Ecological Management Plan

St Ann's Hill

2014 - 2018

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Prepared for:
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Quality Control

The information and data which has been prepared and provided is true and has been prepared and provided in accordance with the ''*Code of Professional Conduct'* issued by the Chartered Institute of Ecology and Environmental Management (CIEEM). We confirm that the opinions expressed are our true and professional bona fide opinions.

		Date
Survey Ecologist	Claire Gibbs BSc(Hons) MSc MCIEEM	Survey dates 17/02/2014 & 11/03/2014 and previously 28/07/2009 & 10/08/2009
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Approved by	Nicky Williamson BSc(Hons) MSc MCIEEM	Date authorised as complete 17/03/2014

The contents of this report were correct at the time of the site visit. The report is provided for the sole use of the named client and is confidential.

Contents

1.0 Introduction

1.1 Surrey Wildlife Trust (SWT) Consultancy has been commissioned by Runnymede Borough Council to produce management plans for 6 sites which have been allocated as Suitable Accessible Natural Greenspace Sites (SANGS). This work will draw on previous work undertaken by SWT including Extended Phase 1 surveys, Access Assessments, Ecological Data Searches and specific surveys for certain species groups.

1.2 Due to constraints such as the time of year when surveys of certain species groups can be carried out, some surveys will be undertaken in spring / summer 2014. The results from these surveys may need to be incorporated into the management plans at a later date.

1.3 This management plan covers St Ann's Hill. An extended Phase 1 survey, Access Assessment and Data Search of this site was undertaken in 2009. In addition a badger survey was undertaken in November 2013. Bat and reptile surveys will be undertaken on the site in spring / summer 2014.

1.4 This management plan aims to bring together all available information on the site at St Ann's Hill. Using all the available information, the site has been evaluated and the important features of the site identified. For each feature, an objective is given along with a description of the management required in order to meet that objective. Targets are given where relevant. Detailed prescriptions of work to be undertaken are then given for each feature and summarised in a five year work programme (see 5.0).

2.0 Description of site

2.1 St Ann's Hill is an area of open space covering approximately 17ha adjacent to the M25/M3 junction. An additional area of woodland covering approximately 8.5ha, known as Monk's Grove lies to east of the Old Coach Road. For the remainder of this management plan, both the sites will be considered together and referred to as St Ann's Hill.

2.2 The site lies approximately 2km north-west of Chertsey and 1km south of Thorpe. As the name implies, the site is located on a hill with a number of impressive viewpoints looking out over the surrounding countryside. Monk's Grove falls on the east-facing slope of St Ann's Hill.

2.3 Most of the site is covered by secondary broadleaved woodland. A number of non-native tree species are present within the woodland. Woodland towards the north west and within Monk's Grove is classified as ancient semi-natural woodland within Surrey's Ancient Woodland Inventory (Davies, 2010). There is an open grassy area known as 'the Dingle' in the south of the site.

3.0 Evaluation of site

3.1 Broadleaved woodland

Broadleaved woodland covers most of the site. This habitat is included within the UK and Surrey Biodiversity Action Plans (BAPs). The woodland on this site is particularly valuable as much of it is classified as Ancient Semi-natural Woodland within the Surrey Ancient Woodland Inventory (Davies, 2010). This means that it has been wooded since at least 1600. Although not ancient, the woodland in the north west supports a wet Alder carr with its associated wet loving plant species, also a valuable and uncommon habitat in Surrey. The dominance of Cherry Laurel particularly within Monk's Grove is unfortunately limiting its value for biodiversity.

3.2 Veteran trees / dead wood

Of particular interest is the number of mature to veteran status trees that the site supports. As well as being valuable from an aesthetic point of view, these trees will be an invaluable resource for a range of species including birds, bats, invertebrates and fungi. Fallen dead wood is also an important feature of the site, a considerable number of mature trees were blown over in the storm of 1987 and many of these still remain on the ground. This resource has been added to by more recent stormy weather. This fallen dead wood is of great value particularly to invertebrates and fungi, and is a habitat that is becoming increasingly uncommon in the wider countryside.

3.3 Ponds

The ponds at the Dingle and within Monk's Grove are valuable as an additional habitat on the site. They are both currently shaded and overgrown which is limiting their biodiversity potential, but there are opportunities for enhancing these features. Likewise the amenity grassland is relatively species poor due to the heavy use of the area as amenity grassland and the intensive cutting regime. However there are opportunities to enhance this area for biodiversity through more sensitive management.

3.4 Indicator plants

Large-leaved Lime has been recorded on the site. This species is classified as Nationally Scarce, however the specimens on St Ann's Hill may well have been planted. No other rare plant species have been recorded on the site.

A total of seven Ancient Woodland Indicator Species (AWIs) were recorded during the survey in 2009; Hornbeam, Bluebell, Holly, Remote Sedge, Solomon's-seal, Wild Cherry, and Red Currant. Seven is not a particularly high number of AWIs for a relatively large area of woodland over half of which is classified as ancient. The low number of AWIs on the site may be due to the extent of the invasive Cherry Laurel and Rhododendron which excludes other species.

3.5 Non-native, invasive plants

Rhododendron is included on Schedule 9 of The Wildlife and Countryside Act (1981 as amended) which means that it is an offence *"to plant or otherwise cause to grow in the wild".* This species is most prolific within Monk's Grove.

Other potentially problematic species on the site which whilst not included on Schedule 9 are recognised by Plantlife (Thomas, 2010) as posing a potentially critical risk to the UK's biodiversity include Butterfly-bush, Lawson's Cypress, Turkey Oak and Red Oak. In addition, Sycamore and Cherry Laurel are included on the draft Surrey Invasive Species list (Waite, 2010), the latter having a similar impact as Rhododendron.

3.6 [redacted]

3.7 Purple Hairstreak

This butterfly was recorded on the site in 1988 and is classified as Local. However Butterfly Conservation class it as a low conservation priority. The species is fairly widespread living high in the tree tops where oaks are present. It is unlikely that any sensitive ecological management work on the site would significantly affect this species.

3.8 Stag Beetle

The data search revealed that stag beetles have been recorded nearby. Due to the good dead wood resource on the site there is a good potential that they are also on the site itself. The stag beetle is a UK Biodiversity Action Plan (BAP) Priority species, a Species of Principle Importance (SPI) under Section 41 of the NERC Act, and a nationally notable b species. It is protected under appendix 3 of the Bern Convention. Stag Beetle larvae rely on rotting dead wood for their survival therefore it is important to ensure that the dead wood habitat on the site does not decline.

3.9 Bats

Due to the number of mature and veteran trees on the site, it is likely to be valuable to roosting bats. Bats are likely to forage on the site and to be roosting in the more mature trees. A bat survey will be undertaken in spring/summer 2014. All species of British bats are protected under the Wildlife and Countryside Act and under Regulation 38 (Schedule 2) of the Conservation (Natural Habitats etc.) Regulations 1994. Some species are BAP Priority species and SPIs.

3.10 Reptiles

Reptiles such as grass snakes, common lizards and slow worms may be present on the site. Areas with the highest potential for these species are at the edges of the wider paths, at the peripheries of 'the Dingle', and the open areas such as the large glade in the north of Anchor Copse as well as any other small areas across the site with long grassland and scrub. All native British reptiles are protected under the Wildlife and Countryside Act (1981) from killing and injury. Sand Lizards and Smooth Snakes also receive additional protection. All British reptiles are BAP Priority species and SPIs.

If any major work were to take place in any of these areas, it is advised that they are surveyed for reptiles and that appropriate mitigation be undertaken to avoid harming these species.

3.11 Breeding birds

Birds will be breeding within the site. All wild birds are protected from damage or destruction of their nest whilst in use or construction. In addition some birds receive additional protection from disturbance whilst nesting under schedule 1 of the Wildlife and Countryside Act 1981, as amended. Any work affecting trees or scrub should avoid the bird nesting season (March-August).

3.12 Position within Living landscape

The position of St Ann's Hill within the surrounding landscape is important from an ecological point of view and should be taken into account when establishing management priorities for the site.

Although the site lies within a fairly built up area just north of Chertsey it is within an area identified as the Thorpe and Shepperton Biodiversity Opportunity Area (BOA). This BOA supports an open landscape of farmland and meadows south of Staines, and is dominated by a large number of areas of open water associated with current and former mineral extraction sites

3.13 Access and recreation

This site is already used by the public for access and recreation. It enjoys extensive views from two good viewpoints, northwards to Heathrow airport and Westwards towards Windsor. There is an existing network of well used paths reaching most parts of the site, starting from the small car park and from one or two other access points.

This is an interesting site with much historical interest. It contains an iron age fort which is a Scheduled Ancient Monument. In addition it forms part of the 'Charles Fox' Gardens and a number of specimen trees remain on the bank above the Dingle. Other historic features include St Ann's Chapel and the Nuns' Well.

The SANGS Surveys carried out by Runnymede Borough Council (RBC) in 2012 found that the site is predominantly used by dog walkers and picnickers with the historic hill fort also drawing visitors (RBC, 2012).

The site has been selected by Runnymede Borough Council as a SANGS. According to Natural England, the role of a SANGS is to provide alternative green space to divert visitors from visiting the Thames Basin Heaths SPA. It is therefore important that this aspect of the site be encouraged through this management plan.

4.0 Management Plan Features

4.1 Feature 1 – Broadleaved Woodland

Objective
Woodland will continue to be present on the site. The woodland will have a diverse structure with a varied mix of native trees and shrubs of varied ages and a good balance between canopy, shrub and field layers. Non-native invasive species will be no more than occasional. Approximately 20% off the woodland canopy will be open at any time to allow more light onto the woodland floor and to encourage a varied woodland flora. The woodland will support frequent examples of mature and veteran trees as well as frequent standing and deadwood. This will allow a variety of species, including birds, bats, invertebrates and reptiles, to thrive within the woodland areas.

Targets
- Approximately 20% off the woodland canopy will be open at any time by 2018.
- Standing dead wood and log piles will be frequent within the woodland in a variety of conditions (sunny, shaded, damp) by 2018.
- Exotic invasive species will be no more than occasional by 2018.

Management rationale
The management required to meet the objectives and targets above is outlined below. The location of the prescriptions is shown on Figure 1.

4.1.1 Cherry Laurel and Rhododendron clearance
Cherry Laurel and to a lesser extent Rhododendron are present within the site. These species are aggressive non-native colonisers which regrow vigorously when cut. They produce a toxic leaf litter and reduce the biodiversity value of a site by preventing natural regeneration of the canopy, understorey and field layer. Therefore removing these species from the site will be a priority within the five years of this management plan.

Cherry Laurel was until recently widespread within St Ann's Hill and Monk's Grove. Extensive clearance has taken place over recent years within St Ann's Hill (see areas marked with purple lines on Figure 1). These areas will need to continue to be treated for the next few years until the stumps have died.

There still remains a significant amount of Cherry Laurel and small patches of Rhododendron on the site. This covers almost the entire area of Monk's Grove except in the far north and east (see photo 1). Due to Monk's Grove's status as ancient semi-natural woodland, it will be a priority to clear the invasive species so that hopefully the ground flora can recover.

