withy bed is one of the most important nature conservation areas within the site given the thick tangle of willows, shrubs and bramble associated with the shallow pool. The presence of several fallen almond willow stools with many stems intertwined and some semi-submerged further enhances the nature conservation and "wilderness" value of this area. A number of rare and scarce invertebrate species require rotting timber either fully or partly submerged in water; some species require such habitat in full light whilst others prefer dappled light or shade.

However it is likely that without some form of management the scrub will mature, coarsen and become of lower value to invertebrates and breeding birds. Equally the shallow pond is likely to continue to fill with sediment and detritus and eventually cease to hold water.

A number of alien, and potentially invasive, species are associated with the north western corner of the withy bed. Here two young horse chestnut *Aesculus hippocastaneum* appear to have been planted along with a young Norway spruce *Picea abies*. A clump of garden yellow archangel *Lamiastrum galeobdolon argentatum* has also established here along with small clumps of garden daffodil *Narcissus* sp. Both these herb species are non-native and can become invasive. However the large patch of lungwort *Pulmonaria* sp on the southeastern corner of the withy bed, although non-native and invasive, is especially valuable for bees in early spring when there are few other nectar sources available. Consequently this species is a positive alien addition to the site.

5. Planting shrubs along the inner edge of the northern wall.

It is believed that privet *Ligustrum* sp. was planted along the northern edge of the site in 1976. However only scattered plants of oriental privet *Ligustrum ovalifolium* are present here now. This northern edge of the site would benefit from a denser screen of shrubs; this would enhance the site's quiet sense of seclusion and improve nesting opportunities for small birds.

6. Improving conditions for amphibians

An important aspect of the management of this site is the enhancement of amphibian populations. It is believed that the frog population of this pond has declined considerably in recent years and there is only indirect evidence of toad, "common newt" and great crested newt using the site. The presence of the dead female great crested newt in 2005 –adjacent to the eastern boundary wall may suggest that this species is using the pond as part of a metapopulation (a population consisting of a core breeding site with smaller satellite breeding sites around it); this supposition is enhanced by the reported breeding population in a garden pond 40 m to the east. Larger fish such as the goldfish, as well as ducks, are major predators of frog spawn and young amphibians in general.

7. Improving public access

It is important that the residents of Tormarton are able to enjoy the pond through quiet recreation. It is proposed that a wooden bench be installed on the northwestern side of the pond; this will sit on a concrete raft and be fixed to this raft to avoid theft and reduce vandalism. Access needs to be formalised and directed either through the existing monumental gates or through a new access point on the northern or north

eastern side of the site. In addition there should be provision for life-saving equipment (lifebuoy etc) on the eastern side of the pond near the main area used by the public.

8. Improving the management of the water flow through the pond

It is believed that the current water flow regime does not allow for a sufficient through flow through the pond. A water flow system is required that can be more easily regulated and which will move a greater volume of water through the pond.

Management proposals

The following proposals are framed within a ten year time span. The table in Appendix 2 offers suggestions as to the recommended time frame within which each action should be carried out.

1. Maintaining and enhancing the nature conservation value of the main pond and its margins

1.1 It is proposed that very little management is undertaken on the open areas of the pond itself. The only exceptions will be:

- if it is felt that silt levels become very high across much of the pond; from the present condition this would seem unlikely within the next ten years.

- if algae levels become very high and further barley straw bales need to be added to the pond.

1.2 No species of plant must be introduced to the pond. Many species of aquatic alien plants have been released into the countryside and have caused great problems, such as out-competing native species, clogging up of ponds and introducing diseases to which native species have little immunity. Even some native species such as reed *Phragmites australis* and reed-mace *Typha latifolia* can be very invasive and require considerable manpower and financial resources to control once established.

1.3 The emergent fringe on the south and east of the pond must be maintained; ideally no work should take place here unless coarser vegetation establishes. If undesirable plant species colonise this fringe it will be necessary to remove them; any encroaching bramble should be cut back annually.

1.4 Enhancing the emergent fringe will be of great value to a wide range of wildlife. This objective will be achieved by treeworks which will reduce shading and leaf fall (see 2.2).

1.5 Maintaining and enhancing the tall herb area on the northern edge of the site is necessary for many species of invertebrates to complete their lifecycles and should be left intact and in situ as much as is possible – some insects even overwinter in the dead stems of nettles and docks. It is accepted however that a more formal path may be required between the monumental gateway and the eastern bank where public usage is most pronounced at present (see 7.1). If so it will be necessary to retain as much tall herb vegetation as possible; the reasons for doing this will probably not be understood by many members of the public as they will have a poor understanding of the value of this plant community. It will be important to educate the community on this matter, and indeed about other aspects of the proposed management.

