



Thursley National Nature Reserve

Management Plan

1 April 2011 – 31 March 2016



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PREFACE

This plan covers all of the land at Thursley under the direct management control of Natural England.

Over the previous plan period the NNR suffered a devastating uncontrolled heath fire (July 2006) which affected a large proportion of the dry heath and parts of the wet heath. In particular, the fire has significantly reduced variation in the age structure of the dry heath. The habitats are recovering well but the effects of the fire will have consequences for the site for many years. Much of the focus of management during the next few years will be on promoting further recovery of habitat condition but also on reducing the risk of further large fires. One benefit of the fire was that it stimulated increased local interest and involvement in the site.

In 2007 a foot-and-mouth outbreak restricted access and management of the NNR.

A public consultation in partnership with Surrey Wildlife Trust and the Ministry of Defence/Defence Estates over the future management of Thursley and the adjoining areas of heathland is currently taking place.

Priorities for the current plan period include:

- Further expansion of cattle grazing;
- Enhancement of conifer woodland areas for heathland birds;
- Increased provision of bare ground and short, pioneer vegetation;
- More focus on monitoring: key species and habitats.
- Increased partnership working with neighbouring land managers;
- Establishment of a 'Friends of Thursley' public consultation group;
- Increased community input.

Graham Steven / James Giles
Lead Advisor / Reserve Manager
January 2012

Brown beaked sedge *Rhynchospora fusca* is a very scarce plant in south east England. The wet heath and mires at Thursley NNR provide a key stronghold.



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Acknowledgements

1.1 Location

		Notes
Location	Situated near the towns of Godalming, Haslemere and Guildford, and in the parishes of Thursley, Elstead and Pepper Harrow	<ul style="list-style-type: none">• Within Surrey Hills AONB• Natural Character Area 120: Wealden Greensands
County	Surrey	
District	Waverley	
Local Planning Authority	Waverley Borough Council	
National Grid Reference	SU 906405	

1.2 Land Tenure

	Area (ha)	Notes
Total Area of NNR	325.5	Does not include those parts not yet designated as NNR, but under the management control of Natural England.
Freehold	317.02	
Leasehold	3.98 4.5	<ul style="list-style-type: none"> Parish Field is leased from Thursley Parish Council Part of Moat Pond, car park and surrounding area is leased from Waverley Borough Council
S 35 Agreement	x	
S16 Agreement	x	
Other Agreements		Part of Ockley Common is managed by Natural England by agreement with Defence Estates on condition that it remains available for military training.
Legal rights of access	✓	Several bridleways, permissive bridleways and public footpaths (map 4.4)
Other rights, covenants, etc	✓	Thursley and Elstead common land parcels are subject to the 1925 Law of Property Act - this is a revocable deed. (map 4.5)
Notes		

1.3 Site Status

Designation	Area (ha)	Date	Notes
SAC	The entire area of SAC is 5138 ha Most of the SSSI is included within the SAC boundary along with three other SSSIs	Designation: 19/04/02	Whole of NNR is part of the - Thursley, Ash, Pirbright and Chobham SAC in recognition of the presence of internationally important examples of wet heath and mire habitat. EU code - UK0012793
SPA	The entire area of SPA is 1869.95 ha The SPA and SSSI share the same boundary	Designation: 19/04/02	Whole of NNR is part of the - Thursley, Hankley & Frensham Commons SPA because the site provides habitat for internationally important numbers of breeding nightjar, woodlark and Dartford warbler. EU code - UK9012131
Ramsar	The entire area of the Ramsar is 265.24 ha of which Thursley contributes a significant portion.	Designation: 14/02/94	Part of the NNR is designated as Thursley and Ockley Bogs Ramsar Site in recognition of the international importance of the wetland mire habitat and its associated invertebrates.
NNR	325.5ha	Declaration(s): 4/7/78, 6/9/84	Declaration no1 covers 319.4 ha Declaration no2 is 6.1 ha comprising 2 parcels of land at Hammer Pond and its surrounds and Parish Field.
SSSI	The NNR sits within a part of a larger SSSI block of 1838.2 ha	Notification (1981 Act): 1985, Revised 1991	A part of the Thursley, Hankley & Frensham Commons SSSI
GCR			
Other designations (site):	SAM	Included in the schedule: 16 /1 /1998	2 Scheduled Ancient Monuments
Wider designations:	AONB		The whole NNR falls within Surrey Hills AONB. The only NNR in the AONB.

Parts of the site which are under the management control of Natural England are not designated as NNR. This will be corrected during the plan period by designations to NNR status.

1.4 Physical Features

Geology

The site lies mainly on the strongly acidic, leached, podzolic soils of the Folkestone and Sandgate Beds of the Lower Greensand. Surface peat is present in the lower-lying waterlogged areas.

Geomorphology

The NNR has a generally northerly aspect. The land falls generally from the higher ground of the Folkestone Beds in the south, down towards the river Wey valley to the north. The Folkestone Beds form roughly the southern half of the site, while the Sandgate Beds form the Northern half. The Sandgate Beds lie beneath the Greensand and form a shallow bowl in which the mire is situated. This drains to the Wey valley off the NNR. The NNR has an approximate elevation of between 56m to 102m above sea level.

Soils

The NNR has 2 distinct soil types. On the Folkestone Beds a free draining, gritty, sandy soil dominates, whereas on the Sandgate Beds and Greensand podzolic soils dominate, with occasional "lenses" of clay. Superficial acid peat predominates in waterlogged parts of the site.

Hydrology & Hydrochemistry

One of the larger bodies of open water is Hammer Pond. This is fed by a small watercourse which rises near Cosford House and flows under the A3. This is not Main River and so is outside the jurisdiction of the Environment Agency. Hammer Pond has been formed by the construction of a large dam at the downstream end. Water leaves the lake over a 0.5 metre overflow at the dam down a steep spillway and through a culvert under a path. A water course also flows around the base of the dam and is fed by seepage through a crumbling concrete structure fed from a pipe. This pipe takes water from the north-eastern outflow of Hammer Pond where water leaves via a grille and flows underground to join the pipe. Water drops into a ditch which flows northwards out of the SSSI. There is a third outflow on the east side of Hammer Pond at SU916403 where water leaves over a set of drop boards some 0.75 metres high and 3 metres wide. This watercourse carries water south back under the A3 to join the Royal Brook.

Moat Pond has no obvious inflow and is assumed to be aquifer-fed. There is one small outflow channel to the east, as well as some seepage of water out into the adjoining wet heath and mire.

The central mire system on Thursley Common is fed by springs arising within the NNR from the Folkestone Beds aquifer. These feed a number of seepage lines into the less permeable Sandgate beds which generally flow northwards and converge into the Pot Common Brook to the north of Elstead Common. Water levels in the streams and ditches flowing across Elstead Common appear to affect levels in parts of the mire system. Different areas of the mire appear to be functionally separate as parts remain consistently wet while Pudmore Pond and the surrounding area can vary significantly in wetness, becoming quite dry during prolonged droughts.

The principal water flow from the south part of the system flows northwards and divides before rejoining, together with overflow from Moat Pond to flow through Pudmore Pond. Pudmore Pond is said to be a fish pond created to provide food for the residents of Waverley Abbey. It later became used as a flight pond in Victorian times. It is formed in a depression but water is not retained, there always being a flow in and out. In the mid 1990s a dam was placed across the boundary stream

with the MOD land at approximately SU904417 to slow water flow from the mire. This was in part to counteract the effects of channelization of watercourses that occurred in the 1970s.

There is anecdotal evidence that some of the ponds in the mire system are artificial and of quite recent origin. At least one is said to have been used for cleaning tanks when the area was used for military purposes.

It is assumed that the mires on Ockley Common are fed by seepages rising under the peat. The mire has a central ditch which has been dug from the centre to the north east. This has raised embankments, which may reduce its ability to drain water from much of the mire, but the effect of the presence of the ditch and whether it may be having detrimental impacts is not clear, a full hydrological study would help resolve this. Some drainage appears to occur to the northwest into Pudmore Pond via two water tracks and there is a further water track draining water from the east of the site towards the drain.

Climate

Thursley NNR has a typical south east England climate, with mild winters and relatively low annual rainfall although the north-facing topography gives rise to a microclimate which moderates these factors. The site is subject to frequent prolonged periods of low rainfall which gives rise to a high risk of heath fires.

1.5 Biological Features

Flora

Vascular plant assemblage

The NNR supports several of the key plant species for which the area is designated as a Site of Special Scientific Interest. These are the Nationally Scarce plants bog hair-grass *Deschampsia setacea*, marsh clubmoss *Lycopodiella inundata* and brown beaked sedge *Rhynchospora fusca*.

Regionally uncommon plants

The NNR is also important for a number of regionally uncommon plants including cranberry *Vaccinium oxycoccos*, white beaked sedge *Rhynchospora alba*, royal fern *Osmunda regalis* and early marsh orchid *Dactylorhiza incarnata* spp *pulchella*. These are all plants which are scarce in south east England.

Fauna

Birds

Thursley is of key regional importance in providing habitat for breeding populations of birds listed in Annex 1 of the European Habitats Directive. These are woodlark *Lullula arborea*, nightjar *Caprimulgus europaeus* and Dartford warbler *Sylvia undata*. The NNR also provides habitat for other scarce heathland and wetland birds including curlew *Numenius arquata*, stonechat *Saxicola torquata*, hobby *Falco subbuteo*, great grey shrike *Lanius excubitor* and lapwing *Vanellus vanellus*.

Reptiles

Thursley NNR supports strong populations of all 6 native reptiles: smooth snake *Coronella austriaca*, adder *Vipera berus*, grass snake *Natrix natrix*, common lizard *Lacerta vivipara*, sand lizard *Lacerta anguillis* and slow worm *Anguis fragilis*. Of particular importance is the occurrence of a native population of sand lizard. This species has a highly localised distribution in the UK and most populations are small, isolated and vulnerable to local extinction. It has very specific habitat requirements. The sand lizard colonies are mostly associated with dry heath in locations where there are un-shaded south-facing slopes with a sandy substrate. Also of note is the presence of smooth snake. This species is of conservation concern in the UK as it appears to have undergone significant decline. Remaining populations, including that at Thursley, are considered vulnerable to local extinction because of habitat fragmentation, reduction in habitat suitability and uncontrolled fires.

Odonata

Thursley NNR is renowned as a site of national importance for its breeding dragonfly and damselfly assemblage. Breeding species present include scarcities such as the small red damselfly *Ceriagrion tenellum*, downy emerald *Cordulia aenea*, brilliant emerald *Somatochlora metallica* and black darter *Sympetrum danae*. The site formerly supported a relict breeding population of the rare white-faced darter dragonfly *Leucorrhinia dubia*. It is now thought to be extinct as there have been no sightings for over 10 years. It is essentially a species of northern peat bogs and raised mires. There is no likelihood of natural re-colonisation and this species is considered lost.

Other invertebrates

Thursley is recognised as being of particular importance for invertebrates of sandy heathland and mires. A very high diversity of species is present, including a number of rare species. Thursley is regarded as one of the top sites in the country for ground nesting hymenoptera (bees, wasps and ants) and the aculeate species. Areas of bare or sparsely vegetated, open, sunlit patches of consolidated sandy soil in the heath are of particular importance for the maintenance of the invertebrate assemblage associated with sandy heathland. Maintenance of good water quality and maintenance of water levels are critical factors in ensuring that appropriate conditions are present for the invertebrate assemblage associated with the mires.

The dry areas of heath and grassland support strong colonies of the scarce silver-studded blue butterfly *Plebejus argus*. The BAP species hornet robberfly *Asilus crabroniformis* has been recorded at the site although it is not known whether a breeding population is present. Other notable insects present include the wood tiger beetle *Cicindela sylvatica* the raft spider *Dolomedes fimbriatus*, Mottled Bee fly *Thyridanthrax fenestratus*, Early Sunshiner ground beetle *Amara famelica* and the Heath Grasper Spider *Haplodrassus dalmatensis*.

Habitats

Heathland vegetation

Thursley NNR includes outstanding examples of a range of wet and dry heath and mire vegetation types. Some of the vegetation types are recognised as being of international importance through their inclusion in the European Habitats Directive.

The dry heath areas have vegetation with affinities to National Vegetation Classification (NVC) types **H1** *Calluna vulgaris* - *Festuca ovina* heath and **H2** *Calluna vulgaris* – *Ulex minor* heath. Both of these are of restricted distribution, mostly found in the south and south east of England. The vegetation is characteristically dominated by heather *Calluna vulgaris* with smaller amounts of bell heather *Erica cinerea*, dwarf gorse *Ulex minor*, wavy hair grass *Deschampsia flexuosa*, common bent *Agrostis capillaris*, sheep's fescue *Festuca ovina*, purple moor-grass *Molinia caerulea*, pill sedge *Carex pilulifera* and tormentil *Potentilla erecta*. Bryophytes are abundant with *Pleurozium schreberi*, *Hypnum jutlandicum* and *Polytrichum juniperinum* particularly prominent. Lichens, especially *Cladonia* species are also abundant.

Wetter areas support a variety of wet heath, mire and bog community types. Much of the area of wet heath is closest in character to NVC type **M16** *Erica tetralix* – *Sphagnum compactum* wet heath although the composition of the vegetation varies in relation to management history, frequency of fires and wetness. Some of the normally characteristic components of the vegetation such as *Sphagnum* (bog-moss) species, multi-stemmed spike-rush *Eleocharis multicaulis* and round-leaved sundew *Drosera rotundifolia* are rather patchily distributed, probably due to lack of grazing. Common associated plants include deer grass *Trichophorum cespitosum* and heath rush *Juncus squarrosus*, and the mosses *Sphagnum compactum*, *S. papillosum* and *S. tenellum*. The vegetation type is vulnerable to loss of diversity due to increasing dominance of purple moor-grass *Molinia caerulea* particularly in those parts of the site which are not grazed. Nevertheless, the more species-rich areas support a number of uncommon plants including marsh clubmoss *Lycopodiella inundata*, white beaked sedge *Rhynchospora alba*, brown beaked sedge *Rhynchospora fusca*, lousewort *Pedicularis sylvatica*, marsh lousewort *Pedicularis palustris* and heath milkwort *Polygala serpyllifolia*. A wide diversity of bryophytes is present in the mires including the Nationally Scarce *Cephalozia macrostachya* and the regionally uncommon *Calypogeia sphagnicola*.

Pudmore Pond is an area of open bog pool and floating mats of vegetation at the heart of the

mire system. This area hosts a high diversity of scarce wetland species and is of critical importance. It is generally in good condition but there is concern that common reed *Phragmites communis* is increasing in abundance and spreading. Reed is not a typical component of acid mires and its presence may indicate localised nutrient input, sedimentation, changes in water chemistry, or a combination of these factors.

The mire complex also includes areas characteristic of NVC type **M21** *Nartheicum ossifragum* – *Sphagnum papillosum* mire. This vegetation type is typically dominated by *Sphagnum* with relatively low cover of heather, bell heather and purple moor-grass. These areas are generally little affected by heath fires and they have some of the most species-rich vegetation on the site. Of particular interest is the occurrence of the locally rare cranberry *Vaccinium oxycoccos*, intermediate sundew *Drosera intermedia* and royal fern *Osmunda regalis*, as well as early marsh orchid *Dactylorhiza incarnata* ssp *pulchella*.