The other main area of Cherry Laurel on the site is north of the northerly view point. This should also be cleared if possible. Consideration should be given to clearing the Cherry Laurel around the top of the Dingle, although it is understood that the Cherry Laurel here does have some aesthetic value. It would also be advisable to remove the other remaining small pockets of Cherry Laurel within the site to prevent them spreading further within the woodland.

Once areas have been cleared of Cherry Laurel, it is recommended that the areas are left to recolonize naturally and not planted.

Prescription W1: Treat recently cleared areas of Cherry Laurel and Rhododendron (see areas marked with purple lines on Figure 1) with Glyphosate (twice annually) until stumps have died.

Prescription W2: Clear Cherry Laurel and Rhododendron from Monk's Grove. Treat stumps with Glyphosate (twice annually) until stumps have died.

Prescription W3: Clear Cherry Laurel and Rhododendron north of the northern view point. Treat stumps with Glyphosate (twice annually) until stumps have died.

Prescription W4: Clear other scattered Cherry Laurel and Rhododendron (as shown by purple dotted shading on Figure 1). Treat stumps with Glyphosate (twice annually) until stumps have died.

Prescription W5: Consider clearing Cherry Laurel and Rhododendron from around the top of the Dingle. Treat stumps with Glyphosate (twice annually) until stumps have died.

4.1.2 Glades

The second priority within the woodland areas will be to create more open space as much of the woodland is currently very dark which is limiting its biodiversity value. This will be achieved by maintaining existing glades and opening up new glades within the woodland as well as by larger areas of thinning/coppicing (see 4.1.3 below).

Prescription W6: 8 Hazel coppice stools are present here either side of the footpath along the southern boundary of Anchor Copse (see photo 7). These will be re-coppiced in order to form a temporary glade on the edge of the woodland.

Prescription W7: There is the opportunity to create a glade on the slope on the southern side of the footpath along the southern boundary of Anchor Copse by clearing some small trees (mainly Silver Birch) and clearing back the bramble. This will increase the edge habitat of the woodland.

Prescription W8: At the top of the zigzag steps in the far west of Anchor Copse there is the opportunity to create a temporary glade by re-coppicing the Hazel and clearing some young Silver Birch (see photo 8).

Prescription W9: This is a large relatively open area within Anchor Copse. Very scattered open grown Oaks and Hazel coppice stools grow over tall ruderal vegetation (see photo 9). It is important that this open area is maintained as it provides a useful haven for light loving species such as butterflies and reptiles within the woodland. The Hazel stools will be re-coppiced and the cut wood will be used to create habitat piles. The Oak trees will be left to mature. Invading shrubs along the southern boundary will be cut back to prevent the woodland encroaching into this open area.

Prescription W10: This glade is kept open in order to maintain the viewpoint looking to the west of the site (see photo 10). Hazel coppice stools, Holly and Bramble will be cut back every two years. The cut Cherry Laurel here will continue to be treated with Glyphosate until it dies. The patch of Cherry Laurel just to the north of this glade will also be cut back. Habitat piles will be created with the cut wood.

Prescription W11: This glade is kept open in order to maintain the viewpoint looking to the north of the site. The vegetation here will be cut back every two years. The cut Cherry Laurel will continue to be treated with Glyphosate until it dies. Habitat piles will be created with the cut wood.

4.1.3 Thinning/coppicing

It is proposed to re-coppice and thin approximately one hectare of woodland in the far east of Monk's Grove. This area of woodland is the only area of ancient semi-natural woodland within Monk's Grove which has not been invaded by Cherry Laurel. Bluebells are frequent here and Hazel coppice stools are frequent particularly in the western part (see photo 5). Re-coppicing the Hazel stools and thinning the young trees and scrub will allow more light to reach the woodland floor and will benefit a range of species including plants and invertebrates such as butterflies. Mature standards will be retained.

The newly coppiced stools will be protected from deer browsing by dead hedging around the area using the cut timber and brash. Alternatively, light brash could be piled over individual coppice stools.

To reduce the impact on existing biodiversity, a border of unmanaged woodland will be retained around the edges of the area.

This is the only area of woodland proposed for thinning/coppicing in this five year management plan. This is because priority is being given within this plan to clearing

the extensive areas of Cherry Laurel remaining on the site which will be quite a considerable undertaking. Further areas may be recommended for thinning when the plan is reviewed in five years time.

Prescription W12: Re-coppice Hazel stools and thin young trees and scrub in east of Monk's Grove.

4.1.4 Haloing

There are a number of impressive Giant Sequoia trees on the site (see photo 4) some of which will be encouraged by haloing (see red dots on Figure 1). This will encourage the open growth of the tree and improve the health of the tree by removing competition for nutrients. It will also create better views of the trees on the site and enhance them as features.

Work will involve removing any scrub or trees surrounding the tree to the extent of its canopy. Wood cleared as part of the management will be left within the root zone of the tree which will help restrict access and avoid compaction.

It is important to be aware when carrying out haloing that rapid changes to a tree's surroundings can, if not done sensitively, negatively affect the health of the tree. This can be due to a rapid drying out due to increased exposure to sun and wind or wind-throw due to sudden increased wind stress before the tree has had time to adapt (Fay & Fay, 2002). Therefore in some cases thinning may need to take place gradually over a number of years.

It is also important when considering haloing a mature tree to consider the potential impact on bats. Opening up the canopy around a roost can slightly change the environmental conditions and make a roost unfavourable for bats. The removal of sheltering trees adjacent to a roost can also make any roosting bats more vulnerable to predation and this could cause them to abandon the roost (Natural England and Forestry Commission, 2013).

A bat survey is to be undertaken on the site in the summer of 2014. It is recommended that no haloing of mature trees takes place until advice has been received from a bat expert.

Prescription W13: Halo the Giant Sequoia trees across the site (as shown by red dots on Figure 1).

4.1.5 Dead Wood

There is already a moderately good dead wood resource on the site including standing dead wood, fallen tree and established wood piles. Much of the dead wood resource originates from the storm of 87 as well as more recent stormy weather. This will be encouraged further by undertaking the following management;

When felling trees, some of the resulting brash (finer branches) and trunks will be used to create additional log or habitat piles in a variety of different situations i.e. shady, sunny and damp. This will create habitat for a range of invertebrates,

reptiles and amphibians. The brash will be tied into tight bundles and then stacked so as to be to be more valuable for invertebrates and occupy less space. A succession of piles of different ages will aid diversity. Half burying some of the logs in a vertical position will be particularly beneficial to invertebrates such as Stag Beetles. Taking into account health and safety considerations, wherever possible standing dead wood will be left in situ and any fallen timber will be left where it falls.

Prescription WG: Retain and enhance the already impressive fallen deadwood resource.

Prescription WG: Create log/habitat piles from timber and brash resulting from management works.

Prescription WG: Continue with minimal intervention management of dying trees where safe to do so and where this does not impede access routes.

4.1.6 Non-intervention

Part of the value of this site is in its undisturbed nature and it is important to retain refuges of undisturbed woodland on the site at all times. [redacted] Continuing with the invasive species removal on the site has been prioritised within this management plan and the time taken to achieve this has meant that management within some of the other areas of woodland is more limited within the 5 years of this plan. This can be reviewed when the plan is updated in 2018.

4.2 Feature 2 – Open Water

Objective

The two ponds will continue to be present on the site. The ponds will not be shaded by more than 50% of their area so that enough sunlight reaches the water surface to allow vegetation to flourish. There will be a good balance between floating, emergent and marginal vegetation. No exotic invasive species will be present within the ponds. Invertebrates such as dragonflies will flourish and this will indicate the general wellbeing of the water bodies.

Targets

- Two permanent water bodies present on site by 2018.
- No exotic invasive species present within ponds.
- Shading no more than 50% of the pond areas.

Management rationale

The management required to meet the objectives and targets above is outlined below. The location of the prescriptions is shown on Figure 1.

There are currently two ponds on the site; one in the southern half of Monk's Grove, just off the footpath (see photo 2) and one in the south east corner of The Dingle (see photo 3). Both of the ponds are currently in very poor condition in terms of biodiversity. They are both very shaded with a large amount of leaf litter causing the water to be quite shallow and stagnant. There is very little in the way of floating, emergent or marginal vegetation in either pond due to the heavy shading. Both ponds have debris within in them. The pond at The Dingle has a Grey Willow tree growing in the middle of it and was dry at the time of the Phase 1 survey in 2009.

Dredging to remove leaf litter will help to restore the ponds. Clearing back trees and scrub around the ponds will enable more light to reach the area and hopefully floating, emergent and marginal vegetation along with associated pond species will start to flourish.

Prescription OW1: Cherry Laurel, scrub and young trees will be cleared back around site this pond in the south of Monk's Grove. The pond will be cleared of debris and dredged of leaf litter. A large Sycamore tree to the south of the pond has already been ring barked which should help reduce the shading of the pond.

Prescription OW2: The Grey Willow will be removed from the centre of the pond at the south east corner of The Dingle. The pond will be cleared of debris and dredged of leaf litter. Cherry Laurel, scrub and young trees will be cleared back around site of pond. An information board will be installed to encourage visitors to linger in this area and this will include information discouraging people to allow their dogs into the pond which would disrupt sensitive wildlife.

4.3 Feature 3 – Grassland

Objective
Grassland will continue to be present on the site at The Dingle. Although most of the grass will be kept short for amenity purposes, a border around the edge will support longer grassland which in turn will support a range of wildlife including wild flowers, invertebrates and reptiles.

Management rationale
The management required to meet the objectives and targets above is outlined below. The location of the prescriptions is shown on Figure 1.

G1: The grassland at The Dingle (photo 11) will continue to be mown on a weekly basis during the growing season as it is a popular area for picnickers. However a border of 1-2 metres around the edges of the grassland will be left to grow longer and mown once a year in late summer. This will be beneficial to a range of species and will create a more gradual transition between the short grassland and the woodland on the slopes. If possible, the cuttings will be removed following the grass cut. The deadwood features (see photos 12 & 13) will be retained as a wildlife habitat and for visual interest.

4.4 Feature 4 - Access and Recreation

Objective
The site will be a welcoming, safe and attractive place for local people to visit. A network of informal paths will provide a route through the site and include features of historic interest as well as impressive views over the surrounding countryside. Parking facilities will be readily available and information will be provided about the site and routes available, so visitors can get the most from their visit.

Targets
- The site allows a circular walk of 2.3-2.5km (as recommended by Natural England) in combination with other local sites.
- At least 3 Information boards to be installed by 2018
- Leaflet to be produced and distributed by 2016

Management rationale
The management required to meet the objectives and targets above is outlined below. The location of the prescriptions is shown on Figure 1.

In order to meet the objective above, footpaths will be kept open by regular maintenance. Pathways will be improved where necessary, using natural materials where possible, to ensure that the majority remain useable in all but the very worst of the weather.