If scrub starts to predominate in the tall herb area it may be necessary to undertake some limited scrub clearance to ensure the continuity of tall herbs.

2. Treeworks

2.1 Increasing the area of emergent vegetation has been identified as one of the key nature conservation objectives of this management plan (see 1.3). This is most easily achieved by reducing the shading effect of overhanging trees and shrubs.

2.1.1 It is proposed that the lower bough of the large ash which overhangs the island be removed; this will not only reduce shading but also reduce access for mammals such as squirrels to water fowl nests on the island.

2.1.2 Coppice the hawthorn immediately to the east of this large ash.

2.1.3 Reduce the crown on the semi-mature ash in the north east by 40-50%. This will not only reduce shading of the emergent fringe but also enhance the appearance of this ungainly tree.

2.1.4 Coppice the ash and elder on the south eastern edge of the pond.

2.1.5 Fell the dead willow adjacent to the ash and elder.

2.1.6 Coppice the young ash trees on the island at least on a ten year cycle to prevent them developing into mature trees. As mature trees they would cast considerable shade onto the open water.

2.1.7 Cut the re-sprouting ash on the south bank and carefully treat the stump with glyphosphate. Ensure this is done on a dry day with no prospect of rain in the next twenty-four hours.

2.2 Fell the dead willow along the northern boundary.

2.3 Retain all cut wood and timber on site to create habitat piles (see 6.2).

2.4 Blocks of scrub between the large trees should also be trimmed so that at least 60% of the immediate bankside area in the north and west is free from shrub cover. To prevent additional public access to these areas of bank (and thereby reducing disturbance to wildlife) it is proposed that scrub which is not immediately on the bank be kept in situ. Cut material could be put across gaps in the scrub to act as a deterrent to public access. The 40% of bankside scrub which will not be cut will act as cover for water birds to nest.

3. Boundaries

3.1 Rebuild the dry stone eastern boundary wall. To retain the attractive aesthetic value of this wall as much of the original stonework as possible must be used in the rebuild. New stone should be intermixed with the old stone. It may be necessary to mortar the cap stones to help prevent theft. The height of the wall must be maintained at a level equal to that of the wall on the opposite side of the lane.

3.2 Replace the lost /crumbling stonework in the northern wall, preferably with weathered stone of a similar age, colour and texture.

4. Coppicing in the withy bed & removing alien species

4.1 This little visited area should continue to remain as inaccessible as at present. The attractiveness of the irises here when in flower might lead people to seek easier access so they can be viewed. However there is a remote possibility that water voles might still be present here, and the presence of other uncommon wetland species might be compromised by opening up this area. Furthermore it is advantageous from both nature conservation and aesthetic perspectives to have a “wild” part to a site wherever possible as this will provide a refuge for species more susceptible to disturbance. During any works here (4.2) a fringe of scrub should be retained to deter public access.

4.2 However it is accepted that the shallow pool in the withy bed may silt up and become scrubbed over within time. To prevent this it is recommended that the following management be applied:

4.2.1 The southern half of the site be coppiced in five years time. This will rejuvenate the scrub and prevent it developing into mature scrub which is of a lower value to invertebrates and nesting birds. Four of the stems of the six-stemmed willow should be coppiced at this stage whilst the other two stems are allowed to grow. Some large pieces of cut trunk and branch must be left on site, some in the water, some partially in the water and others on dry land: this will considerably benefit invertebrate species. by the end of the ten year period. If this appears to be happening quite rapidly it will be necessary to look again at the site and assess whether scrub clearance and limited excavation might be necessary.

4.2.2 The northern half of the site will be coppiced in ten years time. This will have the same benefits as outlined above. However at least one on the fallen almond willow stools (with its multiple fallen and semi-erect stems) must be left uncut to retain some of the "wild" feel to the withy bed and to retain good invertebrate habitat.

4.2.3 During the works undertaken in 4.2.1 it is recommended that a limited amount of silt be removed from the shallow pool. This will help retard siltation. However at least a third of the silt must be retained in situ as this will hold invertebrates at various stages of their lifecycles; some of these invertebrates may be rare or at least localised in their distribution. Any flag iris or marsh marigold disturbed during this operation should be repositioned around the de-silted areas.

4.3 The horse chestnuts, Norway spruce, garden daffodils and garden yellow archangel must be removed from the site; the trees will have to be cut and the root stocks of the horse chestnut dug up and also removed. Any other garden-derived debris present around these aliens must also be removed at this time.