The wettest parts of the mires have vegetation typical of acidic, nutrient-poor bogs including NVC types **M1** *Sphagnum auriculatum* bog-pool community, and **M6** *Carex echinata* - *Sphagnum recurvum* mire. The vegetation includes a range of characteristic plants such as carnation sedge *Carex panicea*, bog pimpernel *Anagallis tenella*, lesser spearwort *Ranunculus flammula* and bog cotton *Eriophorum angustifolium*. Carpets of hummock-forming bog mosses including *Sphagnum papillosum* and *S. magellanicum* dominate extensive areas. Bog pools provide a habitat for bog pondweed *Potamogeton polygonifolius* and *Sphagnum cuspidatum*.

Purple moor-grass dominates the vegetation in parts of the site. Such areas vary in overall diversity, mostly in relation to the height of the vegetation. Where kept in check by trampling, burning or grazing the vegetation can be very rich and may include the locally uncommon meadow thistle *Cirsium dissectum*, the rare bog hair-grass *Deschampsia setacea* and marsh clubmoss *Lycopodiella inundata*.



Bog hair grass *Deschampsia setacea* has a disjunct distribution in the UK. It is very rare outside of the north of Scotland. This suggests the plant has persisted at Thursley for thousands of years. It favours good quality mires.

Ponds

As well as the mire complex with its bog pools, Thursley NNR includes two ponds of nature

conservation value. Moat Pond, situated close to the car park, is an aquifer-fed pond of importance in contributing to the habitats available to the Odonata and other wetland invertebrates. There is anecdotal evidence that the Moat has declined in habitat quality over the past 30 years or so. It is reported to have formerly supported a diversity of wetland plants characteristic of nutrient-poor water bodies. It currently has poor water quality although it is still of value in supporting scarce breeding damselflies. Hammer Pond is an artificial pond fed by a small stream which rises on land south of the A3. It is likely to be of importance for a variety of wetland invertebrates.

Woodland

Of lesser importance are the small areas of broadleaved woodland present. There are examples of good quality alder woodland around Hammer Pond and small areas of oak and birch woodland present in various places. Will Reeds is a small block of mature oak plantation.

Coniferous woodland

Substantial parts of the site are occupied by long-established pine plantation and secondary pine-dominated woodland. Both types are generally of low botanical interest although parts provide a refuge for heathland plants such as bilberry *Vaccinium myrtillus* which are otherwise scarce in more open areas which are subject to frequent fires. Mature pine trees are utilised by some of the scarce bird species for nesting, feeding and roosting. It is also important to note that the conifer woodlands are a significant component of the landscape character of the site and provide useful visual screening effects.

Other habitats

Parish Field is an area of semi-improved grassland with low botanical diversity. It is of some value in contributing to the overall range of habitats and provides useful nectar sources through the year for the invertebrate populations.

Site management / SSSI units with broad habitat types (see map 4.3)**Unit 16 - Main Southern block of NNR**

Dwarf shrub heath – lowland.

Unit 17 - Will Reeds

Broadleaved; mixed and yew woodland – lowland. This is small isolated oak plantation with a canopy dominated by tall, mature oak. Birch is present in a few places where there are gaps in the canopy and there is a poorly developed understory of young oak, birch and holly.

Unit 18 - Parish Field

Lowland acid grassland. A range of herbs present, with ragwort prominent.

Unit 20 - Hammer Pond

Broadleaved; mixed and yew woodland, open water – lowland. The canopy is dominated by oak, alder with smaller amounts of hazel, yew and alder buckthorn. The ground flora includes red currant, remote sedge, water mint, gypsywort, valerian and bilberry.

Unit 25 - Rodborough Common

Broadleaved; mixed and yew woodland, conifer woodland – lowland. This unit is largely occupied by mature pine plantation and oak woodland with scattered open areas with heathy grassland.

Unit 32 - Main northern block of NNR

Dwarf shrub heath – lowland. A mix of dry (severely burnt 2006) heath, with regenerating pioneer heather, *Erica cinerea* and *Ulex europaeus* and wet heath/bog.

Unit 33 - Eastern block

Dwarf shrub heath – lowland. Large area of pine woodland, fringes of mire complex.

Unit 39 - Ockley Common

Dwarf shrub heath, mire complex – lowland. Good diversity of graminoids and forbs including flushes with white beaked sedge. Has abundant bog asphodel and sundew. Many small pools present providing habitat for wetland invertebrate assemblage

Unit 40 - Moat Pond

Dwarf shrub heath – lowland, open water. This area includes part of The Moat, and small areas of wet heath and dry heath

Unit 44 – Southern fringe of NNR

Dwarf shrub heath – lowland. Western area was burnt in 2006 fire and now provides extensive areas of pioneer and building heather with bare patches, a scarce habitat in Surrey heaths. The non-native moss *Campylopus introflexus* is abundant.

1.6 Cultural Features

Joint Character Area:	120 Wealden Greensand
<p data-bbox="197 371 501 405">Landscape Character</p> <p data-bbox="193 443 1457 775">Thursley NNR is part of a larger block of open heathland which is itself part of a complex of heaths, mire, broadleaved woodlands and conifer plantations situated on the sandy and gravelly soils of the Greensand ridge on the Surrey/Hampshire border. It is a highly valued landscape, regarded as relatively unspoilt in a part of southeast England with a growing population and high development pressure. The NNR has a predominantly open landscape with wide-ranging views across the varied habitats of heath, grassland, woodland and mire. Surrounding settlements and roads are largely obscured by the marginal blocks of conifers and broadleaved woodland. There is only minor intrusion of noise from the nearby A3 trunk road. The overall character is of a wild, unspoilt and quiet area of countryside with minimal signs of development and excessive visitor pressures despite the moderately high visitor use and proximity to London.</p> <p data-bbox="193 824 1469 920">Despite the rural setting of the NNR, the site is within easy travelling distance of a large number of population centres including London. Users of the site are predominantly local but a significant proportion is from further afield, drawn by the unique character and special wildlife.</p> <p data-bbox="193 969 1461 1205">The NNR offers a different visitor experience from other parts of the Greensand heath complex. Frensham Common, Wisley Common and the Devil's Punchbowl have facilities such as picnic areas, toilets, on-site wardening staff, recreational facilities, indoor seating and refreshments, and are more suited to high visitor numbers than Thursley. Feedback from visitors to the NNR indicates that the most valued distinctive aspects offered by the site are the high variety of habitats which are within easy walking distance, the circular path network, and the 'wilderness' experience.</p> <p data-bbox="197 1261 743 1294">Archaeological and Historical Features</p> <p data-bbox="197 1346 1414 1442">The NNR includes two Scheduled Ancient Monuments, Bronze Age tumuli. The site also has numerous other features of local archaeological interest which have not yet been fully investigated or recorded. These include ancient track ways, boundary features and pits.</p> <p data-bbox="197 1514 443 1547">Land-Use History</p> <p data-bbox="197 1619 1461 1783">The NNR has various common land parcels and it is therefore likely that it was formerly of significant economic value for local people in contributing to subsistence farming through the provision of bracken, gorse and heather for animal fodder and bedding, and as a source of firewood. The land was last grazed by local commoners up until about 100 years ago. However, there are no commoners' rights in existence now.</p> <p data-bbox="197 1816 1374 1912">The site was formerly used for iron production, with a 'hammer pond' on the reserve. This activity was based upon local supplies of 'ironstone' and an abundance of timber. These activities have left a legacy of numerous small pits and tracks.</p> <p data-bbox="197 1951 783 1984">The land has a history of military training use</p>	

Socio-economic Use

The main public use of the NNR is now as an important local amenity for recreation and exercise, enjoyment of nature, horse-riding, bird watching and nature photography. There is a strong local community involvement in use of the site, reflected by input from local volunteers.

Many of the contracted land management works and materials used on the NNR are sought from local companies, where possible to help support local businesses and bolster the economy. Every effort is made to source where practical locally produced materials which are as environmentally sustainable as possible, with local provenance and traceability. The NNR currently supports 1 full time employee with occasional part time / short term contracts providing local employment.

Education

The site has the capacity and to fulfil requirements of the national curriculum. It also lends itself to higher education and the NNR welcomes MSc and PhD students from many of the universities in London, and other institutions such as Kew Garden. Whilst staff time is limited, there is capacity to provide guided walks and introductory talks to visiting groups.

There are no on-site facilities to provide a base for school visits or classroom activities.

The site has featured on TV programmes such as BBC's Life in the Undergrowth and Countryfile.

Research Use

Thursley has a long history of research use. Being situated close to London it is one of the more accessible NNRs for study.

Currently the NNR is being used to a much greater degree internally. Projects such as climate change research, where long-term weather data is collected and analysed, long-term monitoring of the vegetation communities with a network of fixed quadrats across the site, and implementation of specific single species management techniques for both fauna and flora. Breeding bird data is collected, breeding territories are mapped, and species present are recorded using the British Trust for Ornithology (BTO) methodology. The NNR contributes to the United Kingdom Butterfly Monitoring Scheme (UKBMS).

Other aspects which are the subject of externally led studies on the site include: the effects of atmospheric pollution, reptile populations and distribution, plant communities, carbon locking in heathland ponds.

Demonstration

The site has considerable potential for demonstration of innovative habitat management techniques. The large size of the site and the relatively robust nature of the main habitats give scope for experimental management techniques. Natural England has encouraged use of Thursley in a project to create new areas of suitable habitat for the Nationally Scarce plant marsh clubmoss. This is done by creating 'scrapes' in parts of the wet heath. There is scope to develop this and similar habitat enhancement projects and to use such activity to promote this to others. Opportunities also exist to work more closely with SARG (Surrey Amphibian and Reptile Group) and ARC (Amphibian and Reptile Conservation). These organisations already carry out various surveys on site on a voluntary basis and provide invaluable guidance on management.

Tiger beetle project

In conjunction with Surrey Wildlife Trust a project with Landfill Tax funding has been secured to carry out habitat management for the wood tiger beetle *Cicindela sylvatica*, a rare beetle of sandy heaths. This project aims to increase the population of the beetle and perhaps to be able to use this population to bolster weak or extinct populations at other sites.

Grazing

Grazing by cattle was re-introduced to Thursley NNR in 2009 after an absence of more than 90 years. In partnership with Surrey Wildlife Trust (who owns the cattle) the herd is being developed specifically for conservation grazing on heathland as local farmers have been reluctant to graze their stock on the site. There is potential to use this to help educate visitors of the historical use of commons and the continuing need for extensive grazing for conservation purposes.

1.7 Access Features

Access Classification	Champion	Destination	Other	
			✓	
Access Plan Category	Open	Managed	Restricted	Excluded
	✓			

Visitor Appeal and Suitability for Access

Thursley is a highly popular destination for people seeking a readily accessible site with a quiet, unspoilt character which has the rare quality of having a partial “wilderness” appeal with good prospects of seeing interesting wildlife. The size and open nature of the site, and the location of additional open areas on the adjoining land, mean that the site can accommodate a moderate number of visitors without giving an impression of significant human presence. Public use of the site has steadily increased since the designation of the NNR but visitor numbers remain moderate. Visitor numbers are effectively constrained by the limited availability of car parking spaces. Although there are no indications of significant adverse impacts arising from public use, key wildlife features of the SSSI are sensitive to disturbance, so the effects of public access will be monitored and careful management of access may be required. There are no plans to seek to change the public access policy during the plan period.

Access Provision

All of the area under the management control of Natural England, except Parish Field, is mapped as “Access Land” under the meaning of the Countryside and Rights of Way Act. Most of the site has legal provision for unrestricted access on foot or horseback. This is granted via a revocable deed under the Law of Property Act 1925 (section 193b). To date, this has not resulted in conflicts with habitat management or achievement of nature conservation objectives but unrestricted access does carry the risk of disturbance of sensitive parts of the site and ground-nesting birds, particularly by dogs. However, most visitors do not stray off of the main footpaths and tracks.

The site is well served by an internal network of public bridleways, public footpaths and informal paths, including several circular routes. There is an extensive network of boardwalks to enable safe access to the wetter parts of the mire habitat. The extensive boardwalk network allows the visitor access to the wet / boggy areas over some of the mire habitat and provides a unique perspective of a rare habitat, as without the boardwalk it would be virtually inaccessible. The boardwalk network requires regular maintenance and is subject to continual improvements allied to statutory access requirements. Within the network platforms are being created to aid the visitor appeal; to provide areas for education / observation, quiet enjoyment and resting areas.

A self-guided “Heath Trail” leads visitors from the car park to the core areas of the NNR. The path and bridleway network links the NNR to adjoining areas of heathland and to local settlements.

A large proportion of visitors are dog walkers. There is increasing concern about the long-term risk of nutrient enrichment, particularly in the vicinity of the car park, arising from dog faeces. Plans are in place to install dog waste bins in the car park to reduce this risk.

Visitor Facilities

The main access to the NNR is from a small car park on land leased from Waverley Borough Council (The Moat Car Park) on the Thursley road between the villages of Elstead and Thursley. The car park is sign posted at the entrance and has capacity for about 30 cars. It is not suitable for large coaches. Limited parking is also available at Thursley village recreation ground and at a lay-by on the southern edge of the site. Car parking is free.

An information panel with a brief description of the site and a map showing the nature trail is provided at the car park.

More detailed information about the site is available on the Natural England website. The location of the NNR is shown on Ordnance Survey maps.

There is no off-site signage and promotion of the site is low-key and primarily focussed on the local area.

Accessibility

There are no dedicated facilities for the disabled. All paths around the site are on level to moderate gradient. Paths are un-surfaced; parts have loose sand and gravel surface while other paths have short, uneven vegetation. The boardwalk system which provides access to parts of the mires currently has steps in places; these will be replaced by sloping entry / exit ramps during this plan period. The boardwalk is not currently suitable for motorised or off-road type mobility scooters but there is scope for it to be enhanced to make it more accessible for visitors with prams, buggies and assistant / self propelled wheel chairs. A jetty and viewing platform at Moat Pond is to be constructed during the period of this plan.

Green travel

Cycle racks are provided in the car park so that access is available for those who choose to cycle to the site.

Nearest train stations are at Witley, Milford, Haslemere, Godalming and Farnham.

Local buses call at Elstead from Farnham and Godalming. Elstead is about 1 mile from the site entrance.

Community involvement

Thursley NNR is well placed within the local community. Two villages are situated very close to the site, namely Thursley to the south and Elstead to the north west. The NNR forms an integral part of both parishes of these villages. Anecdotal evidence suggests a large proportion of visitors are very local.

An extensive uncontrolled fire in 2006 heralded a significant change in the relationship with the local communities. This event helped to build stronger links between the site management staff, regular users and neighbours. One of the key requests by local people was for more communication and regular updates on management. Articles are now submitted to two local parish magazines in Thursley and Elstead to help keep locals informed and to encourage input.

The strongest active involvement is from Natural England Volunteer Wardens, who mostly live locally. They are Natural England's "eyes and ears" supporting the NNR staff all year round, by carrying out surveys, patrolling the site and helping visitors, as well as undertaking practical habitat management tasks.

Visitor engagement

Limited staff resources mean that the range of activities which Natural England can offer at present is restricted to a small number of events such as guided walks. Development of stronger links with local partners may provide opportunities for a wider range of activities.

Estate Assets

Natural England owns the timber on the freehold areas and the pine woodland is a potential source of income.

The relatively unspoilt landscape is an asset in itself. There has been small-scale use of the site as a filming location and there is scope to develop this further, as long as it does not compromise nature conservation objectives.