Prescription A1: The footpath running from the Old Coach Road path into Monk's Grove in the north is very overgrown and unwelcoming (see photo 6). Although it is proposed to clear Cherry Laurel from the entire area at Monk's Grove, this path should be cleared as an urgent priority to make the path safer and more welcoming to visitors.

Prescription A2: Pathways will be weatherproofed where necessary using natural materials.

Visually sensitive waymarking will be installed to guide people around the main routes of the site.

Prescription A3: Install visually sensitive waymarking on main routes.

Information boards will be installed at the sites of historic interest, view points and main entrance point to enhance visitor's experience of the site. Information boards will provide information about the historic features and views as well as the routes available to walk within the site.

Prescription A4: Nun's Well is a holy well with historic interest. However, it is currently quite dark and gloomy. Some clearance of Cherry Laurel around the well has taken place recently. This will continue to be treated until it has died. Further Cherry Laurel and young trees will also be cleared from the area surrounding the well to create a small glade here and allowing the well to stand out more as a

feature. A bench and an information board will be installed detailing the history of the well.

Prescription A5: Install information boards in various locations as labelled as red crosses on Figure 1.

In addition a leaflet will be produced which will be distributed to local households and displayed next to the information boards.

Prescription A6: Produce and distribute a leaflet including information on the site and network of footpaths.

A couple of features within The Dingle are currently affecting the attractiveness of the area. If possible these will be addressed so that The Dingle is an attractive place for people to visit.

Prescription A7: There are currently a number of rather unsightly blue painted metal picnic benches across the grassland at The Dingle. If possible these will be replaced with wooden picnic benches which will be more in keeping with the natural habitats that surround them.

Prescription A8: On the northern edge of The Dingle is the remains of a wall which appears to be becoming unstable. Behind the wall, on the top of the slope, a temporary fence has been erected to prevent the public accessing the wall (see photo 14). This is a very unsightly view which is detracting from the natural feel of the site. Priority will be given to finding a long term solution to the unstable wall here so that the temporary fence can be removed.

4.5 Feature 5 - Monitor and Review

Objective
Monitoring will take place to ensure the objectives within this plan are achieved. The plan will be reviewed periodically to ensure it is realistic and incorporates all relevant information. It will be reviewed in its entirety in 2018.

Management rationale
Relevant information will be incorporated into the plan as it becomes available.

Prescription M1: The recommendations from the 2014 bat and reptile surveys will be incorporated into the management plan where necessary.

Progress towards achieving the actions within this management plan will be reviewed annually. The action plan will be amended as necessary to ensure that it remains realistic.

Prescription M2: The work programme will be reviewed annually.

It is recommended that the Phase 1 survey is repeated in 2018. The results of this survey will be used to help assess whether the objectives of the management plan have been met.

Prescription M3: A phase 1 survey will be repeated on the site in 2018. It will be useful to measure the following aspects:

- The % of open space within the woodland,
- The presence and abundance of invasive non-native species,
- The abundance of standing and fallen dead wood,
- The % shading of the ponds.

Following the results of the Phase 1 survey undertaken in 2018, the entire management plan will be reviewed and ideally a new plan developed for the next 5 years.

Prescription M4: Review the management plan in it's entirely in 2018 and develop a plan for the next 5 years.

5.0 Legal Considerations

All wild birds are protected from damage or destruction of their nest whilst in use or construction. All tree and scrub clearance should avoid the bird nesting season which is between the beginning of March and the end of August.

[redacted]

All species of British bats are protected under the Wildlife and Countryside Act and under Regulation 38 (Schedule 2) of the Conservation (Natural Habitats etc.) Regulations 1994. It should not be necessary to fell any mature trees as part of the work advised in this plan. However should it be necessary to fell any trees older than 100 years, or with obvious cavities, or with a girth greater than 1m at chest height, these should be surveyed for bats by a licenced bat worker before any work takes place.

As discussed in section 4.1.4, the haloing of mature trees could have an impact on bat roosts. A bat survey is to be undertaken on the site in the summer of 2014. It is recommended that no haloing of mature trees takes place until advice has been received from a bat expert.

Great Crested Newts are protected under schedule 5 of the Wildlife and Countryside Act 1981 and Regulation 39 of the Conservation (Natural Habitats &c) Regulations 1994. Great Crested Newts have been recorded within 1km of the site. The ponds on site support little floating, emergent or marginal vegetation and therefore the likelihood of them supporting a population of Great Crested Newts is low. It would be good practice to carry out any management work on the pond during the autumn or winter months when any newts and other wildlife are likely to be away from the pond.

All native British reptiles are protected under the Wildlife and Countryside Act (1981) from killing and injury. A reptile survey will be undertaken in spring/summer 2014 and any recommendations from this survey should be undertaken when carrying out management on the site.

Any thinning or felling operations greater than $5m^3$ will require a felling licence from the Forestry Commission.

Rhododendron is listed on Schedule 9 the Wildlife and Countryside Act 1981 which means that it is an offence to plant or cause the species to spread in the wild. Care should be taken if moving this species off site for disposal.

6.0 5 year work programme

All the prescriptions detailed in the plan are summarised in the table below. It is understood that the amount of work that RBC can undertake on this site each year will depend on funding which may vary from year to year and is currently unknown. Therefore the year suggested to undertake the work, which has aimed to spread the work out evenly over the 5 years, is given only as a guide. The priority given for each action can be used to prioritise work depending on funding available.

Red = High
Amber = Medium
Green = Low

Table 1 - Full Prescription list with priorities

Ref.	Prescription	Year with priority				
		2014	2015	2016	2017	2018
W1	Treat recently cleared areas of Cherry Laurel and Rhododendron (see areas marked with purple lines on Figure 1) with Glyphosate (twice annually) until stumps have died.	√	√	?	?	?
W2	Clear Cherry Laurel and Rhododendron from Monk's Grove. Treat stumps with Glyphosate (twice annually) until stumps have died.	√	√	√		
W3	Clear Cherry Laurel and Rhododendron north of the northern view point. Treat stumps with Glyphosate (twice annually) until stumps have died.				√	
W4	Clear other scattered Cherry Laurel and Rhododendron (as shown by purple dotted shading on Figure 1). Treat stumps with Glyphosate (twice annually) until stumps have died.				√	
W5	Consider clearing Cherry Laurel and Rhododendron from around the top of the Dingle. Treat stumps with Glyphosate (twice annually) until stumps have died.					√
W6	Re-coppice Hazel coppice stools either side of the footpath along the southern boundary of Anchor Copse.		√			
W7	Clear small trees (mainly Silver Birch) and bramble on the southern side of the footpath along the southern boundary of Anchor Copse to create a glade.		√			
W8	Re-coppice the Hazel and clear the young Silver Birch at the top of the zigzag steps in the far west of Anchor Copse to create a temporary glade.		√			
W9	Re-coppice Hazel stools within the large glade to the north of Anchor Copse. Use the cut wood to create habitat piles. The Oak trees will be left to mature. Cut back invading shrubs along the southern boundary to prevent the woodland encroaching into this open area.			√		
W10	Cut back vegetation within the glade below the viewpoint looking to the west of the site every two years. Continue to treat the cut Cherry Laurel with Glyphosate until it dies. Also cut back the patch of Cherry Laurel just to the north of this glade. Create habitat piles with the cut wood.		√		√	
W11	Cut back vegetation within the glade below the viewpoint looking to the north of the site every two years. Continue to treat the cut Cherry Laurel with Glyphosate until it dies. Create habitat piles with the cut wood.		√		√	
W12	Re-coppice Hazel stools and thin young trees and scrub in east of Monk's Grove.				√	
W13	Halo the Giant Sequoia trees across the site (as shown by red dots on Figure 1).					√
WG	Retain and enhance the already impressive fallen deadwood resource.	√	√	√	√	√
WG	Create log/habitat piles from timber and brash resulting from management works.	√	√	√	√	√

Ref.	Prescription	Year with priority				
		2014	2015	2016	2017	2018
WG	Continue with minimal intervention management of dying trees where safe to do so and where this does not impede access routes.	√	√	√	√	√
OW1	Clear back Cherry Laurel, scrub and young trees around the pond in the south of Monk's Grove. Clear the pond of debris and dredge to remove leaf litter.	√				
OW2	Remove Grey Willow from the centre of the pond at the south east corner of The Dingle. Cleare the pond of debris and dredge to remove leaf litter. Clear back Cherry Laurel, scrub and young trees from around the pond. Install an information board to encourage visitors to linger in this area, include information discouraging people to allow their dogs into the pond which would disrupt the sensitive wildlife.	√				
G1	Mow the grassland at The Dingle weekly during the growing season. Leave a border of 1-2 metres around the edges of the grassland to be mown once a year in late summer. If possible remove the cuttings. Retain the deadwood features.	√	√	√	√	√
A1	Remove Cherry Laurel from this footpath running from the Old Coach Road path into Monk's Grove in the north to make the path safer and more welcoming to visitors.	√				
A2	Weatherproof pathways where necessary using natural materials.	√				
A3	Install visually sensitive waymarking on main routes.	√				
A4	Open up the site of the Nun's Well by clearing further Cherry Laurel and young trees to create a small glade. Continue treating the previously cleared Cherry Laurel until it has died. Install an information board detailing the history of the well.	√				
A5	Install information boards as labelled as red crosses on Figure 1.	√				
A6	Produce and distribute a leaflet including information on the site and network of footpaths.	√				
A7	If possible replace the current picnic benches at The Dingle with wooden picnic benches which will be more in keeping with the natural habitats that surround them.	√				
A8	Find a long term solution to the unstable wall at the northern edge of The Dingle so that the temporary fence can be removed.	√				
M1	Incorporate the recommendations from the 2014 bat and reptile surveys will be into the management plan where necessary.	√				
M2	Review the work programme annually.	√	√	√	√	√
M3	Repeat the phase 1 survey on the site in 2018. It will be useful to measure the following aspects: • The % of open space within the woodland, • The presence and abundance of invasive non-native species, • The abundance of standing and fallen dead wood, The % shading of the ponds.					√
M4	Review the management plan in it's entirely in 2018 and develop a plan for the next 5 years.					√

7.0 References

Davies, R., 2010, *Surrey Ancient Woodland Inventory*. Surrey Wildlife Trust.

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Waite M**.,** (updated 2013) *Surrey Invasive Species (Draft).* Unpublished SWT.