5. Planting shrubs along the inner edge of the northern wall.

5.1 Planting relatively shade tolerant native species (such as holly, dogwood and hawthorn) along the inner edge of the northern boundary will help form a dense screen which will enhance the secluded character of the pond. This will also prove beneficial to nesting birds. Shrubs should be planted at least 2m from the wall to avoid root damage to the wall.

6. Improving conditions for amphibians

6.1 Avoid the introduction of predatory species

6.1.1 To encourage amphibians and invertebrates it is proposed that any introduced fish currently in the pond are removed. Local people should be informed on the dangers of introducing fish to the pond: such dangers include heavy predation of young amphibians.

6.1.2 Arrange for an electro-fishing survey by Environment Agency staff. This will establish what species of fish, and in what population size, occur in the pond. Undesirable species can be removed during this exercise.

6.2 Improve over-wintering amphibian refugia by retaining all loose stones and rocks on site; repairing the eastern boundary wall as a dry stone wall (see 3.1); and retaining all wood and timber from tree works on site in the form of log piles situated under large trees and bushes.

6.3 Establish whether great crested newts are breeding in the pond by contacting the Avon Reptile and Amphibian Group (ARAG). ARAG volunteers will be able to conduct presence or absence surveys; if presence is confirmed bottle trapping and egg-search surveys will help establish the size and breeding condition of the population. This work will also hopefully establish which of the smaller newt species are present.

7. Improving public access

7.1 Access to the eastern bank. At present there is trampling on the eastern bank where people stand to feed the ducks. It may be necessary to have this thin area between the pond and the boundary wall as a "sacrificial" public access area where heavy public access will be accepted.

7.2 Create a narrow informal path between the monumental gateway and the eastern bank by regular strimming of a 1m wide path which follows a sinuous course through the tall herb community.

7.3 Investigate the possibility of widening the gateway and /or replacing the steps with a gentle slope to improve disabled access.

7.4 Erect bench on the eastern bank area to formalise a sacrificial area of more intense public pressure.

7.5 Health and safety. With public access to the pond it will be advantageous to erect a lifebuoy or at least notices alerting the public to the dangers of being next to the water. This demonstrates consideration of public safety.

7.6 Education. The public must be made fully aware of the need to carry out certain works, preserve plant communities and retain wild, unvisited areas. Education will be essential before any management work is conducted so as to avoid conflicts of interest and misunderstandings.

8. Improving the management of the water flow through the pond

8.1 Seek advice from a hydrologist on the best methods to achieve this objective. It is recommended that optimum water levels should be no lower than 1.5m below the base of the dry stone wall on the eastern side of the site.

APPENDIX 1

Plant list.
The following is primarily a list of those plant species which were recorded during the 2003 survey; additional species recorded only in 2005 are indicated by *:

Ground elder	Aegopodium podigara
Horse chestnut	Aesculus hippoocastaneum*
Cow parsley	Anthriscus sylvestris
Fool's watercress	Apium nodiflorum
False oat-grass	Arrhenatherum elatius
Cuckoo pint	Arum maculatum
Water-starwort	Callitriche sp.
Marsh marigold	Caltha palustris
Hedge bindweed	Calystegia sepium sepium
Wavy bittercress	Cardamine flexuosa
Enchanter's nightshade	Circaea lutetiana
Field bindweed	Convolvulus arvensis
Dogwood	Cornus sanguinea*
Hawthorn	Crataegus monogyna
ornamental hawthorn	Crataegus sp
Cock's-foot	Dactylis glomerata
Male fern	Dryopteris filix-mas*
Great willowherb	Epilobium hirsutum
Broad-leaved willowherb	Epilobium montanum
Ash	Fraxinus excelsior
Cleavers	Galium aparine
Herb robert	Geranium robertianum
Herb benet	Geum urbanum
Ivy	Hedera helix
Flag iris	Iris pseudacorus
Garden yellow archangel	Lamiastrum galeobdolon argentatum*
Common duckweed	Lemna minor
Oriental privet	Ligustrum ovalifolium
Cultivated apple	Malus domestica
Water mint	Mentha aquatica
Garden daffodil	Narcissus agg.*
Amphibious bistort	Persicaria amphibia
Hart's-tongue	Phyllitis scolopendrium*
Norway spruce	Picea abies*
Annual meadow-grass	Poa annua
Soft shield fern	Polystichum setiferum*
Curled pondweed	Potamogeton crispus
Lungwort	Pulmonaria sp.*
Lesser celandine	Ranunculus ficaria*
Creeping buttercup	Ranunculus repens
Bramble	Rubus fruticosus agg.
Water dock	Rumex hydrolapathum
Broad-leaved dock	Rumex obtusifolius
Wood dock	Rumex sanguinea
Grey willow	Salix cinerea
Crack willow	Salix fragilis
Almond willow	Salix triandra
Elder	Sambucus nigra