There may be scope to generate income from sale of seed or cuttings from the site for use in heathland restoration projects. This has previously been undertaken on a small scale.

In the longer term, grazing may provide a source of income.

The designation of the site as SAC, SPA and Ramsar raises the potential for access to international sources of financial support for specific projects. There may also be potential for collaborative projects developed in partnership with the Surrey Hills AONB which deliver landscape-scale objectives.

Table 1.8.2 Landscape Features

Feature No.	Specific Feature	Explanation of Feature/Ranking	Legal Designations				Other Classifications	
			World Heritage Site	National Park	AONB	Heritage Coast	Joint Character Area	Other
14	Greensand Ridge landscape	A varied landscape comprised of a mosaic of heathland habitats and surrounding broadleaf and conifer woodlands, with an unspoilt character and wide-ranging views.			✓		120 Wealden Greensand	

Table 1.8.3 Archaeological & Historical Features

Feature No.	Specific Feature	Explanation of Feature/Ranking	Legal Designations		Other		
			World Heritage Site	Scheduled Monument	Listed Building	Register of Historic Parks/Gardens	Other
15	2 Bronze Age tumuli			✓			
16	Other cultural features						✓

Table 1.8.4 Socio-economic Use

Feature No.		Very Important	Important	Insignificant
17	Economic Use			✓
18	Community Involvement	✓		

Table 1.8.5 Education, Research & Demonstration

Feature No.		Very Important	Important	Insignificant
19	Education		✓	
20	Research	✓		
21	Demonstration		✓	

Table 1.8.6 Public Access

Feature No.		Very Important	Important	Insignificant
22	Public Access	✓		

Table 1.8.7 Other Estate Assets

Feature No.	Asset Description	Notes
23	Off-site office and store	Office / workshop / store facilities serving the NNR are leased from a local landowner
24	Board walk network	Extensive network giving access to the wetter parts of the reserve
25	Parish Field	Leased from Thursley Parish Council
26	Standing timber	Natural England holds the right to extract and sell timber in the freehold areas
27	Car park	Leased from Waverley Borough Council
28	Gates, fences, stock handling facilities	
29	Reserve signs, way marking and interpretation panels	Bridleway signage maintained by Surrey County Council
30	Water control structures	
31	Staff / contractors / volunteers	
32	Management plan	To be reviewed on a 5 year frequency
33	Legal and statutory obligations	

2.1 Site Analysis

Site Strengths	Site Weaknesses	External Opportunities	External Challenges
<ul style="list-style-type: none"> • Size ➤ One of the largest remaining fragments of the Surrey heaths. ➤ Extensive mire system. ➤ Part of a larger complex of heaths. ➤ Generally high resilience to damaging impacts. • Wider context ➤ Situated in a much larger SPA/SAC reduces effects of habitat fragmentation. ➤ Close proximity to two local villages. ➤ Easy access by car from a wide catchment including London. ➤ Huge potential for collaborative working with partner bodies. • Species – Fauna ➤ Exceptionally high diversity. ➤ Strong populations of scarce species such as smooth snake. ➤ Particularly rich in invertebrates of sandy heaths. ➤ Very rich Odonata assemblage. 	<ul style="list-style-type: none"> • Fire ➤ Highly vulnerable to damaging heath fires. ➤ Current lack of extensive grazing increases fire risk. • Visitor facilities ➤ Parts of path network poorly accessible, particularly by the less able. ➤ No indoor facilities on site. ➤ No on-site facilities for volunteers. • Green transport ➤ Poor public transport links. • Habitat condition ➤ Parts are currently in unfavourable condition. 	<ul style="list-style-type: none"> • Public Consultation ➤ Consultation over future management provides opportunities for a fresh approach. • Wider designations ➤ International designations provide potential for new income streams. ➤ Opportunities for collaborative projects delivering AONB objectives. • Partnership working ➤ Scope to develop existing links with SARG, ARC, Plantlife, etc. • Educational use ➤ Potential to develop existing links with academic institutions. • Community involvement ➤ Developing links with local villages. • Potential sources of income ➤ Timber sales ➤ Wood fuel ➤ Seed collection ➤ Film location ➤ Grazing 	<ul style="list-style-type: none"> • Pollution ➤ Potential threat of long-term accumulation of nitrates from atmospheric pollution and consequent changes in composition of key habitats. ➤ Potential threat of oil pollution from A3 affecting Hammer Pond area. • Public use of the site ➤ Increasing visitor numbers requires increasing wardening and places pressure on staff time. ➤ Increasing risk of nutrient enrichment and consequent habitat degradation from dog faeces. ➤ Unrestricted access poses risk of disturbance of key ground-nesting birds. • Grazing ➤ The current limit of grazing (10% or 10ha whichever is the lesser of each common land parcel, under 2006 commons act) of the site means that parts, and in particular the mire complex, are suffering effects of lack of grazing.

Site Strengths	Site Weaknesses	External Opportunities	External Challenges
<ul style="list-style-type: none"> • Species – Flora ➤ High plant diversity. ➤ Strong populations of national and regional rarities. • Access ➤ Open public access. ➤ Good circular path network. ➤ Board walk providing access to key areas of interest. ➤ Free car parking provision. • Tenure ➤ High degree of management control by Natural England. • Landscape appeal ➤ Valued for its “wilderness” experience. ➤ Provides a varied, and relatively unspoilt landscape with excellent opportunities to experience wildlife. • Staff resource ➤ Dedicated site manager with long association with the NNR. ➤ Off-site office and storage facilities nearby. 		<ul style="list-style-type: none"> • Technology ➤ Potential for new methods of providing information to visitors such as web-based downloads, smart phone applications. ➤ Potential for development of interactive website. 	<p>Any increase in extent of grazing will require positive engagement with visitors; this is being investigated during the span of this plan, with a public consultation for extensive grazing and perimeter fencing subject to an application to the Secretary of State, and outcome of the consultation</p> <ul style="list-style-type: none"> • Climate change ➤ Increasing frequency of extreme weather pose increased risk of flooding and uncontrolled fires. ➤ Prolonged drought periods pose threat to the mire system. ➤ Increased threat from new pests and diseases. ➤ Increasing stress on plants and animals which have requirements for cool and moist conditions. • Invasive non-native species ➤ Potential risk from invasive plants such as Rhododendron and Gaultheria. • Bracken control ➤ Loss of Asulox as a means of controlling spread of bracken poses challenges to find practical alternatives.

2.2 Site Management Policy

Key management principles

The overarching principle of management of Thursley NNR is that the designated interest features of the SSSI, SPA, SAC and Ramsar site are maintained in favourable condition, or are brought into favourable condition if not currently meeting conservation objectives. No management will be carried out or activities permitted where these may adversely affect achievement of this key target.

Public consultation over the future management of Thursley and the adjoining areas of Ockley Common is taking place whilst this plan is in preparation and some aspects of management may change in the light of that process. However, the key aspects of the proposed management regime are set out below, together with the reasoning for the management options selected.

Dry heath

The general principle will be to aim to maintain high structural diversity in the dry heath habitat, with a significant proportion at the early pioneer and building stages of development. High structural diversity is important for many of the key species which depend upon the habitat. It ensures that there is a wide range of niches available, provides a mosaic of areas suitable for feeding whilst offering cover, and generally promotes higher biodiversity than more uniform, even-aged heath. The early stages of heath development are of critical importance for many of the specialised invertebrates of southern heaths. It provides opportunities for establishment of low-growing plants which are shaded out in mature heath, and enhances habitat conditions for reptiles. Nevertheless, it is important that all stages of the heath succession are represented as they are all utilised and contribute to the range of structural diversity. For example, mature and moribund areas of dry heath may be used by Dartford warbler as nesting sites, and humid, mossy areas under leggy heather are often favoured by smooth snake and other reptiles. Areas of tall heather with scattered trees are often favoured by nightjar as nesting sites, whilst adders often favour areas of heather interspersed with grassy patches and scattered bracken. Maintenance of high structural diversity in dry heath can be a challenge, particularly where there are frequent uncontrolled fires. Extensive fires create large areas of even-aged, structurally uniform vegetation and will remove many of the structural features utilised by the associated birds, invertebrates and reptiles.

At Thursley NNR, one of the techniques used to increase structural diversity is to intervene during the recovery period following large fires, by manually cutting selected areas whilst allowing other areas to develop naturally. Areas of the heath not affected by fires are generally managed by a combination of rotational cutting and small, controlled winter burns. Controlled burning is generally carried out on a small scale, in areas of mature heath where other options are impractical. Other management methods utilised include the creation of 'scrapes', the mechanical removal of vegetation to expose a bare soil surface. Grazing can also be important in promoting structural diversity. Small areas of the dry heath have been included in the cattle grazing enclosures. Cattle will tend to preferentially graze leafy plants and grasses; they do though tend to avoid eating in dry heath areas within an extensive system, but they may however rest up there, and areas subject to extensive grazing generally have far greater structural and species diversity than un-grazed areas. However, in most cases a combination of all of these management techniques is likely to be required in order to meet the conservation objectives.

Sand lizard

Sand lizard has very specific habitat requirements. Of critical importance is the presence of areas of consolidated sandy soil which are accessible for females to burrow into for egg-laying. These areas must be close to extensive areas of tall, mature heather which provides cover from predators, as well as areas of sunny, sheltered patches of short vegetation suitable for basking and feeding. The vegetation must also be rich in invertebrate prey. At Thursley the core breeding areas are concentrated in one part of the dry heath and management to maintain suitable habitat conditions for the species will be concentrated there. Management will be undertaken in consultation with local reptile groups and enthusiasts, and their input to monitor populations will be encouraged.



Example of dry heath in favourable condition. A key aspect is the high structural diversity. Heather at all stages of growth is present. There are frequent short patches and areas of exposed soil. The scattered bushes and trees provide useful cover, shelter and song posts.

Fire

Heathland is a highly volatile habitat. Whilst many heathland plants are able to regenerate after a fire, extensive uncontrolled fires, especially during dry summer periods can be devastating and may have long-lasting detrimental impacts. Damaging effects of fire include:

- Reduces structural diversity and age diversity in the heath;
- Removes the soil humus layer and heather seed bank;
- Can affect soil chemistry;
- May result in nutrient enrichment;
- Can encourage the spread of grass, weeds and birch;
- Can be devastating to invertebrate, plant and reptile populations;
- Can change the overall species composition of the habitat;
- May result in local extinction of sensitive species;
- May affect Smooth snake populations which are particularly vulnerable to uncontrolled fires;
- Reduces visual appeal to visitors;
- Poses a threat to grazing animals;
- Poses a threat to adjacent properties and settlements;
- Can cause a serious hazard on adjacent roads by drifting smoke

It is therefore important that all practical effort is made to reduce the likelihood of uncontrolled fires. Measures considered appropriate at Thursley NNR include:

- Extension of the areas grazed by cattle;
- Regular cutting or controlled burns of mature areas of heath, particularly in areas with high visitor numbers;
- Removal of cut material following scrub management;
- Effective bracken control to minimise build up of dense leaf litter;
- Rotational management of gorse;
- Use of scrapes, wide rides and mown areas to provide fire breaks;
- Maintenance of high water levels in the mires;
- Retention of trees in selected areas to provide shade;
- Awareness raising amongst visitors;
- Regular removal of litter;
- High profile wardening during periods of high risk;
- Encouragement of volunteer involvement in patrolling during high risk periods.

Management of scrub including gorse

Scrub is important as part of the heathland habitat mosaic. It provides cover for nesting birds such as Dartford warbler and stonechat, provides song posts, shelter, wind breaks and feeding opportunities for invertebrates. Areas of 'edge' habitat which form a transition between mature heath and woodland are often particularly important for a wide range of wildlife. Scrub is also valuable in providing natural shelter for grazing animals. It is also recognised that stands of woodland / scrub contribute significantly to the landscape value of the site and its intrinsic appeal. Nevertheless, scrub is a highly dynamic habitat which can quickly develop into woodland and spread into other important habitats so it must be managed.

Gorse management requires careful consideration. Common gorse is of importance in providing nesting and feeding habitat for Dartford warbler, and large clumps of gorse amongst mature heather are particularly valuable. It is desirable to seek to maintain a variety of growth stages of gorse and both large and small clumps of bushes. However, if management fails to keep pace with the spread of gorse the resulting spreading patches can result in loss of surrounding heath, reduce access, and increase fire risk. Management options include rotational cutting, 'swiping', physical removal using machinery and burning. The last option is considered the least appropriate at Thursley as the resulting ash from burning is rich in nutrients and cleared areas tend to be colonised by grasses and bramble rather than heathland plants. Swiping, using large tractor-driven cutters, can clear large areas of gorse quickly but produces large quantities of brash which must then be raked off and disposed of. Use of machinery to physically remove bushes can, if undertaken with care, produce effective results if the intention is to convert an area back to heather-dominated heath. However, this is only really practical for use on a small-scale because it requires good access and produces large quantities of material for disposal. Manual cutting using chainsaws is often the only practical option where access is difficult or when working in sensitive parts of a site, and this is the method most often employed at Thursley.

Rationale for the management of scrub at Thursley will be based on the following principles:

- Where appropriate, extensive grazing will be used to supplement other methods of scrub control;
- Management will prioritise areas where development of scrub is resulting in loss of biodiversity or extent of other important habitats;
- Management will aim to maintain high structural diversity;

- Gorse will be managed on rotation with priority given to creating suitable conditions for Dartford warbler;
- Clumps of gorse will be retained where they are likely to be of value for Dartford warbler and stonechat nesting sites;
- Management of gorse will be by mechanical methods rather than burning;
- Opportunities will be sought to create new areas of good quality habitat in the course of scrub management.

Bracken

Although often viewed as a management problem, many of the characteristic species associated with dry heath utilise areas of bracken. It provides cover for reptiles, particularly adder and smooth snake, and areas with deep leaf litter can be important for reptiles as hibernation, resting and breeding sites. Ground nesting birds often favour areas of bracken where it borders open heath. Bracken can also be valuable for invertebrates and can sometimes form a rich plant community with associates such as bilberry *Vaccinium myrtillus* which are otherwise rare in the open heath. However, bracken can be invasive, rapidly colonising areas and reducing their diversity through shading. It can also increase fire risk where there is an accumulation of dead leaf matter and humus. It is desirable to manage bracken to prevent it from forming a closed canopy and to control its spread.

At Thursley NNR most bracken management has been through use of Asulam, a herbicide which is highly effective in reducing its vigour. This option will no longer be available after December 2012 as the herbicide is being withdrawn from use. So other means of control are required. Alternatives are mechanical control by rolling or cutting, use of less specific herbicide for weed wiping, and grazing. Some of these have potential conflicts with conservation objectives. Rolling and cutting are only effective if undertaken when the plant is actively growing during early summer. This means that ground nesting birds and breeding reptiles may be significantly affected at this key time in their lifecycle. Use of herbicides such as Roundup may adversely affect other plants growing in bracken stands. Both options may therefore pose unacceptable risk in parts of the site. Control by grazing is generally only effective where grazing pressure is high. Wholesale removal of bracken patches, together with rootstock and humus layer during the winter months is common practice at other lowland heath sites and may be required at Thursley in the future. The arising material can be of value as garden compost and soil conditioner. A range of control options will be investigated to develop a practical management regime during the plan period.