Figure 1 – Location of Management Prescriptions

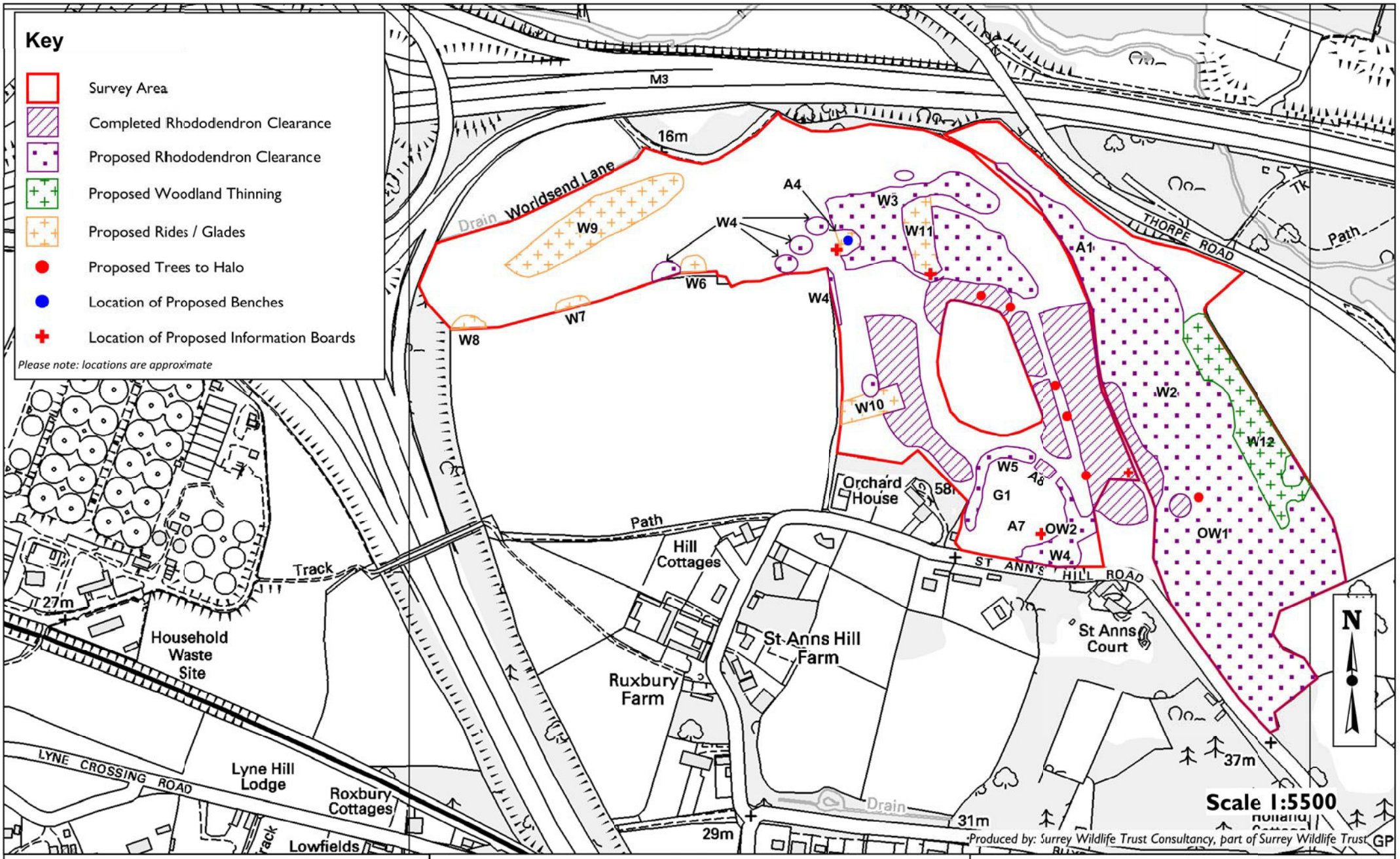


Figure 1
St Ann's Hill
Management Prescriptions

Appendix 1 - Photographs

Photo 1 – Cherry Laurel within Monk's Grove

Photo 2 – Pond in Monk's Grove (OW1)

Photo 3 – Pond at The Dingle (OW2)

Photo 4 – Giant Sequoia in Monk's Grove (W13)

Photo 5 – Hazel coppice in Monk's Grove

Photo 6 – Footpath (A1)

Photo 7- Hazel coppice stools (W6)

Photo 8 – Potential glade at top of Zig-zag steps (W8)

Photo 9 – Open area in Anchor Copse (W9)

Photo 10 – Viewpoint looking west (W10)

Photo 11 – The Dingle (G1)

Photo 12 – Dead wood feature at The Dingle

Photo 13 - Dead wood feature at The Dingle

Photo 14 – Unstable wall and temporary fence (A8)

Appendix 2 – Extract from Phase 1 Surveys of Runnymede SANGS Sites (Gibbs, 2009).

Phase 1 surveys of Runnymede SANGS sites

Written by Claire Gibbs MSc BSc (hons) MIEEM
August 2009

Surrey Wildlife Trust, School Lane, Pirbright, Woking, Surrey GU24 0JN

1. Introduction

1.1 Surrey Wildlife Trust (SWT) Consultancy has been commissioned by Runnymede Borough Council to undertake phase 1 habitat surveys of 7 Suitable Accessible Natural Green Space (SANGS) sites within Runnymede. Figure 1 shows the location of the survey sites.

1.2 The aim of the survey is to inform an access assessment on the sites. It is hoped that the access assessments and phase 1 surveys will help inform the production of management plans for the sites.

1.3 Background ecological data searches were conducted for the sites by the Surrey Biological Records Centre in order to highlight any notable or protected species in the area of the sites.

1.4 The site visits were conducted by Claire Gibbs MSc BSc (Hons) MIEEM of SWT Consultancy between the dates of 13th July and 11th August 2009.

1.5 The timing of the survey whilst appropriate for a basic phase 1 survey, is not the optimal time for botanical survey of woodlands. In order to record the most species within woodland habitats it is recommended that a spring time survey is carried out. Therefore this survey may not have picked up all the species present on the woodland sites.

2. Methodology

2.1 Phase 1 habitat survey is a standardised system for classifying and mapping semi-natural vegetation and wildlife habitats in Great Britain. Vegetation is mapped in terms of standard habitat types as defined in the JNCC Handbook for Phase 1 Habitat Survey (1990). This methodology was extended to include an assessment of the suitability of the habitats recorded to support protected species.

2.2 Where the abundances of species are mentioned, these are based on the DAFOR scale and usually refer to the specific section of the site under discussion in the site notes. The DAFOR scale is a way of describing the abundance of a species using the following key:-

(**L**ocally) **D**ominant **A**bundant **F**requent **O**ccasional **R**are

Please note that plants described as "*rare*" means that they were not found often over this site or location and does not necessarily indicate a county or national rarity.

2.3 Throughout the descriptions, plants are referred to by their English names. For reference the full species list at the end of each report section offers both English and Latin names.

3. St Ann's Hill (including Monk's Grove)

Dates of survey: 28th July 2009 & 10th August 2009 (Monk's Grove)

3.1 Site description

St Ann's Hill is an area of open space covering approximately 17ha adjacent to the M25/M3 junction. It lies approximately 2km north-west of Chertsey and 1km south of Thorpe. As the name implies, the site is located on a hill with a number of impressive viewpoints looking out over the surrounding countryside. The site is well used by the public, particularly dog-walkers.

Most of the site is covered by secondary broadleaved woodland. A number of exotic tree species are also present within the woodland. Woodland towards the north is classified as ancient semi-natural woodland within Surrey's Ancient Woodland Inventory. There is an open grassy area known as 'the Dingle' in the south of the site.

Monk's Grove is an area of woodland on the east-facing slope of St Ann's Hill to the east of the Old Coach Road. It is less well used by the public although a number of paths do run through the area. The woodland here is classified as ancient semi-natural woodland within Surrey's ancient woodland inventory however a certain amount of re-planting has taken place and there are a number of exotic trees present. Cherry laurel and rhododendron are very invasive over more than half of this area.

3.2 Target notes (description of habitats)

1. This depression is a former sandpit known as the Dingle. It is an open grassy area which appears to be kept short by mowing. Some scattered trees remain including wellingtonia, cedar of Lebanon and sweet gum. It is amenity grassland dominated by perennial rye-grass with annual meadow-grass, Yorkshire fog and common bent also present. White clover and daisy are frequent; other occasional herbs include common mouse-ear, cuckoo flower, thyme-leaved speedwell and common sorrel. Towards the north there is more of an acidic influence and sheep's sorrel is abundant with common bent.

1a. There is a pond in this area. The pond was dry at the time of the survey and very shaded. A grey willow was growing within the 'pond' area and cherry laurel was present around the edges. Common water-starwort was abundant on the ground indicating that it has been wet in the recent past.

2. The majority of the site is covered by broadleaved woodland, mostly semi-natural although there are a number of exotic tree species present. The woodland in the south east has a canopy dominated by pedunculate oak and birch with sweet chestnut locally frequent and turkey oak, sycamore, beech and hornbeam occasional. There are also some scattered conifer species.

Abundant cherry laurel and locally abundant holly dominate the shrub layer with elder, rowan and hazel occasional. The ground is mostly bare due to the dark conditions although foxglove and broad-buckler fern are occasional. There are a couple of more open areas where trees have been cleared for viewpoints. Bramble and bracken are locally abundant in one such area, in the other scrub has developed including rowan, birch, holly, cherry laurel and bramble.

2a. A wide open path runs around the centre of the site at the top of the hill. The path is mostly shaded and bare, although there are some grassy areas. Cherry laurel has been cleared from the edges in parts. An avenue of mature trees including pedunculate oak, Scots pine, wellingtonia and cedar is present along the path.

3. The woodland in the north east of the site is similar to that described above; however cherry laurel is only occasional. Sweet chestnut is more frequent in the canopy here with some impressive old coppice stools present. Beech is also locally dominant creating some open areas with little shrub layer or ground flora. This area is shown as ancient semi-natural woodland on the Surrey Ancient Woodland Inventory.

4. This is an area of wetter woodland. Although some pedunculate oak and birch are still present, the canopy is dominated by alder with grey willow and crack willow occasional. Elder is frequent in the shrub layer along with occasional hawthorn. The ground flora is more varied than in other areas with species adapted to wetter conditions. Broad buckler-fern and ground ivy are frequent other occasional species include marsh bedstraw, creeping buttercup, cuckoo-flower, bittersweet, yellow loosestrife, skullcap and soft rush.

5. This is an area which is shown as ancient semi-natural woodland on the Surrey Ancient Woodland Inventory. A bank is present along the southern edge and the woodland slopes down steeply towards the north. Pedunculate oak and birch dominate the canopy with occasional sweet chestnut and beech. Larch becomes frequent towards the west. Cherry laurel and holly are abundant in some places although are not as dominant as in the southern woodland. Rowan, elder and elm are occasional and hazel becomes frequent towards the west. The ground flora is mostly bare although bramble and bracken are locally frequent in more open areas, the latter particularly towards the west. Along the paths there is more diversity including red campion, greater plantain, foxglove, climbing corydalis and bluebell.

   The woodland is more open near some steps in the far west. Here there is a mixture of ruderal and weed species including common ragwort, mayweed, red campion, lesser burdock, soft rush, bugle and foxglove with bramble and bracken.

5a. [redacted]

6. Most of the woodland in Monk's Grove has an open and very mixed canopy. Canopy species include pedunculate oak, sweet chestnut and beech as well as exotics such as wellingtonia, cedar of Lebanon and monkey puzzle. Birch is locally frequent particularly in the north. The shrub layer is dominated by extensive growth of rhododendron and cherry laurel which form an impenetrable understory of layered branches. Holly is locally frequent where these species aren't dominating. Under this dense shrub layer there is little ground flora. Where there are gaps, bramble, bracken and nettle are occasional.