Bittersweet	Solanum dulcamara
Nettle	Urtica diocia
Brooklime	Veronica beccabunga*
Pink water-speedwell	Veronica catenata
Guelder rose	Viburnum opulus*

APPENDIX 2

Management table

Tormarton Pond: Table of proposed management works

Management plan code (refer to)	Management works	Year in which works are best undertaken	Preferred time of year for works
1.3	Monitor algae levels in pond; add several barley bales when necessary	Monitor every year; add bales when necessary	Summer (most algae growth at this time)
1.5	Monitor scrub growth in area of tall herbs on south side of pond.	Monitor every year; cut scrub when necessary	Cut scrub in winter
7.2	Keep 1m wide path between gate and eastern bank strimmed	Every year; strim when necessary –do not exceed 1m width	Spring, summer & autumn
2.1.1	Remove lower bough of ash which overhangs the pond	Year 1	Winter
2.1.2	Coppice hawthorn immediately east of the large ash which will have the lower bough removed	Year 1	Winter
2.2	Fell dying willow along northern boundary wall	Year 1	Winter
6.1.2	Investigate feasibility of electro fishing with Environment Agency staff; if possible conduct electro fishing	Year 1	Summer
6.1.3	Establish presence or absence of newt species	Year 1	Spring
7.5	Erect lifebuoy or similar device: seek advice from safety professional (S Glos Council?)	Year 1	The sooner the better
1.5 / 6.1.1 / 7.6	Educate the public on: value of tall herbs / dangers of introducing fish and alien amphibians to the pond / the over all purpose of managing the pond	Year 1	The sooner the better
2.1.3	Crown reduction for ash in northeast corner	Year 2	Winter
2.1.4	Coppice ash and elder on southeastern corner	Year 2	Winter
2.1.5	Fell dead willow on southeastern corner	Year 2	Winter
2.1.7	Cut re-sprouting ash on southern bank; treat stump with herbicide	Year 2	Winter / early spring

3.1	Re-build eastern dry stone boundary wall	Year 2	Spring/ summer (to avoid harming hibernating amphibians)
3.2	Restore damaged stonework on northern boundary wall	Year 2	Any time
7.3	Investigate possibilities of widening gateway etc.	Year 2	Any time
7.4	Erect bench	Year 2	Any time
8.1	Get hydrologist to draw up ideas for improving water flow through the pond	Year 2	Any time
2.1.6	Coppice island trees	Year 3	Winter
2.4	Keep scrub in check on northern and eastern banks	Year 3	Winter
4.3	Remove Norway spruce, horse chestnut and garden plants from northeastern corner of withy bed	Year 3	Autumn, winter or very early spring (to avoid disturbance to nesting birds in this area)
5.1	Plant native shrubs along northern boundary of the site	Year 4	Winter
4.2.1	Coppice the southern half of the withy bed and adjacent scrub	Year 5	Late autumn /early winter
4.2.1	Limited de-silting of the withy bed pool	Year 5	Late autumn /early winter (to avoid disturbance to hibernating amphibians)
2.4	Keep scrub in check on northern and eastern banks	Year 9	Winter
4.2.2	Coppice the northern half of the withy bed	Year 10	Late autumn / winter

All works must comply with the detailed prescriptions outlined in the text of the management plan.

APPENDIX 3

Useful contacts

Environment Agency (North Wessex region)
Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS 01278 457333 fax: 01278 452985

Useful for all water-related matters, in particular may be able to recommend hydrological advice (for improving flow through the pond) and also for electro-fishing.

ARAG (Avon Reptile & Amphibian Group)
c/o Tim Corner, BRERC, Ashton Court Visitor Centre, Ashton Court Estate, Long Ashton, Bristol BS41 9JN 0117 9532140 Fax 0117 9532143
info@brerc.org.uk www.brecrc.org.uk

Will provide assistance, or recommend suitable surveyors, for doing detailed newt surveys.

Avon Bat Group
C /o Jacqui Warren, 16 West View, Wootton-under-Edge, Glos GL12 7HP

Will undertake bat surveys and encourage members of the public to conduct their own bat surveys.