Wet heath, valley mire and bog

The key objective of management of these habitats is to maintain the vegetation in a predominantly short, species-rich condition with frequent bare, peaty patches and pools of open water. This is to ensure that low-growing components of the vegetation do not become shaded out and that there are plentiful opportunities for plants to become established. Many of the key species of the habitat such as bog mosses, sundew and marsh clubmoss require short, open conditions to survive. A mosaic of short vegetation, bare patches and pools will generally provide better conditions for a wide range of wetland invertebrates than taller, uniform vegetation.

Molinia

A particular threat to biodiversity of the wet heath and mire habitat is increasing dominance by purple moor-grass *Molinia caerulea*. Although this grass is a characteristic and often dominant component of the vegetation if allowed to grow unchecked it will tend to shade out and reduce habitat suitability for lower growing plants and even heathers. It can form large tussocks and may create large quantities of dead leafy material which pose a high fire risk in the sensitive wet heath habitat. In addition, areas of tall *Molinia* can often cause problems for access as they can become

very difficult to walk through.

Control of *Molinia* is focussed on keeping growth in check rather than attempting eradication. This is because if kept short *Molinia*-dominated vegetation can be very species-rich and may support rare species of plants and invertebrates.

Thursley, management of *Molinia* will primarily be by grazing. This is because hardy cattle selectively graze *Molinia* during early summer effectively reducing its vigour, preventing the development of a tall sward and hindering the accumulation of leaf litter. Cattle are also useful in improving the condition of areas which have declined in condition through management neglect as they trample down deep layers of leaf litter and create gaps between *Molinia* tussocks; there are no desires to remove all of the *Molinia* tussocks as these provide micro climates for plants, insects and reptiles. Cattle do not specifically target flower heads so the more interesting forbs have a chance to re-emerge and propagate.

Bog pool management

Pools and areas of bare peat are important components of the wet heath mosaic. They provide favoured habitat for many scarce wetland invertebrates including damselflies and dragonflies. Even at the wettest sites, management is required to ensure that the extent of open water and bare peat are maintained, as heath development and vegetation succession means that they are continually changing. It is beneficial to meet species conservation targets, to aim to maintain pools at various stages of development as different organisms use the different stages from bare wet peat through to pools with high cover of emergent vegetation. New pools and areas of bare peat can be created relatively easily and cheaply through mechanical means by scraping shallow areas of surface peat. This technique has been used effectively at Thursley. However, a key consideration is how to dispose of the material arising from the operations and the need to ensure that only small quantities are produced subsequently limits the scale of activity, there are also carbon emissions to consider. It is also important to note that parts of the mire system are inaccessible with machinery. Extension of cattle grazing to include more of the mire system may reduce the need for mechanical management as cattle (and hardy ponies) can be very effective in creating wet gaps and pools through their trampling.

A particular issue affecting Pudmore Pond is the apparent spread and increasing abundance of reed. This may pose a threat to the habitat by reducing the extent of open water and shading out other plants. The reason for its spread is unclear but investigations are under way to determine the cause and possible solutions. Mechanical removal of some of the reed may be required.



Photo shows an example of wet heath in favourable condition with predominantly short vegetation, frequent gaps and patches of bare peat. The characteristic yellow-flowered bog asphodel is abundant and there is frequent Sphagnum, bog cotton and other species. Small tussocks and scattered bushes and trees provide structural diversity.

Grazing management

Grazing by cattle was re-introduced at Thursley NNR in 2009 in a partnership project with Surrey Wildlife Trust. This is currently limited to a small proportion of the site. Natural England is of the view that the conservation objectives cannot be achieved without an extension of the area which is grazed. This is because extensive grazing, in combination with other management techniques, delivers a range of benefits which other techniques cannot.

Benefits of extensive cattle grazing

- Effective in controlling dominance and spread of *Molinia*;
- Keeps vegetation short;
- Creates increased structural diversity;
- Creates gaps in vegetation and increases habitat suitability for low-growing plants;
- Dung provides additional habitat for invertebrates;
- Helps control establishment of scrub;
- Can contribute to bracken control;
- Mitigates effects of nutrient input;
- Reduces fire risk.

Dis-benefits

- May cause excessive poaching of wet areas;
- May cause disturbance to ground-nesting birds;
- May cause damage to archaeological features.

The NNR is bounded by land owned by Surrey Wildlife Trust, Defence Estates and private land owners. There are opportunities to work together to develop a more extensive grazing system. The current grazing at Thursley is carried out using the provision in the Commons Act which allows for temporary enclosures over 10% or 10 ha (whichever is the smaller) of a common land parcel (Commons Act 2006, revised 2007 section 38, annex A). The temporary enclosures are seasonal, that is they are in place only during the spring, summer and autumn, and fencing is removed over the winter. The fencing used is electric fencing to facilitate erection and removal, and to minimise impacts on the landscape. The cattle used are belted Galloway, a traditional breed which is considered well-suited to conservation grazing as they are hardy, placid, unperturbed by dogs and capable of grazing rough vegetation, including *Molinia*. The Stock is checked on a daily basis whenever they are on site and the highest standards of animal welfare are applied. The stocking level is very low, in the order of 5 – 7 LSU's. There have been no recorded problems involving

cattle and visitors arising from the grazing in the temporary enclosures to date.

Whilst the facility to graze using the exemption enclosures is useful and is helping to improve the condition of parts of the site the limitation means that the benefits of grazing are not being achieved over the majority of the NNR. The location of the temporary enclosures is necessarily restricted to areas where grazing is most beneficial, where there is at least some shade available for stock and where there is good access. Large parts of the site which would benefit from grazing do not have these attributes and are unsuitable for use in temporary enclosures. Natural England is of the view that grazing over a larger proportion of Thursley is required in order to meet the conservation objectives and to deliver other benefits such as reduced fire risk. In 2010 a public consultation was initiated by Natural England, Surrey Wildlife Trust and Defence Estates to seek views on future management of the area. The proposal to extend the area being extensively grazed is one of the key aspects over which views are invited. This consultation process is on-going at the time of writing and the outcome is not expected until late in 2012 early 2013.

Whatever the outcome of the consultation process it is likely that grazing will continue to be a major component of the management regime. The stock selected for use at Thursley is likely to remain hardy cattle suitable for the conditions. If cattle are not available an alternative may be to use hardy ponies such as Exmoor or Dartmoor as they have similar characteristics.

Woodland management

The main objective for the long-established oak and alder woodland areas is to promote a largely natural structure and composition. There are no plans to intervene significantly in these areas and there is no intention to seek commercial return from timber extraction. However, many of the conifer-dominated areas are reaching maturity and options for future management need consideration. If allowed to reach over-maturity pine woodlands can become vulnerable to windthrow which may result in the collapse of large areas. This can make subsequent management to make an area safe very difficult. A better option is to undertake management over several years to increase structural diversity, increase resilience to high winds and provide benefits for wildlife. This also ensures that the landscape value of the woodland is retained as long as possible. The proposed management at Thursley is to undertake gradual extension of existing heathy glades and other open spaces in the conifer woodland blocks. Some of these will be subsequently managed as open glades whilst others will be allowed to regenerate naturally as woodland. This diversity of habitats and the provision of sheltered gaps in the woodland is likely to create favourable conditions for key species such as nightjar and adder. Opportunities will be sought to generate income from the sale of the softwood timber to offset the cost of management.

Pond management

Hammer Pond and The Moat have received little management intervention to date. The margins of both ponds are largely natural and require little management other than very occasional clearance of scrub to ensure that parts remain un-shaded and that suitable conditions for Odonata are present.

There is concern that the quality of the habitat at The Moat has gradually declined over many years. The reason for this is unclear but may be related to nutrient input as a result of visitors feeding ducks and from disturbance of sediment by fish released into the pond without permission. Public access to the pond is restricted to a small part of the margin and feeding of wildfowl is discouraged. Removal of fish from the pond is desirable if investigations reveal that bottom-living species such as carp, tench or goldfish are present.

Public access

The access policy for Thursley is to provide unrestricted access. The emphasis is on providing opportunities for visitors to experience the special habitats and wildlife in a largely unspoilt landscape. A key feature is the provision of a network of boardwalks which allows access to the mire system which would otherwise be difficult and dangerous, if not inaccessible. Platforms and rest areas are being incorporated in the boardwalks to increase their appeal. Plans are in place to improve accessibility to the boardwalks for the less able.

There are no plans to change the access policy in the foreseeable future or to restrict access. If more extensive grazing is put in place Natural England will ensure that the least restrictive option is put in place where gates or other infrastructure is required.

Income generation

All public bodies, including Natural England, are being encouraged to reduce costs and to explore options for income generation where this is compatible with their functions. At Thursley opportunities for income generation are limited but they include sale of softwood timber arising from management of the pine woodlands, sale of other woody material for woodfuel, sale of seed and cuttings for use in heathland restoration projects, and use of the site as a filming location. The general principles when considering options will be that income generating projects will not be carried out or permitted if they are not compatible with the conservation objectives, will cause restrictions on public access to the site, or will cause a nuisance to visitors or neighbours.

2.3 The Vision

A 50 Year Vision for Thursley National Nature Reserve

Thursley National Nature Reserve will continue to be protected for future generations to enjoy. Nature conservation, protection of the landscape, and public access will remain the key underlying principles of management.

Thursley will be a shining example of lowland heath hosting a wealth of rare and interesting wildlife. It will be considered the heart and soul of the local complex of Greensand heaths where nature conservation and a wilderness experience are the most prized aspects. Thursley will continue to be an important site for academic research, long-term monitoring, and the study of ecological processes and effects of climate change.

The local community will be fully engaged in the care and management of the site. It will be valued as a local asset and the site will provide products to local markets through truly sustainable management. Management activities, public events, volunteering and community involvement will all be delivered in partnership with other organisations working with similar objectives in the area.

Through a wide variety of management practices the habitats will represent all of the necessary attributes of a healthy heathland and mire complex. The open nature of the site will be maintained, the ponds and other open water habitats will have healthy plant and invertebrate communities. A community of local volunteers will be involved in the running, management and safeguard of the site. Students and researchers will value the location as an outdoor laboratory / class room and their work will feed back into the management of the site.

Visitors will continue to enjoy open access and will have a rewarding wildlife experience. Accessibility will be better than it is now, with a wider range of facilities and more access to parts of the site for the less able.

Management of the site will continue to cater for the wide diversity of plants, birds, invertebrates and reptiles present and will seek to ensure that the biodiversity of the habitats is maintained into the future. Local naturalists and partner bodies will be encouraged to help monitor scarce species and to help safeguard their habitats.

2.4 Objectives

2.4.1 Biological Objectives

Objective 1:
To maintain the lowland dry heath habitat with its associated plants, birds, reptiles and invertebrates in favourable condition, with particular reference to the relevant specific designated interest features.
Features addressed by this objective:
1 Lowland dry heath 3 Reptile assemblage 4 Breeding Annex 1 bird assemblage 5 Breeding bird assemblage associated with heathland 6 Invertebrate assemblage associated with sandy heathland 14 Greensand ridge landscape 15 Scheduled Ancient Monuments 16 Other cultural features
Attributes/targets for key features:
Attribute: Extent Target: No loss of extent of dry heath
Attribute: Vegetation structure Target: All age classes of ericaceous shrubs present; at least 10% at pioneer stage; no more than 30% cover at mature or degenerate phase; no more than 10% cover made up by dead plants; suitable cover of ericaceous shrubs for sand lizard in core breeding areas.
Attribute: Vegetation composition Target: At least 2 species of dwarf shrubs such as heather, bell heather, bilberry, petty whin, dwarf gorse present throughout.
Attribute: Vegetation composition Target: At least one species of graminoid such as pill sedge, heath grass, wavy hair grass, mat grass, bristle bent frequent throughout.
Attribute: Vegetation composition Target: At least one of the following at least occasional – heath bedstraw, tormentil, catsear, birdsfoot trefoil, heath milkwort, sheep's sorrel, dog violet.
Attribute: Bare ground Target: 1-10% of the dry heath should consist of bare, undisturbed, sand peat or soil. Target: <1% of dry heath area heavily eroded.
Attribute: Cover and structure of gorse Target: Total cover of <i>Ulex europaeus</i> <10% in the dry heath.
Attribute: Cover of <i>Molinia</i> Target: <33%
Attribute: Cover of exotic species Target: <1%
Attribute: Cover of bracken Target: <10%

Objective 1:

Attribute: Cover of species such as nettle, willowherb and ragwort

Target: <1%

Attribute: Cover of trees and scrub (excluding gorse)

Target: 1-15%

Attribute: Breeding birds

Target: To contribute to entire SSSI / SPA breeding bird populations

Attribute: Reptile assemblage

Target: Species should be present; sand lizard, smooth snake, adder, grass snake

Feature 14: Greensand ridge landscape

Target: No detrimental impacts on key landscape features

Feature 16: Cultural and historic features

Target: No detrimental impacts on features of historic or cultural importance

Objective Methods:

Key principles of management of the dry heath and associated features

- Management will prioritise adequate provision of bare ground and pioneer stage heath.
- Provision of suitable conditions for sand lizard will be a priority in key breeding areas;
- Areas of mature heather will be retained where it may provide habitat for Dartford warbler;
- Scrub encroachment will be controlled but areas of scattered scrub which may provide habitat for nightjar will be retained;
- Extensive grazing will be promoted to supplement other management tools.
- Managed burning of the heath will only take place during winter months, will not be undertaken where there is a risk of damaging impacts, and will only be carried out where other methods are impractical. Particular care will be taken to avoid damage to areas supporting important reptile hibernacula.
- Scrub management, tree felling and similar works will not take place during bird nesting season, March to August.
- Bracken control will be planned so as to minimise risk to ground-nesting birds and reptiles.
- Safeguards will be put in place when working on or near cultural features.
- Consideration will be given to managing public access if there is evidence of conflicts with ground nesting birds and / or reptiles;
- Trees and areas of scrub will be retained where they have significant landscape value, provide screening, or are likely to be of wildlife value;
- Management will aim to reduce fire risk.

Likely Significant Effect:

These proposals are necessary for nature conservation management of the site.

Monitoring Methods:

The condition of the dry heath habitat and its suitability for the associated key plants, birds, reptiles and invertebrates will be assessed as part of the national SSSI monitoring programme. The outcome of all assessments will be made available via the Natural England website.