   There is an open area where a number of trees have been felled under the shade of a large wellingtonia. The ground flora is more varied here with foxglove, bluebell, broad-leaved willowherb, deadly nightshade, nettle and bramble present.

7. In the east of Monk's Grove, the woodland has a much more natural feel to it. Cherry laurel and rhododendron are much less dominating and although they are still present they are currently quite localised. In the north sweet chestnut and pedunculate oak make up the canopy with a varied shrub layer including rowan, birch, holly and hazel. In the central area hazel coppice is present under pedunculate oak standards with beech and sweet chestnut occasional. Silver birch is frequent throughout. Holly is locally abundant particularly in the south where sycamore also becomes frequent. Other occasional trees include Scots pine, yew, apple, turkey oak, hornbeam, wild cherry and Norway spruce. The ground flora is fairly sparse in the north and central areas. Bracken, bramble and nettle are locally frequent and ivy, male and broad-buckler fern are occasional. Other species recorded rarely include bluebell and red currant. The eastern boundary has a low bank with mature pedunculate oak and occasional turkey oak.

8. The woodland in the far north of Monk's Grove has abundant beech with sweet chestnut also locally frequent to the west. There is not much of a shrub layer other than occasional holly and cherry laurel and rhododendron which is locally abundant in the southern part of this area. The ground flora is sparse with occasional bracken and nettle. Wavy hair-grass is locally frequent especially on the slope.

9. This is an open area at the base of the slope. Here nettle is abundant with locally frequent hedge bindweed and occasional bracken. Grey willow and elder are locally frequent.

3.3 Ecological value of site / possible ecological constraints

St Ann's Hill was surveyed by Surrey Wildlife Trust in 1999 as part of a project to identify Sites of Nature Conservation Importance (SNCIs) in Surrey. At that time it was felt that the site was not of sufficient ecological value to warrant selection as an SNCI. The presence of large amounts of cherry laurel and rhododendron reduce the conservation value of the site. Nevertheless as a good sized area of natural habitat, the site does have local ecological value.

The ecological features which are of particular note on the site are described below. It is important that any work on the site protects and maintains these features.

Mature trees
There are many good sized mature trees (both native and exotic) across the site. These are valuable for their wildlife and visual value.

Ancient semi-natural woodland
Target notes 3 and 5 as well as Monk's Grove are areas of ancient semi-natural woodland (as shown on the Surrey ancient woodland inventory). Ancient woodland is woodland that has been wooded since at least 1600. Its flora is particularly sensitive to disturbance and once damaged struggles to recover.

Wet woodland
Area 4 is an area of wetter woodland with a flora which is adapted to these conditions. The flora in this area would be sensitive to any path widening.

Potential for rare and/or protected species
The data search for this site revealed that the following species of note have been recorded on the site;

- Large-leaved lime, *Tilia platyphyllos*

This species is classified as Nationally Scarce. The specimens on St Ann's Hill may have been planted. Any work should avoid damaging this tree species.

- Purple Hairstreak, *Quercusia quercus*

This butterfly is classified as Local. The record from this site is from 1998, so it is unknown whether the species is still there. The species is fairly widespread living high in the tree tops where oaks are present. It is unlikely that any sensitive ecological management work on the site would affect this species.

- Bluebell, *Hyacinthoides non-scripta*

This species has been highlighted on the data search as it was listed as a species of conservation concern in the 1995 UK Biodiversity Action Plan report. As with all the woodland ground flora, this species should be protected as much as possible during any works on the site.

In addition, the following protected species were either found to be present or have a high potential of being present on the site.

[redacted]

Bats

All species of British bats are protected under the Wildlife and Countryside Act and under Regulation 38 (Schedule 2) of the Conservation (Natural Habitats etc.) Regulations 1994. Together this legislation makes it an offence to kill, capture or disturb the animal, or to damage or destroy a breeding site or resting place of such an animal. The data search revealed that pipistrelle bats have been recorded nearby. Bats are likely to forage on the site and to be roosting in the more mature trees. If possible any work on the site should avoid damaging the mature trees. If this is unavoidable, all trees older than 100 years, or with obvious cavities, or with a girth greater than 1m at chest height should be surveyed for bats by a licensed bat worker before any work takes place.

Reptiles

All native British reptiles are protected under the Wildlife and Countryside Act (1981) from killing and injury. Sand Lizards and Smooth Snakes also receive additional protection. Reptiles such as grass snakes, common lizards and slow worms may be present on the site. Areas with the highest potential for these species are at the edges of the wider paths (particularly 2a), at the peripheries of 'the Dingle', the open area at target note 9 and any other small areas across the site with long grassland and scrub. If any major work were to take place in any of these areas, it is advised that they are surveyed for reptiles and that appropriate mitigation be undertaken to avoid harming these species.

Breeding birds

All wild birds are protected from damage or destruction of their nest whilst in use or construction. In addition some birds receive additional protection from disturbance whilst nesting under schedule 1 of the Wildlife and Countryside Act 1981, as amended. Birds will be breeding within the site. Any work affecting trees or scrub should avoid the bird nesting season (March-August).

Stag Beetle, *Lucanus cervus*

The data search revealed that stag beetles have been recorded nearby, potentially they could also be on the site itself. The stag beetle is a UK Biodiversity Action Plan (BAP) priority species and a nationally notable b species. It is protected under

appendix 3 of the Bern Convention. Stag Beetle larvae rely on rotting dead wood for their survival therefore it is important to ensure that the dead wood habitat on the site does not decline.

It is important to take the above species into account when planning any work on the sites.

3.4 St Ann's Hill Species List

Abundance uses the DAFOR system;

(**L**ocally) **D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are

[Please note that plants ranked are 'rare' means that they were not found often over this site and does not necessarily indicate that they are a County rarity]:

Scientific name	**Common name**	**Abundance**
Acer platanoides	Norway Maple	R
Acer pseudoplatanus	Sycamore	O
Agrostis capillaris	Common Bent	LD
Agrostis stolonifera	Creeping Bent	R
Ajuga reptans	Bugle	R
Alliaria petiolata	Garlic Mustard	R
Alnus glutinosa	Alder	LF
Arctium minus	Lesser Burdock	R
Athyrium filix-femina	Lady Fern	O
Ballota nigra	Black Horehound	R
Bellis perennis	Daisy	LF
Betula pendula	Silver Birch	A
Buddleja davidii	Butterfly-bush	R
Callitriche stagnalis sens.str	Common Water-starwort	LF
Cardamine flexuosa	Wavy Bitter-cress	R
Cardamine pratensis	Cuckoo-flower	R
Carpinus betulus	Hornbeam	O
Castanea sativa	Sweet Chestnut	LA
Cedrus libani	Cedar of Lebanon	O
Cerastium fontanum	Common Mouse-ear	R
Ceratocapnos claviculata	Climbing Corydalis	R
Chamaecyparis lawsoniana	Lawson's Cypress	R
Chelidonium majus	Greater Celandine	R
Circaea lutetiana	Enchanter's-nightshade	R
Cirsium arvense	Creeping Thistle	O
Cirsium vulgare	Spear Thistle	LD
Corylus avellana	Hazel	LF
Crataegus monogyna	Hawthorn	O
Dactylis glomerata	Cock's-foot	R
Deschampsia flexuosa	Wavy Hair-grass	R
Digitalis purpurea	Foxglove	O
Dryopteris dilatata	Broad Buckler-fern	LF
Dryopteris filix-mas	Common Male Fern	O
Epilobium montanum	Broad-leaved Willowherb	O
Fagus sylvatica	Beech	LA
Geum urbanum	Herb Bennet	R

Scientific name	Common name	Abundance
Glechoma hederacea	Ground-ivy	LA
Hedera helix	Ivy	R
Hirschfeldia incana	Hoary Mustard	R
Holcus lanatus	Yorkshire-fog	O
Hordeum murinum	Wall Barley	R
Hyacinthoides non-scripta	Bluebell	O
Ilex aquifolium	Holly	LD
Juncus effusus	Soft Rush	O
Lapsana communis	Nipplewort	R
Larix sp.	a larch	O
Leontodon saxatilis	Lesser Hawkbit	R
Liquidambar styraciflua	Sweet gum	R
Lolium perenne	Perennial Rye-grass	LA
Lonicera periclymenum	Honeysuckle	O
Lysimachia vulgaris	Yellow Loosestrife	R
Malus domestica	Apple	R
Malva sylvestris	Common Mallow	R
Melilotus albus	White Melilot	R
Oenothera biennis	Common Evening-primrose	R
Pinus sylvestris	Scots Pine	O
Plantago lanceolata	Ribwort Plantain	R
Plantago major	Greater Plantain	R
Poa annua	Annual Meadow-grass	R
Polygonum sp.	a knotgrass	R
Prunella vulgaris	Selfheal	R
Prunus laurocerasus	Cherry Laurel	LD
Pteridium aquilinum	Bracken	LA
Quercus cerris	Turkey oak	R
Quercus robur	Pedunculate oak	A
Quercus rubra	Red oak	R
Ranunculus repens	Creeping Buttercup	LF
Rhododendron ponticum	Rhododendron	O
Rubus fruticosus agg.	Bramble	F
Rumex acetosa	Common Sorrel	LF
Rumex acetosella	Sheep's Sorrel [agg.]	LF
Rumex obtusifolius	Broad-leaved Dock	R
Rumex sanguineus	Wood Dock	R
Salix cinerea	Grey Willow	O
Salix fragilis	Crack Willow	O
Sambucus nigra	Elder	F
Scutellaria galericulata	Skullcap	R
Senecio jacobaea	Common Ragwort	O
Sequoiadendron giganteum	Wellingtonia	O
Silene dioica	Red Campion	LF
Solanum dulcamara	Bittersweet	R
Sonchus oleraceus	Smooth Sow-thistle	R

Scientific name	Common name	Abundance
Sorbus aucuparia	Rowan	F
Taraxacum officinale agg.	Dandelion	O
Taxus baccata	Yew	R
Teucrium scorodonia	Wood Sage	R
Tilia cordata x platyphyllos	Lime	R
Trifolium repens	White Clover	LF
Tripleurospermum maritimum agg	Scentless Mayweed [agg.]	R
Ulex europaeus	Gorse	R
Ulmus glabra	Wych Elm	R
Ulmus procera	English Elm	O
Urtica dioica	Common Nettle	LF

Monk's Grove

Abundance uses the DAFOR system;

(**L**ocally) **D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are

[Please note that plants ranked are 'rare' means that they were not found often over this site and does not necessarily indicate that they are a County rarity]:

Scientific name	Common name	Abundance
Acer platanoides	Norway Maple	R
Acer pseudoplatanus	Sycamore	A
Aegopodium podagraria	Ground-elder	R
Aesculus hippocastanum	Horse-chestnut	R
Agrostis capillaris	Common Bent	R
Agrostis stolonifera	Creeping Bent	R
Ajuga reptans	Bugle	R
Alliaria petiolata	Garlic Mustard	R
Araucaria araucana	Monkey-puzzle	R
Arctium minus	Lesser Burdock	R
Ballota nigra	Black Horehound	R
Betula pendula	Silver Birch	F
Betula pubescens	Downy Birch	O
Brachypodium sylvaticum	False-brome	R
Buddleja davidii	Butterfly-bush	R
Calystegia sepium	Hedge Bindweed	R
Carex remota	Remote Sedge	R
Carpinus betulus	Hornbeam	R
Castanea sativa	Sweet Chestnut	A
Cedrus libani	Cedar of Lebanon	R
Chamerion angustifolium	Rosebay Willowherb	R
Circaea lutetiana	Enchanter's-nightshade	R

Scientific name	Common name	Abundance
Corylus avellana	Hazel	LF
Crataegus monogyna	Hawthorn	O
Deschampsia flexuosa	Wavy Hair-grass	R
Digitalis purpurea	Foxglove	R
Dryopteris dilatata	Broad Buckler-fern	O
Dryopteris filix-mas agg	Male Fern	O
Epilobium montanum	Broad-leaved Willowherb	R
Euphorbia peplus	Petty Spurge	R
Fagus sylvatica	Beech	A
Geranium robertianum	Herb-robert	R
Geum urbanum	Herb Bennet	R
Glechoma hederacea	Ground-ivy	LF
Hedera helix	Ivy	R
Heracleum sphondylium	Hogweed	R
Holcus lanatus	Yorkshire-fog	R
Humulus lupulus	Hop	R
Hyacinthoides non-scripta	Bluebell	R
Ilex aquifolium	Holly	F
Juncus effusus	Soft Rush	R
Lonicera periclymenum	Honeysuckle	O
Malus sylvestris sens.	Apple	R
Persicaria maculosa	Redshank	R
Picea abies	Norway Spruce	R
Pinus sylvestris	Scots Pine	O
Plantago major	Greater Plantain	R
Polygonatum multiflorum	Solomon's-seal	R
Prunella vulgaris	Selfheal	R
Prunus avium	Wild Cherry	R
Prunus domestica	Wild Plum	R
Prunus laurocerasus	Cherry Laurel	A
Prunus sp.	a planted cherry	R
Pteridium aquilinum	Bracken	F
Quercus cerris	Turkey Oak	O
Quercus robur	Pedunculate Oak	F
Rhododendron ponticum	Rhododendron	F
Ribes rubrum	Red Currant	R
Robinia pseudoacacia	False Acacia	R
Rubus fruticosus agg.	Bramble	F
Rumex obtusifolius	Broad-leaved Dock	R
Salix caprea	Goat Willow	R
Salix cinerea	Grey Willow	R
Sambucus nigra	Elder	O
Scrophularia nodosa	Common Figwort	R
Sequoiadendron giganteum	Wellingtonia	R
Solanum nigrum	Black Nightshade	R
Sorbus aucuparia	Rowan	F

Scientific name	Common name	Abundance
Taraxacum officinale agg	Dandelion	R
Taxus baccata	Yew	O
Urtica dioica	Common Nettle	F
Veronica serpyllifolia	Thyme-leaved Speedwell	R

Figure 2
St Ann's Hill (including Monk's Grove)
Phase 1 Survey Results

SURREY wildlife TRUST

Appendix 3 – Extract from Access Surveys of Runnymede SANGS Sites (Anckorn, 2009).

Access Surveys of Runnymede SANGS Sites

Ken Anckorn BSc (Hons) DipMus DipEnv
September 2009

Surrey Wildlife Trust, School Lane, Pirbright, Woking, Surrey GU24 0JN

Runnymede Borough Council
Proposed
Suitable Accessible Natural Green Space (SANGS) Sites.

Public Access Assessment

1. Introduction

Runnymede Borough Council have commissioned Surrey Wildlife Trust (SWT) Consultancy to undertake an assessment of its proposed SANGS sites by walkover survey of each site, to assess them for their ability to satisfy Natural England's public access criteria for such sites. The purpose of a SANGS site is to attract public to use these sites for dog walking and quiet recreation instead of using the Thames Basin Heaths Special Protected Areas (SPA) for such purposes, thus reducing human pressure on the SPA resulting from housing development within 5km of the SPA.

The location of the seven sites assessed is shown in Figure 1. These assessments have taken into account the ecological information contained in the Phase 1 Surveys, also conducted by SWT Consultancy August 2009, to identify important ecological features, influence pathway selection and ensure that management works recommended by this assessment do not have a detrimental effect on any ecologically sensitive habitats. Each site was assessed on its current condition and general accessibility with regard to vegetation type and density in addition to visitor facilities including, car parks, pathways, signage, 'furniture' (bins, benches) and general accessibility.

Note that as some of the seven sites are adjacent to each other these have been considered as one SANGS site for the purposes of this report, these being Timber Hill and Chaworth Copse also Hare Hill and Queenwood.

Following the site survey visits, recommendations have been made regarding alterations designed to make each site better fitted to fulfil its function as a SANGS, while still retaining and where possible enhancing its biodiversity value.

2. Methodology

Each site was visited by the surveyor and a thorough walk-over survey conducted. The routes of the existing main pathways were noted, together with other existing visitor facilities. The location of each major habitat type was noted and any significant ecological feature taken into account. Any particularly sensitive ecological areas were carefully identified.

Man made features on the site, reflecting the local social history of the site was also considered, to be incorporated where relevant into the recommendations for improving public access and enjoyment of the site. Where possible key features on each site were selected to be used as focus points for visitor interest, to emphasise each site's unique qualities and add to its attractiveness as an alternative recreation space to the SPA

Lengths of pathways were measured to give an approximate figure for the distance a visitor could cover when using the paths on site. Where the sites are smaller than recommended, suggestions are made to indicate how adjacent sites can be regarded as one SANGS to provide the length of footpaths required by SANGS criteria.

2.1 Species Survey Work

When preparing detailed plans for the SANGS sites, including future Management Plans, full protected species information must be available in order that legally protected and important species are not adversely affected by any SANGS works. As the sites are mostly woodland, surveys for bats and badgers will be most important but there may also be the need for dormouse, reptile and amphibian survey work.

Data searches have been made to aid ascertaining the presence of other important species, so that any SANGS work such as path improvements and vegetation thinning avoids sensitive areas, the findings of these are given in the Phase 1 survey report SWT Consultancy 2009.

2.2 SANGS Requirements

All the sites are of sufficient interest due to their topography and current vegetation to satisfy SANGS criteria. Most have sufficient length of path to provide adequate SANGS walking routes but six of the seven sites, St Ann's Hill being the exception, are closely linked by footpaths and can be walked in-combination to provide longer distances.

The maps (Figures 2 – 6) provided give an indication of the main paths on the sites and the length of walks available.

The paths selected for SANGS use should only be confirmed after protected and important species survey information is available for each site

2.3 Information

In addition to information panels, notice boards and way markers on site; a suite of SANGS leaflets should be provided to help visitors find their way around sites and to act as advertisement. These leaflets should be available both as hard copy at off-site information points and downloadable from a website.

3. St Ann's Hill (including Monk's Grove)

3.1 Site Description

This is the largest of the proposed SANGS sites at approximately 17ha. It is isolated from the other proposed SANGS but is large enough to satisfy SANGS criteria on its own. At 69m it is the highest of the proposed SANGS sites and enjoys extensive views from two good viewpoints, northwards to Heathrow airport and Westwards towards Windsor.

Most of the site is covered in secondary broadleaved woodland but there are also a number of exotic trees present. There is one open, grassy area in an old quarry area known as the Dingle.

This is an interesting site with much historical and natural history interest. The remains of a chapel, a hill fort and a historic well can all be seen and good views are to be had of the surrounding countryside and built environment. The woodland is quite open in places, particularly near the top of the hill, with more vegetation on the hills sides and near the base. Large specimen trees area a feature.

There is an existing network of well used paths reaching most parts of the site, starting from the small car park and from one or two other access points.

3.2 Current Facilities

a) Car Parking

There is one small informal car park accessed up an un-surfaced track from St Ann's Hill Road. There is probably capacity for approximately 10 cars here. There is also limited car parking on St Ann's Hill Road.

b) Pathways

The site is well supplied with a network of informal paths running throughout the site. The main path up from the car park to the top of the hill and the viewpoint is broad and the incline is such that wheelchairs could use it, if it was hardened up enough with suitable stone/gravel to prevent it becoming too wet. Children in pushchairs, of the more robust sort currently negotiate this path.

Other paths are narrower and in places steep, making them less accessible for less able visitors.

A three-quarter mile Nature Trail is laid out on the site starting from the car park and waymarked by wooden posts.

c) Furniture

The site is well supplied with dog waste bins, litter bins and benches. Dog waste and litter bins are located at main entrances and within the site and

benches are sited at strategic view points. Some benches are quite 'municipal' in design. The Dingle is supplied with picnic benches.
There is a wood burning beacon on a pole, at the top of the hill next to the view point.
There are notice boards with ownership details at each main entranceway and a Nature Trail notice board at the car park entrance.
There are two formal view points with stone flag flooring and low surrounding stone walls.
The Nature Trail is marked out by 1meter tall wooden waymaring posts.

d) Special Features

The hill with its view points is the special attraction of this site. Although adjacent to the M3, the wooded nature of the site helps it retain an element of tranquillity, in such a developed locality.
The historic features of the site provide points of interest, although apart from the Nun's Well, there are few obvious visible remains.
The good, wide paths up from the car park to the view points and the picnic facilities of the Dingle make this a particularly attractive site for families, while the extensive footpath network provides ample walking for most visitors.

[redacted]

3.3 Recommendations.

Although St Ann's Hill appears reasonably well used, this must be predominantly by people living within walking distance. The relatively small size of the car park, difficultly in finding access and lack of signage must limit the number of visitors arriving by car from a distance.
There are several features which should be improved on this site to make it more acceptable as a SANGS with particular emphasis on improving access onto the site.

a) Car Parking

The existing car park is small and difficult to locate. It would be important to increase its size as much as possible, in keeping with its location and the nature of the site. Clear signposting from the nearest main road would help visitors find it.
It may be possible to create a new access point and car park off the B388.

b) Improving Site Interest

As this site already has interesting features, it should only be necessary to make improvements on existing points of interest such as;

- Improving the view points with the addition of view indicators;
- Making the pond a permanent feature in the Dingle;
- Providing information boards at the sites of historic interest;
- Improving the environs of the Nun's Well. Improving drainage, providing a bench, opening up a view through the trees;
- Opening up darker, closed in paths by removing/cutting back undergrowth and young trees; and
- Providing benches of a rustic nature in suitable locations at view points and where slopes are steep.

c) Visitor Access

With the exception of the immediate area of the Nun's Well, all paths were dry and easily walked at the time of the survey visit. After wet weather, some paths will become muddy and slippery. Using local knowledge, these vulnerable areas should be improved by hardening up, drainage and or steps to make the site more available in all weathers.
The main path from the car park to the first view point could be improved for use by less able.
Where required, paths should be opened up by vegetation clearance, to make them more welcoming to all users.