Objective 2:
To maintain the lowland wet heath, mire and bog habitats, and their associated plants, birds, reptiles and invertebrates in favourable condition, with particular reference to the relevant specific designated interest features.
Features addressed by this objective:
2 Lowland wet heath 5 Breeding bird assemblage associated with heathland 3 Reptile assemblage 7 Lowland valley mire and acid bog 10 Breeding Odonata assemblage 11 Invertebrate assemblage associated with mire 14: Greensand ridge landscape 16: Cultural and historic features
Attributes/targets for key features:
<p>Attribute: Extent Target: No loss of wet heath, mire and bog.</p> <p>Attribute: Vegetation structure Target: All age classes of ericaceous shrubs present.</p> <p>Attribute: Vegetation composition Target: At least 2 species of dwarf shrubs such as heather, cross-leaved heath, bilberry, petty whin, and dwarf gorse present throughout.</p> <p>Attribute: Vegetation composition Target: In wet heath dwarf shrub cover should be 25-75% intermixed with low vegetation; in M21 type habitat and bog cover of dwarf shrubs between 10 and 50%.</p> <p>Attribute: Vegetation composition Target: At least one species of graminoid (not including <i>Molinia</i>) such as heath rush, carnation sedge, common sedge, heath grass, bog cotton, deergrass frequent throughout.</p> <p>Attribute: Vegetation composition Target: At least one of the following at least occasional throughout – bog pimpernel, fen bedstraw, sundew, bog asphodel, lousewort, beaked sedge, spike-sedge, star sedge, tormentil, devilsbit scabious, heath milkwort, deergrass. Target: <i>Rhynchospora fusca</i>, <i>Deschampsia setacea</i> and <i>Lycopodiella inundata</i> confirmed present. Target: Populations of regionally uncommon plants such as early marsh orchid, royal fern and cranberry maintained.</p> <p>Attribute: Bare ground Target: 1-10% should consist of bare, undisturbed, wet peat or open water. Target: <1% of wet heath, mire or bog heavily eroded or poached.</p> <p>Attribute: Cover of <i>Sphagnum</i> Target: >10%.</p> <p>Attribute: Cover of <i>Molinia</i> Target: <66%</p> <p>Attribute: Cover of <i>Polytrichum</i> Target: <5%</p>

Objective 2:

Attribute: Cover of exotic species

Target: <1%

Attribute: Cover of bog myrtle

Target: <30%

Attribute: Cover of trees and scrub (excluding bog myrtle)

Target: <5%

Feature 3: Reptile assemblage

Attribute: Presence

Target: : Species should be present; sand lizard, smooth snake, adder, grass snake

Feature 5: Breeding bird assemblage

Attribute: Presence

Target: To contribute to entire SSSI / SPA breeding bird populations

Feature10: Breeding Odonata assemblage

Attribute: Presence

Target: The target for the whole SSSI is that at least 17 species should be confirmed as present within any recording cycle, and that mire habitat should be in suitable condition to support the characteristic range of species

Feature 14: Greensand ridge landscape

Target: No detrimental impacts on key landscape features

Feature 16: Cultural and historic features

Target: No detrimental impacts on features of historic or cultural importance

Objective Methods:

Key principles of management of the wet heath, valley mire and bog habitats and their associated features:

- Extensive cattle grazing will be the preferred management option;
- Grazing will be managed so as to avoid excessive poaching;
- No supplementary feeding of stock will be permitted.
- Management will prioritise control of *Molinia* and adequate provision of short, open areas;
- Creation of new scrapes or pools will be carefully planned to minimise damage to existing high quality habitat;
- Management will aim to reduce fire risk;
- Controlled burning will only be carried out where it is the only practical option;
- Scrub encroachment will be controlled but some scrub will be retained to provide structural diversity;
- Safeguards will be put in place to reduce risk of water pollution when undertaking work near the mire system;
- No herbicide will be used where there is a risk it might enter the mire system;
- Work in the mire system will be avoided during the bird nesting season;
- As far as possible, water levels in the mire system will be maintained at appropriate height whilst avoiding risk of flooding of adjoining areas;
- Activities likely to cause damage to the mire system will not be permitted;
- Individual trees or groups of trees will be retained where they have significant landscape value;
- Safeguards will be put in place when working on or near to features of historic or cultural

Objective 2:

importance;

- All management works will be supervised by Natural England staff.

Likely Significant Effect:

These proposals are necessary for nature conservation management of the site.

Monitoring Methods:

Habitat condition will be assessed in relation to the site conservation objectives as part of the national SSSI monitoring programme. The outcome of all assessments will be made available via the Natural England website.

Objective 3:
To maintain the standing open water habitat and its associated invertebrates in favourable condition, with particular reference to relevant specific designated interest features.
Features addressed by this objective:
12 Standing open water (Hammer Pond & The Moat) 10 Breeding Odonata assemblage
Attributes/targets for key features:
<p>Attribute: Extent Target: No loss of extent of open water.</p> <p>Attribute: vegetation composition Target: At least 2 characteristic macrophyte species such as hornwort, shoreweed, pillwort, water milfoil, waterwort, bulbous rush, shining pondweed, curled pondweed, small pondweed, horned pondweed and stonewort present. Target: At least 1 characteristic emergent species such as bogbean, water horsetail, common reed and bottle sedge present. Target: characteristic zones of vegetation present Target: non-native species rare or absent.</p> <p>Attribute: vegetation cover Target: cover of emergent vegetation 10-40%</p> <p>Attribute: water quality Target: no indications of excessive nutrient levels; no excessive growth of blue-green or green algae; low turbidity.</p> <p>Attribute: margins Target: shoreline predominantly natural Target: edge vegetation suitable for emerging Odonata Target: parts of pond margins shaded by trees, parts un-shaded</p> <p>Feature10: Breeding Odonata assemblage Attribute: Presence Target: The target for the whole SSSI is that at least 17 species should be confirmed as present within any recording cycle, and that water bodies should be in suitable condition to support the characteristic range of species</p> <p>Attribute: hydrology Target: no evidence of impacts arising from lowered or artificially raised water levels</p>
Objective Methods:
<p><i>Key principles of management of the open water habitat and associated features:</i></p> <ul style="list-style-type: none"> • Introduction of fish and fishing will not be permitted; • Public access to the ponds will be managed to minimise disturbance of margins; • Feeding of waterfowl will be discouraged to reduce nutrient input; • Herbicide will not be used where it might enter the ponds; • As far as possible, water levels will be maintained at appropriate levels; • Control structures will be maintained in sound condition; • Should sediment removal be found necessary to improve water quality potential impacts will be assessed prior to any works and sediment will be disposed of off-site; • All management works will be supervised by Natural England staff.

Objective 3:**Likely Significant Effect:**

These proposals are necessary for nature conservation management of the site.

Monitoring Methods:

Habitat condition will be assessed in relation to the site conservation objectives as part of the national SSSI monitoring programme. The outcome of all assessments will be made available via the Natural England website. The condition of the breeding Odonata assemblage will be monitored by sample surveys to determine which species are confirmed as breeding.

Objective 4:
To maintain the lowland broadleaf woodland habitat in favourable condition, with particular reference to the relevant specific designated interest features.
Features addressed by this objective:
13 Lowland broadleaf woodland (oak and alder woodland) 14 Greensand ridge landscape 16 Features of cultural and historical interest
Attributes/targets for key features:
<p>Feature 13: Lowland broadleaf woodland Attribute: Extent Target: No loss of extent of long-established oak or alder woodland.</p> <p>Attribute: Composition Target: At least 95% of any layer should be of native species</p> <p>Attribute: Structure Target: Ground flora present over at least 75% of total woodland area; canopy present over 70-90% of stand areas.</p> <p>Attribute: Indicators of distinctiveness Target: At least 80% of the ground flora should be characteristic of the woodland type</p> <p>Attribute: Regeneration potential Target: No indications of constraints on tree regeneration.</p> <p>Feature 14: Greensand ridge landscape Target: No detrimental impacts on key landscape features</p> <p>Feature 16: Cultural and historic features Target: No detrimental impacts on features of historic or cultural importance</p>
Objective Methods:
<p><i>Key principles of management of the lowland broadleaf woodland:</i></p> <ul style="list-style-type: none"> • Natural processes will be favoured; • Management will be by a minimal intervention approach; • Invasive non-native species will be controlled if necessary; • Standing dead wood will be retained except where there is risk to the public or property; • Tree regeneration will be by natural recruitment - there will be no tree planting; • There will be no felling of long-established native woodland for commercial gain; • Individual trees or groups of trees will be retained where they have significant landscape value; • Safeguards will be put in place when working on or near features of historic or cultural importance; • Activities likely to cause damage to ground flora will not be permitted. <p>Likely Significant Effect: These proposals are necessary for nature conservation management of the site.</p>
Monitoring Methods:
Habitat condition will be assessed in relation to the site conservation objectives as part of the national SSSI monitoring programme. The outcome of assessments will be made available via the Natural England website.

2.4.2 Community engagement and access objectives

Objective 5:
To encourage active community interest and involvement in the site
Features addressed by this objective:
18 Community involvement 22 Public access
Attributes/targets for key features:
Feature 18: Community involvement Attribute: Volunteer input Target: Species-list updated annually through survey by volunteers Target: Increased sharing of volunteer resource with neighbouring land managers Target: Recruitment of new volunteers from local community Target: New volunteers recruited to assist with site patrolling during periods of high fire risk Target: New volunteers recruited to assist with supervision of grazing animals Target: At least 2 volunteer group work tasks completed each month Attribute: Development of links with local community and stakeholders Target: 'Friends of Thursley NNR' group to be established and regular meetings held Target: Development of liaison group involving neighbouring land managers Target: Regular input to local village newsletters maintained Target: Information about management activities provided in car park and regularly updated Feature 22: Public access Target: Public accessibility to the site maintained Target: Improved accessibility for the less able Target: Access infrastructure maintained in good condition Target: Visitors kept informed of management activities or changes
Objective Methods:
<i>Key principles with regard to community involvement:</i> <ul style="list-style-type: none">• Promotion of the NNR will continue to be low-key and primarily locally focussed;• The emphasis will continue to be on ensuring visitors have an enjoyable, quality experience;• There is no desire to increase visitor numbers at the present time;• Efforts to recruit volunteers will focus on the local population;• Community input to management planning will be encouraged through the Friends of Thursley group;• Opportunities will be sought to forge stronger links with key user groups such as dog-walkers and horse riders;• All habitat and infrastructure management work carried out by volunteers will be supervised by Natural England staff;• Improvements to accessibility will focus on the boardwalks and reducing flooding of paths;• Recreational activities likely to damage the site, cause a nuisance to other visitors or compromise conservation objectives will be discouraged;• New links will be sought with partner bodies to share best practice and resources. Likely Significant Effect: These proposals are not necessary for nature conservation management but will have no significant effect on the internationally important nature conservation features.

Objective 5:
Monitoring Methods:
Volunteer input will be recorded. Volunteers will be encouraged to provide feedback. Visitor numbers attending public events will be recorded. Reports of incidents involving volunteers or members of the public will be maintained and acted upon. Feedback from visitors will be recorded.

2.4.3 Cultural and landscape objectives

Objective 6:
To protect the features of landscape, cultural and historic importance
Features addressed by this objective:
14 Greensand ridge landscape 15 Scheduled ancient monuments 16 Ancient track ways, boundary features, pits, etc.
Attributes/targets for key features:
Feature 14: Landscape Attribute: Visual amenity Target: No detrimental impacts on key landscape and archaeological features arising from management activities.
Feature 15, 16: Archaeological, historic and cultural features Attribute: Condition Target: No detrimental impacts arising from management activities.
Objective Methods:
<i>Key principles with regard to landscape and cultural features:</i> <ul style="list-style-type: none">• Habitat management will be planned so as to minimise impacts on the landscape;• Installation of any new visitor facilities or site infrastructure will be undertaken sensitively to minimise impacts on the landscape and to avoid unnecessary damage to cultural features;• Marginal belts of conifer and broadleaf woodland will be retained where they provide screening;• Individual trees which add to the landscape character will be retained where possible;• Opportunities to create new viewpoints in the course of habitat management will be considered;• A register of cultural features will be maintained and kept up to date;• Consultation will be undertaken with English Heritage should management be required on or close to the Scheduled Ancient Monuments• All works on or near features of cultural interest will be carried out under the supervision of Natural England staff.
Likely Significant Effect:
These proposals are not necessary for nature conservation management but will have no significant effect on the internationally important nature conservation features of the site.
Monitoring Methods:
The general aspect of various parts of the site will be recorded by means of fixed point photography. A photographic register of the main archaeological features will be maintained.

2.4.4 Education, research and demonstration use of the site

Objective 7:
To develop the education, research and demonstration use of the site
Features addressed by this objective:
19 Education 20 Research 21 Demonstration
Attributes/targets:
Feature 19: Education Attribute: Educational use Target: At least 2 visits per annum by groups from educational establishments. Target: Regular use of the site by undergraduate students. Target: Links with educational establishments maintained. Feature 20: Research Attribute: Research use Target: Encouragement of use of the site for research. Target: Continued input to long term habitat monitoring project. Target: Maintain / develop relationships with research institutions. Feature 21: Demonstration Attribute: Use of the site for demonstration Target: At least 1 demonstration or training event held per annum.
Objective Methods:
<i>Key principles with regard to education, research and demonstration:</i> <ul style="list-style-type: none">• Promotion of the NNR for educational use will continue to focus on existing links with partner educational establishments;• Use of the site for student projects will be encouraged where they are compatible with the conservation objectives;• Research use will be promoted, particularly where it will increase understanding of the site and the effects of management;• Research will not be permitted where it may have detrimental impacts on key habitats, where it will compromise management objectives, will reduce public access, if it will have detrimental impacts on the landscape, or may increase fire risk;• Particular encouragement will be given to educational and demonstration use of the site which can be delivered in partnership with other organisations. Likely Significant Effect: These proposals are not necessary for nature conservation management but will have no significant effect on the internationally important nature conservation features.
Monitoring Methods:
Research and educational use will be recorded. Feedback will be encouraged following demonstration events.

2.4.5 Estate Asset Objectives

Objective 8:
To maintain all estate assets not addressed by other objectives in good order
Features addressed by this objective:
23 Off-site office and store 24 Boardwalks 26 Standing timber 27 The Moat car park 28 Gates, fences and livestock handling facilities 29 Reserve signs, way marking and interpretation panels 30 Water control structures, sluices, culverts 31 Staff / contractors / volunteers 32 Management plan 33 Legal and statutory obligations
Attributes/targets:
Feature 23: Off-site office and store Attribute: Fabric condition Target: Maintained in sound, safe and secure condition.
Feature 24: Boardwalks Attribute: Condition Target: Maintained in sound, safe condition
Feature 26: Standing timber Attribute: Tree health Target: Maintained in good condition
Feature 27: Car- park Attribute: Appearance and condition Target: Maintained in tidy, safe condition.
Feature 28: Fences, livestock pens, etc. Attribute: Condition Target: Maintained in sound, stock-proof condition.
Feature 28: Gates Attribute: Appearance and condition Target: Maintained in good working order
Feature 29: Reserve signs, way marking and interpretation panels Attribute: Appearance and condition Target: Maintained in sound, legible condition
Feature 30: Water control structures Attribute: Condition Target: Maintained in good, working condition
Feature 31: Staff / contractors / volunteers Attribute: welfare, training, H&S, supervision Target: Meet all current legislation requirements

Objective 8:

Feature 32: Management plan

Target: Kept up to date and revised as necessary in line with any legislative changes

Target: Minimum 5 yearly review

Feature 33: Legal and statutory obligations

Target: Meet all relevant legislative requirements

Objective Methods:

Key principles with regard to estate assets:

- All assets will be regularly checked and maintained in good condition;
- All site infrastructure will be maintained in accordance with Health and Safety requirements;
- The car park will be checked regularly to maintain in tidy, litter-free condition;
- All paths will be checked regularly and maintained to a high standard;
- All maintenance and up-grading of facilities will be planned so as to avoid damaging impacts, nuisance to neighbours and inconvenience to visitors;
- No work will be carried out or permitted if there is a risk of significant damage to specific designated interest features.
- All staff, contractors and volunteers will be suitably qualified or supervised by suitably qualified staff to carry out activities prescribed to them, in line with current legislation and risk assessments provided.
- The management plan will be regularly reviewed.

Likely Significant Effect:

These proposals are not necessary for nature conservation management but will have no significant effect on the internationally important nature conservation features.

Monitoring Methods:

Records of office and store safety assessments will be maintained. Records of all tree and infrastructure safety checks will be retained. COSHH records will be maintained and updated annually. Pesticide use will be recorded. Records will be maintained of any complaints received about infrastructure, and record will be made of any incidents involving visitors or staff.

3.1 Identification of Projects

Objective	Project Code	Project Title
1. To maintain the lowland dry heath habitat with its associated plants, birds, reptiles and invertebrates in favourable condition, with particular reference to the relevant specific designated interest features.	MH37	Manage habitat, lowland heath, by controlled burning
	MH30	Manage habitat, lowland heath, by controlled grazing
	MH32	Manage habitat, lowland heath, by mowing
	MH33	Manage habitat, lowland heath, by fire prevention /control
	MH31	Manage habitat, lowland heath, by scrub/tree control
	MH39	Manage habitat, lowland heath, by other activities (control non-native and invasive species)
	MH14	Manage habitat, grassland, by scrub control
	MH19	Manage habitat, grassland, by other activities (Ragwort control)
	MH25	Manage habitat, bracken, by spraying/rolling/bruising/other mechanical methods
	MH19	Manage habitat, grassland, by other activities (turf stripping)
	MH10	Manage habitat, grassland, by controlled grazing
	RF00	Collect data, vegetation
	RF06	Collect data, vegetation, list species
	RA14	Collect data, breeding birds, by count/census
	RA20	Collect data, reptiles
	RA44	Collect data, Lepidoptera, by count/census
	RA80	Collect data, other invertebrates
	RV11	List/collect photographs, fixed point photography
	RH05	Collect data, human impact, fires, unplanned
	2. To maintain the lowland wet heath, mire and bog habitats, and their associated plants, birds, reptiles and invertebrates in favourable condition, with particular reference to the relevant specific designated interest features.	MH40
MH41		Manage habitat, bog/mire/flush, by controlled grazing
MH42		Manage habitat, bog/mire/flush, by tree/scrub control
MH44		Manage habitat, bog/mire/flush, by fire prevention/control
MH39		Manage habitat, lowland heath, by other activities (bare peat creation)

Objective	Project Code	Project Title
2. Cont'd	MH25	Manage habitat, bracken herb, by spraying/rolling/bruising/other mechanical methods
	MH39	Manage habitat, lowland heath, by other activities (control non-natives)
	RF00	Collect data, vegetation
	RF06	Collect data, vegetation, list species
	RP10	Collect data, hydrological
	RA20	Collect data, reptiles
	RA50	Collect data, Odonata
	RA80	Collect data, other invertebrates
	RA14	Collect data, breeding birds, by count/census
	RV11	List/collect photographs, fixed point photography
3. To maintain the standing open water habitat and its associated invertebrates in favourable condition, with particular reference to relevant specific designated interest features.	MH65	Manage habitat, open water, by clearing surrounding vegetation
	MH60	Manage habitat, open water, by water level control
	MH63	Manage habitat, open water, by pollution prevention
	MH64	Manage habitat, open water, by clearing/dredging/ re-profiling
	RP10	Collect data, hydrological
	RF06	Collect data, vegetation, list species
	RA50	Collect data, breeding Odonata
	RA80	Collect data, other invertebrates
	RV11	List/collect photographs, fixed point photography
4. To maintain the lowland broadleaf woodland habitat in favourable condition, with particular reference to the relevant specific designated interest features.	MH02	Manage habitat, woodland/scrub, by thinning/group felling
	MH04	Manage habitat, woodland/scrub, by ride/path/glade maintenance
	MH25	Manage habitat, bracken, by spraying/rolling/bruising/other mechanical methods
	RA14	Collect data, breeding birds, by count/census
	RF00	Collect data, vegetation
	RF06	Collect data, vegetation, list species
	RA80	Collect data, other invertebrates
	RV11	List/collect photographs, fixed point photography
	MH39	Manage habitat, lowland heath, by other activities (control non-natives)
5. To encourage active community interest and involvement in the site	RH34	Collect data public use, count visitors
	RH33	Collect data, public use, recreation
	RH00	Collect data, human impact
	RD01	Monitor socio-economic factors
	MI10	Inform visitors, general
	MI50	Provide interpretative material
	ML50	Liaise, local community/groups

Objective	Project Code	Project Title
5. Cont'd	ML40	Liaise, local/national authorities
	ML70	Liaise, media
	AP80	Convene meeting, Site Management Committee/advisory group
6. To protect the features of landscape, cultural and historic importance	MC00	Manage cultural interest, by controlling scrub/saplings
	MC01	Manage cultural interest, by controlling grazing/stock
	MC09	Manage cultural interest, by other activities
	RV50	List/collect records, archival
	RP50	Collect data, landscape
	RH10	Collect data, land use history
	RH20	Collect data, archaeological
	RV50	List/collect records, archival
7. To develop the education, research and demonstration use of the site	MI00	Inform public, offsite
	MI10	Inform visitors, general
	MI30	Inform visitors, specialist
	MI20	Inform visitors, educational
	MI50	Provide interpretative material
	ML80	Liaise, others
8. To maintain all estate assets not addressed by other objectives in good order	MD45	Provide / improve education facilities
	ME40	Provide / maintain paths / rides / roads
	ME01	Maintain boundary structures
	ME02	Maintain other structures
	ME04	Remove rubbish
	ME64	Maintain workshop
	MM10	Acquire/service machinery
	MM20	Acquire/maintain tools/equipment
	MM00	Acquire/service vehicles
	AT40	Liaise/supervise staff/contractors
	AT60	Liaise/supervise voluntary/other working groups
	AT10	Train staff, management techniques
	AT20	Train staff, use of machinery/equipment
	MP00	Protect site/species by patrol
	AI20	Implement inspection, site buildings
	AI30	Implement inspection, site safety
	AI10	Implement inspection, site equipment
	AI40	Implement inspection, other (tree inspection)
	RP00	Collect data, climatological
	AS20	Protect site/species, by issue of permits for research and survey
	RV51	Collect press cuttings
	ML60	Liaise, emergency services
	ML00	Liaise, owners/occupiers
	ML30	Liaise, neighbours
	ML40	Liaise, local/national authorities

Objective	Project Code	Project Title
8. Cont'd	AL00	Maintain holding, legal, by renewing lease/agreement/tenancy
	AP10	Prepare/revise work programme
	AP20	Prepare/revise plan, management plans
	AP30	Prepare/revise plan, fire protection/control
	AP40	Prepare/revise plan, emergency procedure
	AP50	Prepare/revise plan, safety
	AA30	Declare site as NNR (Ockley Common area)

3.2 Project Register		
Project Code	Project Title	Project Description
RV11	List/collect photographs, fixed point photography	Undertake fixed point photography. Approximately on a five yearly rotation
RV50	List/collect records, archival	Improve understanding of the site history.
RV51	Collect press cuttings	Collect press cuttings about NNR.
RP00	Collect data, climatological	Collect monthly records from automated weather station.
RP10	Collect data, hydrological	Monitor water levels in mire system.
RP50	Collect data, landscape	Photographic record of the landscape to provide basis for detecting changes
RF00	Collect data, vegetation	Long-term monitoring project using fixed point quadrats - 40 fixed points across site surveyed on a 3 year cycle.
RF00	Collect data, vegetation	Monitoring of impacts of grazing and other management on vegetation.
RF06	Collect data, vegetation, list species	Records maintained of rare and scarce plants to provide basis for assessment of SSSI condition.
RF06	Collect data, vegetation, list species	Maintain plant species lists. Collate records from ad hoc surveys.
RA14	Collect data, breeding birds, by count/census	Undertake/commission annual recording of Annex 1 bird territories to contribute to assessment of SPA condition.
RA14	Collect data, breeding birds, by count/census	Undertake/commission twice annual recording (spring and late summer) of species present by set transect route using BTO and BBS survey guidelines to provide basis for assessment of SSSI condition.
RA20	Collect data, reptiles	Undertake/commission monitoring of reptile assemblage, in partnership with ARC and SARG, to provide basis for assessment of SSSI condition.

RA44	Collect data, Lepidoptera, count/estimate/measure/census	Undertake monitoring of butterfly transect April to September, using methods in line with national monitoring scheme.
RA50	Collect data, Odonata	Undertake/commission monitoring of breeding populations and habitat suitability to provide basis for assessment of SSSI condition.
RA80	Collect data, other/general invertebrates	Collate species information relevant to the NNR / SPA / SAC.
RH00	Collect data, human impact	Maintain records of incidents of damage or disturbance related to visitor use.
RH05	Collect data, human impact, fires, unplanned	Maintain records of all arson / accidental fire events.
RH10	Collect data, land use history	Collect relevant information as becomes available.
RH20	Collect data, archaeological	Maintain register of all archaeological/cultural features.
RH33	Collect data, public use, recreation	Undertake visitor use survey to provide a baseline for future assessment of changes.
RH34	Collect data public use, count visitors	Undertake visitor survey.
RD01	Monitor socio-economic factors	Seek opportunities for income generation compatible with nature conservation objectives.
MI00	Inform public, offsite	Maintain up to date information on Natural England website.
MI10	Inform visitors, general	Maintain up to date information for visitors on site.
MI20	Inform visitors, educational	Provide input to educational and training events.
MI30	Inform visitors, specialist	Provide input to specialist visitor groups.
MI50	Provide interpretative material	Provide on-site interpretation. Provide new information panels and new notice board at Moat car park
MD45	Provide / improve educational facilities	Provide viewing/resting platforms on boardwalk network, new jetty / viewing platform at Moat car park.
ML00	Liaise, owners/occupiers	Maintain regular contact with owners Waverley Borough Council and Thursley Parish Council.

ML30	Liaise, neighbours	Maintain good relations with neighbours.
ML40	Liaise, local/national authorities	Liaise as required.
ML50	Liaise, local community/groups	Provide monthly articles to parish magazines.
ML50	Liaise, local community/groups	Establish "Friends of Thursley" consultation group during 2012 and initiate programme of regular meetings.
ML50	Liaise, local community/groups	Establish local partnership with other local land managers in Thursley, Frensham, Hankley, Elstead Commons area and hold regular meetings to share good practice and resources.
ML60	Liaise, emergency services	Liaise with fire brigade on fire plans, fire risk assessment, etc
ML70	Liaise, media	Maintain positive relationship with local media.
ML80	Liaise, others	Maintain positive links with key user groups.
MP00	Protect site/species by patrol	Maintain regular site patrols, particularly during high fire risk periods.
MH02	Manage habitat, woodland/scrub, by thinning/group felling	Improve habitat conditions for breeding birds by improving the structure of selected conifer areas.
MH04	Manage habitat, woodland/scrub, by ride/path/glade maintenance	Maintain rides, paths and glades by cutting, mowing, grazing, particularly units 25 and 33.
MH10	Manage habitat, grassland, by controlled grazing	Implement annual grazing in selected areas.
MH14	Manage habitat, grassland, by scrub control	Implement programme of scrub control to maintain habitat within 1-15% cover. Units 16, 18, and 25.
MH19	Manage habitat grassland, by other (turf stripping)	Implement programme of turf stripping to maintain habitat within 1-10% cover. Units 16, 18 and 25.
MH19	Manage habitat, grassland, by other activities (Ragwort control)	Ensure compliance with legal requirements of Ragwort Act.
MH25	Manage habitat, bracken, by spraying/rolling/bruising/other mechanical methods	Implement annual programme of bracken control in selected areas to maintain cover within target. Use of Asulam will cease in 2012.
MH30	Manage habitat, lowland heath, by controlled grazing	Implement annual grazing in selected areas.

MH31	Manage habitat, lowland heath, by scrub/tree control	Implement programme of scrub control to keep scrub / tree levels at 1- 15% of dry heath. Units 16,32,39 and 44
MH32	Manage habitat, lowland heath, by mowing	Implement programme of heather mowing in selected areas to maintain habitat within target for SSSI condition (pioneer heather sward at 10-40 % of dry heath). Units 16, 32, 44.
MH33	Manage habitat, lowland heath, by fire prevention /control	Protect site by maintaining fire access, fire breaks and track maintenance. Carry out controlled burning. Update fire plan maps and maintain fire fighting equipment in good working order.
MH37	Manage habitat, lowland heath, by controlled burning	Implement programme of controlled burning in selected areas to maintain habitat within target for SSSI condition (pioneer heather sward at 10-40% of dry heath). Units 16,32 and 44
MH39	Manage habitat, lowland heath, by other activities (bare ground creation)	Ensure adequate provision of bare ground within target levels (1-10% of dry heath) through creation of scrapes or turf stripping.
MH40	Manage habitat, bog/mire/flush, by water level control	Maintain ditches and sluices so as to maintain appropriate water levels in bog and mire system.
MH41	Manage habitat, bog/mire/flush, by controlled grazing	Implement annual grazing in selected areas.
MH42	Manage habitat, bog/mire/flush, by tree/scrub control	Control scrub encroachment to maintain cover within target level.
MH44	Manage habitat, bog/mire/flush, by fire prevention/control	Protect site, by fire access, fire break and track maintenance, and controlled burning.
MH44	Manage habitat, bog/mire/flush, by fire prevention/control	Update fire plan maps and maintain fire fighting equipment in good working order.
MH49	Manage habitat, bog/mire/flush, by other activities (bare peat)	Ensure adequate provision of bare peat/bog pools through scrapes/pond excavation.
MH60	Manage habitat, open water, by water level control	Maintain sluices and other water control structures in working condition.
MH63	Manage habitat, open water, by pollution prevention	Monitor water quality. Monitor run off from road traffic, and other off-site influences.
MH64	Manage habitat, open water, by clearing/dredging/ re-profiling	Hammer Pond and the Moat maintained in suitable condition to support the designated interest features.

MH65	Manage habitat, open water, by clearing surrounding vegetation	Hammer Pond and the Moat maintained in suitable condition to support the designated interest features.
ME00	Estate fabric, general	Boardwalk network, signage, nature trail posts, fire beaters and stands all regularly checked and maintained in good condition.
ME01	Boundary structures	Fencing and gates regularly checked and maintained in good working order.
ME04	Remove rubbish	Maintain site in safe, tidy condition, including the Moat car park.
ME40	Provide/maintain paths/rides/roads	Ensure legal obligations re public access are maintained by e.g. cutting back vegetation, monitoring ground conditions for erosion, clearing blockages, maintaining drainage etc.
ME64	Maintain workshop	Maintain NNR base in good condition.
MM00	Acquire/service vehicles	Ensure MoT up to date, book yearly services, carry out routine inspections.
MM10	Acquire/service machinery	Maintain in line with manufacturers guidelines
MM20	Acquire/maintain tools/equipment	Maintain in line with manufacturers guidelines
MC00	Manage cultural interest, by controlling scrub/sapling	Keep bronze age tumulii clear of scrub / trees in accordance with English Heritage recommendations.
MC01	Manage cultural interest, by controlling grazing/stock	Ensure cattle do not damage features of cultural interest.
AA30	Declare site.	Declare those parts of the site under the management control of Natural England as part of the NNR.
AL00	Maintain holding, legal, by renewing lease	Ensure leases are kept up to date.
AP10	Prepare/revise work programme	Prepare annual work programme based on management plan.
AP20	Prepare/revise plan, management plans	Revise and review on regular basis.
AP30	Prepare/revise plan, fire protection/control	Fire plan to be produced and kept up to date.