[redacted]

The path from the Dingle to the Car Park may need improving to encourage visitors to take a circular route round the Hill.
Waymarkers should direct the visitor along the main paths and the Nature Trail should be retained and enhanced.

d) Visitor Information

Visitor information on the site must be provided in the form of Notice Boards at any car parks and main points of access. These notice boards should provide,

- A history of the site;
- A natural history of the site;
- A map of the site showing paths and features of interest; and
- Event and other information. Eg Guided Walks.

Notice boards should also be provided at historical features and by the pond in the Dingle.

e) Habitat Improvements

Where paths are overgrown or badly shaded, vegetation should be cut back to allow in more light. Paths should become linear glades through woodland, with an interesting ground flora on each side, attracting butterflies, bees, dragonflies and birds.
Removal of invasive foreign plants such as cherry laurel and rhododendron would benefit biodiversity and help improve light levels. Holly and bramble clumps should be kept cut back but not removed.
The grassland of the Dingle should have a conservation cutting regime to encourage the growth of wildlflowers.
Re-creating the pond as a permanent feature would add biodiversity interest. Invasives should be cut back from the pond area to improve light levels but part of the pond should be 'off-limits' to encourage wildlife including breeding birds.

[redacted]

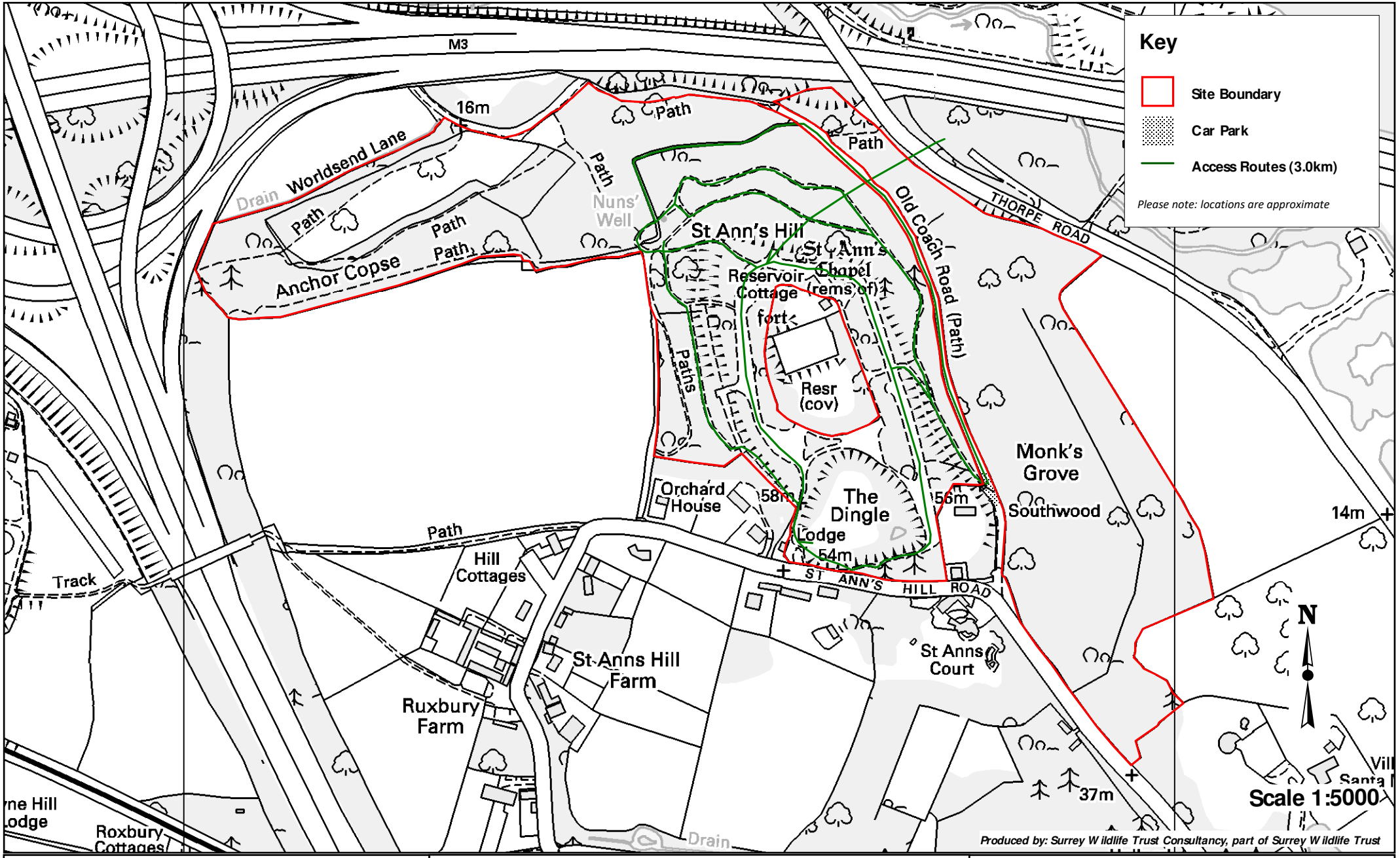
Bat and bird boxes can be erected on suitable trees on site.

f) Management Plan

All of the above works should only be done after a careful management plan has been drawn up and agreed. Protected and important species survey data should be used in order that more sensitive features on site are not damaged and the more interesting flora and fauna on site is protected. This can be achieved by careful vegetation control and re-routing paths where necessary to avoid ecologically sensitive areas.

3.4 Conclusion

The Trust recommends that the above works are given full consideration should the Local Authority wish to proceed with its plan to turn this site into a SANGS. By adopting these measures, the SANGS criteria can be satisfied and the biodiversity of the site improved. The Trust will be happy to assist with producing a Management Plan to achieve these aims.



St Ann's Hill
Access Routes and Car Park

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Appendix 5 – Background Ecological Data Search (Surrey Biological Records Centre, 2009).

Background Ecological Data Search; Area Around St Ann's Hill, Chertsey, Surrey

Runnymede Borough Suitable Alternative Natural Greenspace Site Assessment

Produced by
Alistair Kirk
Biological Records Centre Manager

Surrey Biological Records Centre
September 2009

for
Surrey Wildlife Trust Consultancy

Surrey Wildlife Trust, School Lane, Pirbright Woking, Surrey, GU24 0JN

Contents

Background Ecological Data Search; Around St Ann's Hill, Chertsey, Surrey

1.0 Introduction

The following report has been compiled by the Surrey Biological Records Centre on behalf of Surrey Wildlife Trust Consultancy as part of a desktop ecological assessment of candidate Suitable Alternative Natural Greenspace (SANG) land near Chertsey, Surrey. Based on our standard data search service it includes information on a) protected species, b) rare/notable species and c) Priority Species/Species of Conservation Concern as identified in the UK Biodiversity Action Plan recorded from sites falling within 500 metres of land at St Ann's Hill (approximate site centre Ordnance Survey grid reference TQ026676). The report is completed by a map of the search area (Annex A).

2.0 Protected Species

The Records Centre currently holds information on a number of species protected either by national [1,2] or international [3,4,5] legislation which have been recorded from sites falling within the 500 metre search area. This list should not be regarded as definitive and it is likely that further detailed survey work would be necessary prior to any development to ascertain the full extent of any activity. Furthermore, it should also be noted that although the Records Centre currently has data sharing agreements with many of Surrey's specialist recording societies we may only hold limited information for a number of important taxonomic groups. Similarly, although data transfers take place on a regular basis, we may not always hold the most upto date records for a particular area.

The following table lists species in taxonomic order by each kilometre square of the study area. Information on the national status of each species is taken from the RECORDER species database and *Checklist of Legally Protected British Species* (Betts, 2008) [6]. In each case the relevant Schedule or Annex which describes the nature and level of protection is also shown. Species information held by the Records Centre has been compiled from a variety of different sources and the precise survey methodology followed in each case may not always be available. However, the following table will attempt to identify the source of each record according to one of four different categories, namely; a) SNCI site survey, b) other SWT survey, c) Surrey Wildlife Atlas Project record, d) records supplied to the BRC by Surrey's specialist recording societies, a member of the County's biological recording community or compiled as part of a wider national survey scheme.

Please note, Appendix III of the Bern Convention includes all species of birds not listed in Appendix II with the exception of 11 abundant /perceived pest species. Species included in this list have are omitted from the following table but readers should nonetheless take note of its existence. Similarly, where a site straddles the edge of the search area all relevant records recorded from that site have been included in this report. Species records for a site are commonly assigned a locational reference based on the Ordnance Survey grid reference for the centre of that site. On occasions although part of a site may legitimately fall inside a search area, its geographical centre may lie outside. As a result the following tables may include species apparently recorded from one kilometre squares falling outside your original search area. (N.B Throughout this report, where this occurs, the relevant 1 kilometre squares are enclosed by brackets).

Finally species recorded from sites which make up the candidate SANG are shown in bold, species recorded from sites falling within the wider search area are shown in normal type.

1Km Grid Square	Common Name	Scientific Name	Wildlife & Countryside Act Schedule or Other UK Legislation	International Status	Date Last Recorded	Source of Record
TQ0168	Stag Beetle	*Lucanus cervus*		Bern III. EC IIa.	1998	Other Record
TQ0268	Stag Beetle	*Lucanus cervus*		Bern III. EC IIa.	1998	Other Record
	Pipistrelle [i]	*Pipistrellus pipistrellus*	5	EC Annex IVa; Bern App III	1986	Other Record
TQ0368	Black-necked Grebe	*Podiceps nigricollis*	1 Part 1	Bern App II	1998	Other Record
	Smew	*Mergus albellus*		Bern App II	1998	Other Record

Any work or activity likely to affect any species covered by a relevant schedule of the Wildlife and Countryside Act, must first be referred to the local office of Natural England.

[i] Research in the early 1990's first suggested that the bat formerly known as the Common Pipistrelle was in fact two different but closely related species. Detailed physical and DNA analysis has now confirmed that this is the case. The two species; the Common Pipistrelle (*Pipistrellus pipistrellus)* and the Soprano Pipistrelle *(Pipistrellus pigmaeus*) are normally differentiated by differences in their peak echolocation frequency.

3.0 Notable / Rare Species

The Records Centre currently holds information on the following species recorded from sites falling within the 500 metre search area which are thought to be rare or notable at either a national or a regional level. In each case, the known distribution of all populations (both native and non-native) as shown in the relevant County atlas is also shown where available.

Once again, the following table lists species by kilometre square and then alphabetically by taxonomic order and scientific name. Species recorded from sites which make up the candidate SANG are shown in bold, species recorded from sites falling within the wider search area are shown in normal type. Information on the national status of each species is taken from the RECORDER species database.