AP40	Prepare/revise plan, emergency procedure	Maintain map of access points, 4WD access requirements, list nearest hospitals etc.
AP50	Prepare/revise plan, safety	Ensure all risk assessments, chemical storage and use records, H&S records, are complete and up to date
AP80	Convene meeting, Site Management Committee/advisory group	Establish Thursley NNR advisory group during 2012 and implement programme of regular meetings.
AI10	Implement inspection, site equipment	Regular inspections / service of all machinery
AI120	Implement inspection, site buildings	Ensure inspections are carried out and records maintained. Implement any recommended changes following inspections.
AI30	Implement inspection, site safety	Undertake regular inspections of all infrastructure and maintain records.
AI40	Implement inspection, other	Undertake tree safety inspections and maintain records; inspection frequency varies on risk category (zones).
AS20	Protect site/species, by issue of permits for research and survey	Implement permit system for research and study.
AT10	Train staff, management techniques	Ensure staff are competent in all site management techniques.
AT20	Train staff, use of machinery/equipment	Maintain awareness of relevant health and safety requirements, and any relevant training required.
AT40	Liaise/supervise staff/contractors	Ensure all works carried out are to required specification and all H&S requirements are adhered to.
AT60	Liaise/supervise voluntary/other working groups	Ensure all volunteers are properly supervised and working in accordance with risk assessments.

Prioritisation of projects;

Key: **Red** = Essential project
Amber = Desirable project
Green = as and when appropriate / needed
N/A = Not applicable (not legally allowed etc)

3.2/11

3.3 Five Year Plan

Project Code	Project Title	Year				
		11/12	12/13	13/14	14/15	15/16
RV11	List/collect photographs, fixed point photography		✓			
RV50	List/collect records, archival	✓	✓	✓	✓	✓
RV51	Collect press cuttings	✓	✓	✓	✓	✓
RP00	Collect data, climatological	✓	✓	✓	✓	✓
RP10	Collect data, hydrological	✓	✓	✓	✓	✓
RP50	Collect data, landscape	✓	✓	✓	✓	✓
RF00	Collect data, vegetation	✓			✓	
RF06	Collect data, vegetation, list species	✓	✓	✓	✓	✓
RA14	Collect data, birds, count/estimate/measure/census	✓	✓	✓	✓	✓
RA20	Collect data, reptile	✓	✓	✓	✓	✓
RA44	Collect data, Lepidoptera, count/estimate/measure/census	✓	✓	✓	✓	✓
RA50	Collect data, Odonata	✓	✓	✓	✓	✓
RA80	Collect data, other/general invertebrates	✓	✓	✓	✓	✓
RH00	Collect data, human impact	✓	✓	✓	✓	✓
RH05	Collect data, human impact, fires, unplanned	✓	✓	✓	✓	✓
RH10	Collect data, land use history	✓	✓	✓	✓	✓

Project Code	Project Title	Year				
		11/12	12/13	13/14	14/15	15/16
RH20	Collect data, archaeological	✓	✓	✓	✓	✓
RH33	Collect data, public use, recreation		✓			✓
RH34	Collect data public use, count visitors		✓			✓
RD01	Monitor socio-economic factors	✓	✓	✓	✓	✓
MI00	Inform public, offsite	✓	✓	✓	✓	✓
MI10	Inform visitors, general	✓	✓	✓	✓	✓
MI20	Inform visitors, educational	✓	✓	✓	✓	✓
MI30	Inform visitors, specialist	✓	✓	✓	✓	✓
MI50	Provide interpretative material	✓	✓	✓	✓	✓
MD45	Provide / improve educational facilities	✓	✓	✓	✓	✓
ML00	Liaise, owners/occupiers	✓	✓	✓	✓	✓
ML30	Liaise, neighbours	✓	✓	✓	✓	✓
ML40	Liaise, local/national authorities	✓	✓	✓	✓	✓
ML50	Liaise, local community/groups	✓	✓	✓	✓	✓
ML60	Liaise, emergency services	✓	✓	✓	✓	✓
ML70	Liaise, media	✓	✓	✓	✓	✓
ML80	Liaise, others	✓	✓	✓	✓	✓
MP00	Protect site/species by patrol	✓	✓	✓	✓	✓
MH02	Manage habitat, woodland/scrub, by thinning/group felling	✓	✓	✓	✓	✓
MH04	Manage habitat, woodland/scrub, by ride/path/glade maintenance	✓	✓	✓	✓	✓
MH10	Manage habitat, grassland, by controlled grazing	✓	✓	✓	✓	✓

Project Code	Project Title	Year				
		11/12	12/13	13/14	14/15	15/16
MH14	Manage habitat, grassland, by scrub control	✓	✓	✓	✓	✓
MH19	Manage habitat by Manage habitat, grassland, by other (turf cutting)	✓	✓	✓	✓	✓
MH19	Manage habitat, grassland, by other activities (Ragwort control)	✓	✓	✓	✓	✓
MH25	Manage habitat, bracken herb, by spraying	✓	✓	N/A	N/A	N/A
MH30	Manage habitat, lowland heath, by controlled grazing	✓	✓	✓	✓	✓
MH31	Manage habitat, lowland heath, by scrub/tree control	✓	✓	✓	✓	✓
MH32	Manage habitat, lowland heath, by mowing	✓	✓	✓	✓	✓
MH33	Manage habitat, lowland heath, by fire prevention /control	✓	✓	✓	✓	✓
MH37	Manage habitat, lowland heath, by controlled burning	✓	✓	✓	✓	✓
MH39	Manage habitat, lowland heath, by other activities (bare ground creation)	✓	✓	✓	✓	✓
MH40	Manage habitat, bog/mire/flush, by water level control	✓	✓	✓	✓	✓
MH41	Manage habitat, bog/mire/flush, by controlled grazing	✓	✓	✓	✓	✓
MH42	Manage habitat, bog/mire/flush, by tree/scrub control	✓	✓	✓	✓	✓
MH44	Manage habitat, bog/mire/flush, by fire prevention/control	✓	✓	✓	✓	✓
MH49	Manage habitat, bog/mire/flush, by other activities (bare peat creation)	✓	✓	✓	✓	✓
MH60	Manage habitat, open water, by water level control	✓	✓	✓	✓	✓
MH63	Manage habitat, open water, by pollution prevention	✓	✓	✓	✓	✓
MH64	Manage habitat, open water, by clearing/dredging/ re-profiling	✓	✓	✓	✓	✓
MH65	Manage habitat, open water, by clearing surrounding vegetation	✓	✓	✓	✓	✓
ME00	Estate fabric, general	✓	✓	✓	✓	✓
ME01	Boundary structures	✓	✓	✓	✓	✓

Project Code	Project Title	Year				
		11/12	12/13	13/14	14/15	15/16
ME04	Remove rubbish	✓	✓	✓	✓	✓
ME40	Provide/maintain paths/rides/roads	✓	✓	✓	✓	✓
ME64	Provide/maintain workshop	✓	✓	✓	✓	✓
MM00	Acquire/service vehicles	✓	✓	✓	✓	✓
MM10	Acquire/service machinery	✓	✓	✓	✓	✓
MM20	Acquire/maintain tools/equipment	✓	✓	✓	✓	✓
MC00	Manage cultural interest, earthwork, by controlling scrub/sapling	✓	✓	✓	✓	✓
MC01	Manage cultural interest, earthwork, by controlling grazing/stock	✓	✓	✓	✓	✓
AA30	Declare site.		✓			
AL00	Maintain holding, legal, by e.g. renewing lease/agreement/tenancy	✓	✓	✓	✓	✓
AP10	Prepare/revise work programme	✓	✓	✓	✓	✓
AP20	Prepare/revise plan, management plans	✓				✓
AP30	Prepare/revise plan, fire protection/control	✓	✓	✓	✓	✓
AP40	Prepare/revise plan, emergency procedure	✓	✓	✓	✓	✓
AP50	Prepare/revise plan, safety	✓	✓	✓	✓	✓
AP80	Convene meeting, Site Management Committee/advisory group		✓	✓	✓	✓
AI10	Implement inspection, site equipment	✓	✓	✓	✓	✓
AI120	Implement inspection, site buildings	✓	✓	✓	✓	✓
AI30	Implement inspection, site safety	✓	✓	✓	✓	✓
AI40	Implement inspection, other	✓	✓	✓	✓	✓
AS20	Protect site/species, by implementing permit system	✓	✓	✓	✓	✓

Project Code	Project Title	Year				
		11/12	12/13	13/14	14/15	15/16
AT10	Train staff, management techniques	✓	✓	✓	✓	✓
AT20	Train staff, use of machinery/equipment	✓	✓	✓	✓	✓
AT40	Liaise/supervise staff/contractors	✓	✓	✓	✓	✓
AT60	Liaise/supervise voluntary/other working groups	✓	✓	✓	✓	✓

Glossary:

NNR – National Nature Reserve

MoD – Ministry of Defence

AONB – Area of Outstanding Natural Beauty

SAC – Special Area of Conservation

SPA – Special Protection Area

Ramsar - The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The treaty was adopted in the Iranian city of Ramsar in 1971

SSSI – Site of Special Scientific Interest

BAP – Biodiversity Action Plan

NVC – National Vegetation Classification

BTO – British Trust for Ornithology

UKBMS – United Kingdom Butterfly Monitoring Scheme

SARG – Surrey Amphibian and Reptile Group

ARCT – Amphibian and Reptile Conservation Trust

SWT – Surrey Wildlife Trust

H&S – Health and safety

BBS – Breeding bird survey

LSU's – Livestock units

Appendices:

Appendix 1;

Favourable condition tables:

Note that this covers the whole of the SSSI, not just the NNR.

Name of Site of Special Scientific Interest (SSSI)	
Thursley, Hankley & Frensham Commons	
Names of designated international sites	
Special Area for Conservation (SAC)	Thursley, Ash, Pirbright and Chobham
Special Protection Area (SPA)	Thursley, Hankley and Frensham Commons
Ramsar	Thursley and Ockley Bogs
Relationship between site designations	
SAC: Most of the SSSI is included within the SAC boundary along with three other SSSIs. SPA: The SPA and SSSI share the same boundary Ramsar: Only a small part of the SSSI is also designated as a Ramsar site.	
Version control information	
Status of this Version (Draft, Consultation Draft, Final)	Consultation Draft
Prepared by	Based upon draft by Victoria Hume with amendments by Carole Mortimer and Graham Steven
Date of this version	October 2011
Date of generic guidance on favourable condition used	Feb 08

Conservation Objectives

SSSIs are notified because of specific biological or geological features. Conservation Objectives define the desired state for each site in terms of the features for which they have been designated. When these features are being managed in a way which maintains their nature conservation value, then they are said to be in 'favourable condition'. It is a Government target that XX% of the total area of SSSIs should be in favourable condition by 201X

Definitions of Favourable Condition

The Conservation Objectives are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. These are subject to periodic reassessment and may be updated to reflect new information or knowledge; they will be used by Natural England and other relevant authorities to determine if a site is in favourable condition. The standards for favourable condition have been developed and are applied throughout the UK.

Use under the Habitats Regulations

The Conservation Objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of any 'appropriate assessment' under the Habitats Regulations. An appropriate assessment will also require consideration of issues specific to the individual plan or project. The habitat quality definitions do not by themselves provide a comprehensive basis on which to assess plans and projects as required under Regulations 20-21, 24, 48-50 and 54 - 85. The scope and content of an appropriate assessment will depend upon the location, size and significance of the proposed project. Natural England will advise on a case by case basis.

Following an appropriate assessment, competent authorities are required to ascertain the effect on the integrity of the site. The integrity of the site is defined in paragraph 20 of ODPM Circular 06/2005 (DEFRA Circular 01/2005) as the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. The determination of favourable condition is separate from the judgement of effect upon integrity. For example, there may be a time-lag between a plan or project being initiated and a consequent adverse effect upon integrity becoming manifest in the condition assessment. In such cases, a plan or project may have an adverse effect upon integrity even though the site remains in favourable condition.

The formal Conservation Objectives for European Sites under the Habitats Regulations are in accordance with paragraph 17 of ODPM Circular 06/2005 (DEFRA Circular 01/2005), the reasons for which the European Site was classified or designated. The entry on the Register of European Sites gives the reasons for which a European Site was classified or designated.

Explanatory text for Tables 2 and 3

Tables 2, 2a and 3 set out the measures of condition which we will use to provide evidence to support our assessment of whether features are in favourable condition. They are derived from a set of generic guidance on favourable condition prepared by Natural England specialists, and have been tailored by local staff to reflect the particular characteristics and site-specific circumstances of individual sites. Quality Assurance has ensured that such site-specific tailoring remains within a nationally consistent set of standards. The tables include an audit trail to provide a summary of the reasoning behind any site-specific targets etc. In some cases the requirements of features or designations may conflict; the detailed basis for any reconciliation of conflicts on this site may be recorded elsewhere.

Conservation Objectives

The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated (SSSI, SAC, SPA, Ramsar) as individually listed in Table 1.

Habitat Types represented (Biodiversity Action Plan categories)

Dwarf Shrub Heath
Acid grassland
Bogs
Fen, Marsh and Swamp
Open water and canals
Lowland broadleaf woodland

Geological features (Geological Site Types)

n/a

(*) or restored to favourable condition if features are judged to be unfavourable.

Standards for favourable condition are defined with particular reference to the specific designated features listed in Table 1, and are based on a selected set of attributes for features which most economically define favourable condition as set out in Table 2, Table 2a and Table

3

Standing open water	Oligotrophic to eutrophic ponds and lakes	Nutrient-poor to moderately high nutrient status open water habitats	*								
Lowland broadleaf woodland	A range of woodland types including NVC type W5 <i>Alnus glutinosa</i> – <i>Carex paniculata</i> woodland, W10 <i>Quercus robur</i> – <i>Pteridium aquilinum</i> – <i>Rubus fruticosus</i> woodland	Alder and oak woodland	*								
Lowland heath	Vascular plant assemblage: <i>Deschampsia setacea</i> bog hair-grass <i>Lycopodiella inundata</i> marsh clubmoss <i>Poa bulbosa</i> bulbous meadow grass <i>Rhynchospora fusca</i> brown beak-sedge <i>Vulpia ambigua</i> bearded fescue	Assemblage of Nationally Scarce plants	*								
Lowland heath	Breeding birds associated with heathland	Nightjar <i>Caprimulgus europaeus</i>	*		*						
Lowland heath	Breeding birds associated with heathland	Woodlark <i>Lullula arborea</i>	*		*						
Lowland heath	Breeding birds associated with heathland	Dartford Warbler <i>Sylvia undata</i>	*		*						
Lowland heath, broadleaf woodland, open water	Breeding bird assemblage associated with a mixture of habitats (heath, scrub, woodland, open water)	Breeding bird assemblage associated with the habitat mosaic	*								
Lowland heath	Outstanding invertebrate assemblage of type F111 sand & chalk	Invertebrate assemblage associated with bare ground in heath	*								

Lowland heath	Outstanding invertebrate assemblage of type W313 mesotrophic fen	Invertebrate assemblage associated with fen, reed & other swamp	*								
Lowland heath	Outstanding breeding Odonata assemblage	Dragonflies and damselflies	*								
Lowland heath	Outstanding breeding reptile assemblage Sand lizard <i>Lacerta agilis</i> Smooth snake <i>Coronella austriaca</i> Adder <i>Vipera berus</i> Grass snake <i>Natrix natrix</i> Common lizard <i>Lacerta vivipara</i> Slow worm <i>Anguis fragilis</i>	Reptile assemblage	*								

NB. Features where asterisks are in brackets (*) indicate habitats which are not notified for specific habitat interest (under the relevant designation) but because they support notified species.