1Km Grid Square	Common Name	Scientific Name	National Species Status	Surrey Status	Date Last Recorded	Source of Record
TQ0168	Stag Beetle	*Lucanus cervus*	Notable/Nb [7]	Local [8]	1998	Other Record
TQ0267	Monk's-hood	*Aconitum napellus agg.*	Nationally Scarce [9]	Established Alien, 7 tetrads [10], 1987; 9 ten kilometre squares[11]	1989	Other Record
	Large-leaved Lime	*Tilia platyphyllos*	Nationally Scarce	Alien, Rare, probably always planted, 1987; Rare, 13 ten kilometre squares, "associated with steep slopes on calcareous rocks and this, combined with historical records for the area... have led to the suggestion that it may be native at the base of the chalk river cliff at Box Hill. There are several other records from the scarp slope of the Downs and it is tempting to suggest that these too may represent native sites. It is widely planted elsewhere and there are now many examples of natural regeneration."	1983	Other Record
TQ0268	Stag Beetle	*Lucanus cervus*	Notable/Nb	Local	1998	Other Record
TQ0368	Dittander	*Lepidium latifolium*	Nationally Scarce	1987; 3 ten kilometre squares	2000	SNCI Survey
	Galingale	*Cyperus longus*	Nationally Scarce	Rare, 14 tetrads, 1987; Rare, 9 ten kilometre squares	2000	SNCI Survey

3.1 Local Species

The Records Centre also holds information on a number of species classed as Nationally Local [12]. Once again, the known distribution as shown in the relevant County atlas is also shown.

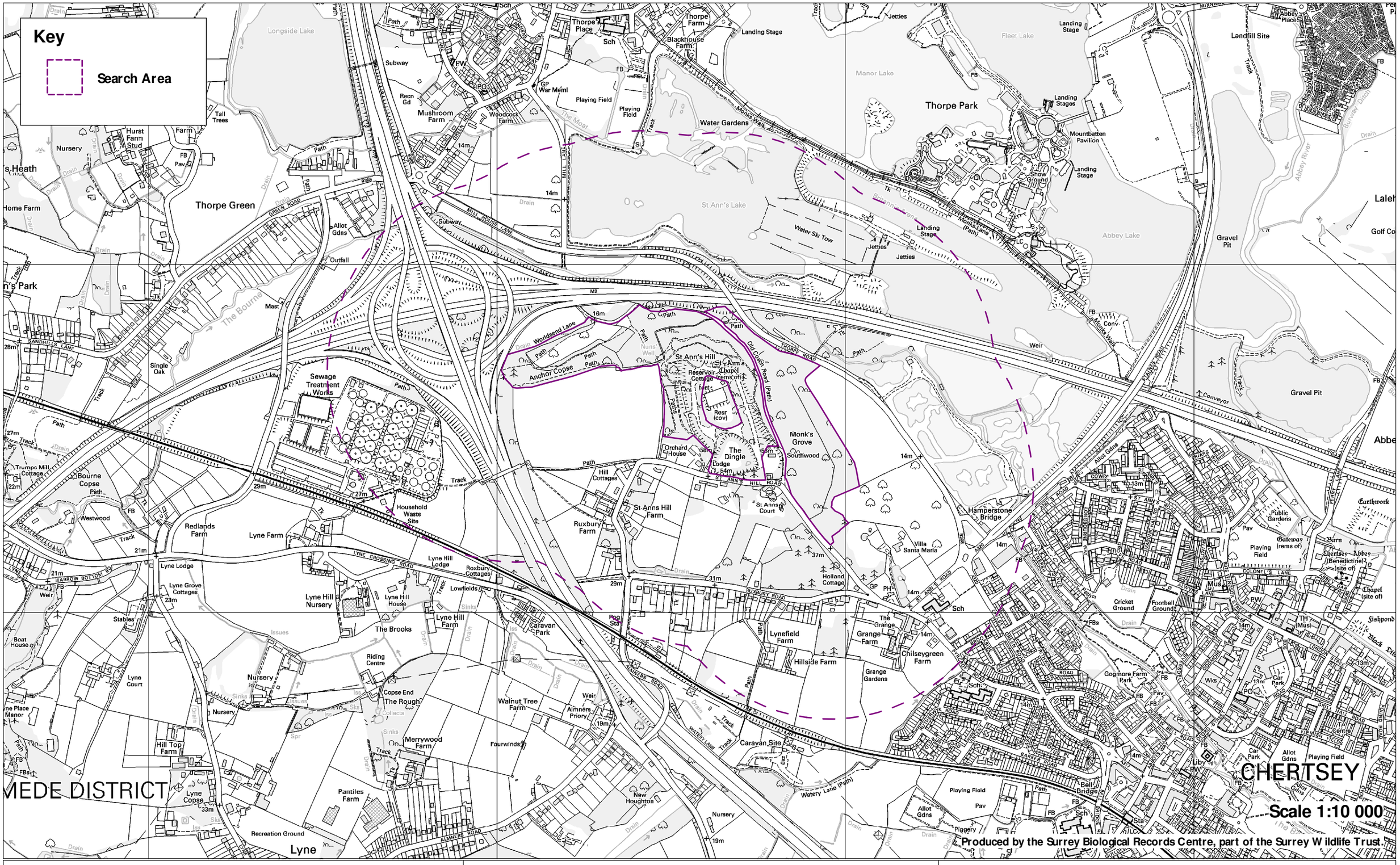
1Km Grid Square	Common Name	Scientific Name	National Species Status	Surrey Status	Date Last Recorded	Source of Record
TQ0266	Banded Demoiselle	*Calopteryx splendens*	Local	169 tetrads, Confirmed [13]	-1984	Atlas
	Black-tailed Skimmer	*Orthetrum cancellatum*	Local	117 tetrads, Confirmed, Widespread	-1980	Atlas
TQ0267	Purple Hairstreak	*Quercusia quercus*	Local	Widespread and Common [14], 2000; 319 tetrads [15]	1998	Other Record
TQ0268	Red-eyed Damselfly	*Erythromma najas*	Local	128 tetrads, Confirmed with some very large colonies	-1980	Atlas
	Banded Demoiselle	*Calopteryx splendens*	Local	169 tetrads, Confirmed	-1984	Atlas
	Black-tailed Skimmer	*Orthetrum cancellatum*	Local	117 tetrads, Confirmed, Widespread	-1980	Atlas
TQ0368	Red-eyed Damselfly	*Erythromma najas*	Local	128 tetrads, Confirmed with some very large colonies	1985	Atlas
	Migrant Hawker	*Aeshna mixta*	Local	152 tetrads, Confirmed, Widespread	1985	Atlas

4.0 UK Biodiversity Action Plan; Priority Species and Species of Conservation Concern

The following species which appear on either the Priority or the Conservation Concern lists of the UK Steering Group Report on Biodiversity [16] have also been recorded from sites falling within the 500 metre search area.

1Km Grid Square	Common Name	Scientific Name	UK Biodiversity Action Plan Status	Date Last Recorded	Source of Record
TQ0168	Stag Beetle	*Lucanus cervus*	Priority	1998	Other Record
TQ0267	Bluebell	*Hyacinthoides non-scripta*	Conservation Concern	2000	SNCI Survey
TQ0268	Stag Beetle	*Lucanus cervus*	Priority	1998	Other Record
	Pipistrelle	*Pipistrellus pipistrellus*	Priority	1986	Other Record
TQ0368	Black-necked Grebe	*Podiceps nigricollis*	Conservation Concern	1998	Other Record
	Wigeon	*Anas penelope*	Conservation Concern	1998	Other Record
	Gadwall	*Anas strepera*	Conservation Concern	1998	Other Record
	Tufted Duck	*Aythya fuligula*	Conservation Concern	1998	Other Record
	Goldeneye	*Bucephala clangula*	Conservation Concern	1998	Other Record
	Smew	*Mergus albellus*	Conservation Concern	1998	Other Record
	Goosander	*Mergus merganser*	Conservation Concern	1998	Other Record

Annex A – Site Map



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Produced by the Surrey Biological Records Centre, part of the Surrey Wildlife Trust.

Background Ecological Data Search; Area Around St Ann's Hill, Surrey Nature Reserves and Non-Statutory Designated Sites

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References

[1] Wildlife and Countryside Act, 1981 (as amended).

[2] Protection of Badgers Act, 1992

[3] Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora ("Habitats and Species Directive"). Implemented within the UK by the Conservation (Natural Habitats & c.) Regulations 1994, amended in England by The Conservation (Natural Habitats, & c.) (Amendment) (England) Regulations 2000.

[4] EC Directive 79/409 on the Conservation of Wild Birds (the Birds Directive), As amended by Council Directive 92/43 and implemented within the UK by The Conservation (Natural Habitats &c.) Regulations 1994, amended in England by The Conservation (Natural Habitats, & c.) (Amendment) (England) Regulations 2000.

[5] Convention on the Conservation of European Wildlife and Natural Habitats ("The Bern Convention").

[6] Betts C.J, (2008) *Checklist of Legally Protected British Species; Third Edition*, Christopher Betts Environmental Biology, Worcester.

[7] Nationally Notable/Nb; species estimated to occur within 31-100 10 kilometre squares of the National Grid system. For more information on the criteria used see Eversham, B., (1983); *Defining Rare and Notable Species – a discussion document, Invertebrate Site Register Report No 49*, Nature Conservancy Council and Ball, S.G. (1986); *Terrestrial and Freshwater Habitats with Red Data Book, Notable or Habitat Indicator Status*, *Invertebrate Site Register Internal Report Number 66*, Nature Conservancy Council.

[8] Denton, Dr J, (2005); *Beetles of Surrey – a checklist*, Surrey Wildlife Trust, Pirbright.

[9] Nationally Scarce; species estimated to occur within 16-100 10 kilometre squares of the National Grid system. For more information see Stewart, A., Pearman, D.A., & Preston, C.D., (1994); *Scarce Plants in Britain*, Joint Nature Conservation Committee, Peterborough.

[10] Lousley, JE., (1976); *Flora of Surrey*, David and Charles, Newton Abbot.

[11] Leslie, A.C., (1987); *Flora of Surrey, Supplement and Checklist*, A.C&P. Leslie, Guildford.

[12] Nationally Local; species estimated to occur within 101-700 10 kilometre squares of the National Grid system. For more information on the criteria used see Eversham, B., (1983); *Defining Rare and Notable Species – a discussion document, Invertebrate Site Register Report No 49*, Nature Conservancy Council See Ball, S.G. (1986); *Terrestrial and Freshwater Habitats with Red Data Book, Notable or Habitat Indicator Status*, *Invertebrate Site Register Internal Report Number 66*, Nature Conservancy Council.

[13] Follett, P., (1996), *Dragonflies of Surrey*, Surrey Wildlife Trust, Pirbright

[14] Collins, G.A., (1995); *Butterflies of Surrey*, Surrey Wildlife Trust, Pirbright.

[15] Jeffcote, G., Enfield, M., Gerrard, B., (2000); *Surrey Butterfly Report*, Dr W Gerrard for Butterfly Conservation; Surrey and SW London Branch, Bagshot

[16] UK Biodiversity Group (1995), *Biodiversity: The UK Steering Group Report. Volume 2: Action Plans*, HMSO, London.