Table 2 Habitat extent objectives

Conservation Objective for habitat extent	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards.
Extent - Dynamic balance	On this site favourable condition requires the maintenance of the extent of each habitat type (either designated habitat or habitat supporting designated species). Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature (BAP Broad Habitat level, or more detailed level if applicable)	Estimated extent and date of data source/estimate	Site Specific Target range and Measures	Comments
Lowland dry heath	Approx 720 ha	No overall loss of extent of dry heath	Temporary loss due to burning should not be interpreted as unfavourable condition if measures are in place to promote recovery.
Lowland wet heath, mire and bog	Approx 204 ha	No overall loss of extent of wet heath, mire and bog	Temporary loss due to burning should not be interpreted as unfavourable condition if measures are in place to promote recovery.
Rush pasture	Approx 22 ha	No reduction in the extent of rush pasture and damp grassland	
Standing open water	Approx 39 ha	No reduction in the extent of open water	The main water bodies are Frensham Great Pond, Frensham Little Pond, Stockbridge Pond, The Moat and Forked Pond.
Lowland broadleaf woodland	Approx. 25 ha (as at 2010).	No reduction in the overall extent of long-established woodland.	Does not apply to areas of recently established secondary woodland and conifer plantation. Stand destruction may occur if the understorey and ground flora are irretrievably damaged even if the canopy remains intact. As a guideline, loss can be defined as at least 0.5 ha or 0.5% of the stand area, whichever is the smaller.

Audit Trail
Rationale for habitat extent attribute (Include methods of estimation (measures) and the approximate degree of change which these are capable of detecting).
The habitat extent figures were estimated using 1982 vegetation surveys.
Rationale for site-specific targets (including any variations from generic guidance)

Wet heath, mire and bog are considered together as they form a complex mosaic of habitats at this site making assessment of the individual components very difficult.

Other Notes

Table 2b Species population objectives

Conservation Objective for species populations	To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes. Favourable condition is defined at this site in terms of the following site-specific standards:
Population balance	On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature (species or assemblage)	Supporting BAP Broad Habitats	Population Attribute	Site Specific Target range and Measures	Comments
Vascular plant assemblage: <i>Lycopodiella inundata</i> marsh clubmoss <i>Poa bulbosa</i> bulbous meadow grass <i>Rhynchospora fusca</i> brown beak-sedge <i>Vulpia ambigua</i> bearded fescue	Dwarf shrub heath and associated bog and mire	Presence/absence	All listed species should be confirmed as at least present in the recording cycle for the feature to be assessed as favourable.	If all other targets are met but the species cannot be found then the feature should be referred to the Country Agency botanical specialists. The occurrence of <i>Vulpia ambigua</i> and <i>Poa bulbosa</i> at an inland site is very unusual. Whether these are 'natural' populations or long-established accidental introductions is unclear.
Breeding bird assemblage	Lowland heath	Presence/absence of breeding species	Assemblage diversity at least maintained. Total assemblage score maintained within at least 25% of the score at time of notification (28). [The minimum score for site selection using this criterion was 11.]	Breeding must be confirmed as proven or probable. The species present at designation and each monitoring event do not need to be the same as this is a score-based assessment only. Data on rare and common species will be needed.
Aggregations of breeding bird species: Nightjar	Lowland heath/ woodland/conifer plantation	Bird population size	Population maintained at or above number of breeding pairs recorded at time of re-notification; target minimum number is 20 pairs . A loss of 5 pairs (25%) or more should be referred to the ornithological specialists. Counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.	Records from reliable sources can be used if they date from within 3 years of assessment. Target is based on 1991 count.

<p>Aggregations of breeding bird species: Woodlark</p>	<p>Lowland heath/ woodland/conifer plantation</p>	<p>Bird population size</p>	<p>Population maintained at or above number of breeding pairs recorded at time of re-notification; target minimum is 20 pairs. A loss of 5 pairs (25%) or more should be referred to the ornithological specialists.</p> <p>Counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.</p>	<p>Records from reliable sources can be used if they date from within 3 years of assessment.</p>
<p>Aggregations of breeding bird species: Dartford warbler</p>	<p>Lowland heath/ conifer plantation</p>	<p>Bird population size</p>	<p>Population maintained at or above number of breeding pairs recorded at time of re-notification; target minimum is 15 pairs. A loss of 3 pairs (25%) or more should be referred to the ornithological specialists.</p> <p>Counts or estimates of numbers of breeding individuals, pairs or calling males, occupied breeding sites or occupied territories.</p>	<p>Records from reliable sources can be used if they date from within 3 years of assessment. Numbers will vary in relation to winter weather conditions and allowance should be made for this when assessing this attribute.</p>
<p>Reptile assemblage: Smooth snake <i>Coronella austriaca</i> Sand lizard <i>Lacerta agilis</i> Adder <i>Vipera berus</i> Grass snake <i>Natrix natrix</i></p>	<p>Lowland heath Permanent ponds and associated terrestrial habitats</p>	<p>Presence/absence</p>	<p>Identification of species</p> <p>Species should be present</p>	<p>The key principle is that self-sustaining, healthy metapopulations of all species with numbers appropriate to a site of this scale are present. A trend of declining numbers of any species should be interpreted as indicating unfavourable condition.</p>
<p>Outstanding assemblage of breeding Odonata</p>	<p>Lowland heath Standing open water Mire and bog</p>	<p>Presence/absence of at least threshold number of species</p>	<p>At least 17* species should be confirmed as present within any recording cycle.</p> <p>It is desirable that the breeding assemblage continues to include scarce species such as small red damselfly <i>Ceriagrion tenellum</i>.</p>	<p>Reliable records from sources such as British Dragonfly Society can be utilised if from within the recording cycle. If all other targets are met but the threshold number cannot be found the national invertebrate specialist should be consulted.</p> <p>Breeding is taken to be confirmed or inferred if exuviae or larvae are present, newly emerged individuals are sighted, females ovipositing, or both sexes of same species regularly seen.</p>

Indirect attributes	Target	Method of assessment	Comments	Use for CA?
Odonata assemblage - Extent and condition of larval habitat	Water bodies in suitable condition to maintain breeding assemblage: 10-40% emergent vegetation in each water body. 30-50% submerged vegetation in shallower <30cm parts of each water body. Parts of pond margins shaded by trees, parts un-shaded.	Visual assessment	Most species require at least some areas of pond margins to be un-shaded by surrounding trees but some species require water bodies to have shaded margins.	yes
Odonata assemblage - Extent and condition of breeding and foraging habitat	Sufficient area of suitable habitat to maintain population No net loss of area or edge of suitable habitat	Mapping (area of open water and open heath/mire)	Maintenance of the marginal vegetation surrounding the ponds is important as this provides feeding, resting and courting areas. Ideally, a structurally diverse mixture of heath, grassland and mire should be maintained surrounding the ponds with scattered scrub to provide shelter.	yes
Assemblage of rare and scarce invertebrate species (not including individually listed invertebrates)	Dry shrub heath Wet heath, bog & mire Fen, marsh and swamp	Direct monitoring of assemblage score based on presence/absence of specified proportion of species typical of habitat listed in ISIS	Monitor the assemblage once in every 6 year monitoring cycle Using defined invertebrate sampling protocols, thresholds to be met: F111 sand and chalk target = 25 W313 mesotrophic fen target = 7	This attribute is to be assessed through specialist survey.

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes
<p>*17 species was set as the threshold odonata assemblage size for SSSI selection in Surrey in the 1989 SSSI Selection Guidelines. The site formerly supported a relict breeding population of the rare white-faced darter dragonfly <i>Leucorrhinia dubia</i>. It is now thought to be extinct as there have been no sightings for over 10 years. It is essentially a species of northern peat bogs and raised mires. There is no likelihood of natural re-colonisation and this species should be considered lost. The RDB species <i>Stethophyma grossum</i> large marsh grasshopper is mentioned on the citation as a feature of interest. However, this population was introduced in recent times to Thursley NNR and it has subsequently died out. There have been no records of the species at the site since 1991 and it is considered extinct. As this was a known introduction this species should not be considered a formally designated interest feature and the site should not be considered to be in unfavourable condition because of its absence. The score for the breeding bird assemblage was calculated using the criteria established for breeding bird assemblages in the 1983 SSSI Selection Guidelines. The total score for the assemblage at the time of SSSI designation is not provided on the selection criteria sheet and so the score has been established subsequently on the basis of the species likely to have been regularly breeding at the site at the time of designation: greater spotted woodpecker, stonechat, whinchat, tree pipit, goshawk, woodlark, hobby, Dartford warbler and nightjar. Although widely distributed across the site sand lizard colonies are mostly associated with dry heath in locations where there are unshaded south-facing slopes with a sandy substrate. Priority for assessing habitat suitability for sand lizard should therefore concentrate on these areas. Both <i>Vulpia ciliata</i> subsp <i>ambigua</i> (= <i>Vulpia ambigua</i>) and <i>Poa bulbosa</i> have a distinct preference for disturbed sandy places and are almost exclusively coastal in the UK. – the occurrence at this inland site is unusual.</p>

Table 3 Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT	To maintain the lowland dry heath habitat at Thursley Hankley and Frensham Commons SSSI in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:				
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)					
The targets below apply in all areas of dry heath.					
Criteria feature	Attribute	Measure	Site-specific Target	Comments	Use for CA?
Lowland dry heath	Vegetation structure: growth phase composition of ericaceous cover	Visual assessment of cover, using structured walk or transects	Pioneer phase (including pseudo-pioneer): 10-40%; Building/mature phase: 20-80%; Degenerate phase: <30%; and Dead: <10%, of total ericaceous cover.	Both a young stand of e.g. 40-60-0-0 (P-B/M-Dg-Dd) and a mature stand of e.g. 10-65-20-5 (P-B/M-Dg-Dd) would meet the conservation objectives, though structurally they will be very different.	Yes
Lowland dry heath	Vegetation structure: growth phase composition of ericaceous spp.	Visual assessment of cover, using structured walk or transects	Presence of heather in all stages of growth. Suitable habitat conditions for sand lizard present.	No one growth form should be dominant. It is accepted that the frequent fires which affect the habitat mean that large areas are often of uniform age - what is important is that there is structural diversity present in the heath communities across the site as a whole. Sand lizard has particular structural requirements: must have access to extensive areas of tall, mature heather which provides cover from predators, with low cover of scrub, close to areas of short vegetation suitable for basking and feeding. These areas also have to be close to potential breeding sites.	Yes
Lowland dry heath	Bare ground	Visual assessment of cover, using structured walk or transects	1 - 10% of the heath should consist of bare, undisturbed, sand, peat or soil.	Bare ground should form a patchwork with vegetation and be present mainly in south-facing slopes. Exclude rock, stone or litter, bryophyte/lichen mats or heavily trampled soil. Track and path edges can be a valuable source of bare ground for nesting invertebrates and provide feeding areas for birds such as woodlark. Note that a relatively high proportion of bare ground in the heath is acceptable at this site where invertebrates of warm, sandy open habitat are a very important feature.	Yes

Lowland dry heathland	Negative indicators: signs of disturbance	Visual assessment of cover, using structured walk or transects	<1% of habitat heavily eroded.	Record presence of signs of overgrazing or intensive fires.	Yes
Lowland dry heath	Vegetation composition: dwarf shrubs	Visual assessment of cover, using structured walk or transects	At least two species of dwarf shrubs present in each of the main blocks of dry heath and at least frequent.	Dwarf shrubs include <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>E. tetralix</i> , <i>Genista anglica</i> , <i>Ulex gallii</i> , <i>U. minor</i> and <i>Vaccinium myrtillus</i> .	Yes
Lowland dry heath	Vegetation structure: cover of dwarf shrubs	Visual assessment of cover, using structured walk or transects and aerial photographs, maps.	Dwarf shrub cover 25-90%	Dwarf shrubs include <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>E. tetralix</i> , <i>Genista anglica</i> , <i>Ulex gallii</i> , <i>U. minor</i> and <i>Vaccinium myrtillus</i> .	Yes
Lowland dry heath	Vegetation structure: % cover of <i>Ulex</i> spp.	Visual assessment of cover, using structured walk or transects and aerial photographs, maps.	Total <i>Ulex</i> spp. cover <50%, with <i>Ulex europaeus</i> <25%.	The targets apply to each block of dry heath being assessed. Ideally, gorse should be widely distributed across the feature, rather than present as a few large continuous blocks. Gorse is of critical importance in providing habitat for Dartford warbler and provides cover for reptiles. Gorse supports a rich invertebrate fauna. However, gorse can be invasive and can affect the soil characteristics; high cover is undesirable and spread into open habitats can be damaging. The target does not apply to the more extensive continuous blocks of gorse which should be assessed separately for their suitability for Dartford warbler.	Yes
Lowland dry heath	Vegetation composition: graminoids	Record presence, using structured walk or transects	At least 1 species at least frequent and 2 species at least occasional throughout the sward; but <i>Deschampsia flexuosa</i> and <i>Nardus stricta</i> no more than occasional and <25% cover.	Graminoids include <i>Agrostis</i> spp., <i>Carex arenaria</i> , <i>Carex pilulifera</i> , <i>Danthonia decumbens</i> , <i>Deschampsia flexuosa</i> , <i>Festuca</i> spp., <i>Nardus stricta</i> , <i>Trichophorum cespitosum</i> . A notable feature of the site is the presence of <i>Agrostis curtisii</i> . There is a separate target relating to <i>Molinia caerulea</i> .	Yes
Lowland dry heath	Vegetation composition: graminoids	Visual assessment of cover, using structured walk or transects	Cover of <i>Molinia caerulea</i> <50%	High cover of <i>Molinia</i> in dry heath may indicate insufficient management to reduce its competitive advantage and can lead to loss of low-growing plants and reduced diversity of invertebrates.	Yes
Lowland dry heath	Vegetation composition: desirable forbs	Record presence, using structured walk or transects	At least 1 species occasional, including <i>Galium saxatile</i> , <i>Genista anglica</i> , <i>Hypochaeris radicata</i> , <i>Lotus corniculatus</i> , <i>Polygala serpyllifolia</i> , <i>Potentilla erecta</i> , <i>Rumex acetosella</i> , <i>Thymus praecox</i> , <i>Viola riviniana</i> ,	This is a naturally rather species-poor community and the presence of just one forb species is sufficient to meet the target although higher plant diversity is desirable. A feature of interest is the occurrence of <i>Carex arenaria</i> in parts of the site.	

Lowland dry heath	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	<1% exotic species	Exotic species include <i>Rhododendron ponticum</i> , <i>Pinus sylvestris</i> and <i>Gaultheria shallon</i> .	Yes
Lowland dry heath	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	10% bracken (dense canopy)	Target applies to each block of habitat being assessed. Bracken can be beneficial for a range of invertebrates and may provide cover and basking sites for reptiles; it should only be considered an indicator of unfavourable condition if exceeding target.	yes
Lowland dry heath	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	< 1 % cover of ragwort, nettle, thistles and other herbaceous spp indicative of disturbance and raised nutrient levels.	Species in this list can be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit. Species in this category include <i>Cirsium arvense</i> , <i>Digitalis purpurea</i> , <i>Epilobium</i> spp., <i>Ranunculus repens</i> , <i>Senecio jacobaea</i> , <i>Rumex obtusifolius</i> , <i>Urtica dioica</i> .	yes
Lowland dry heath	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	1- 15% cover of trees & scrub	Tree and scrub spp include <i>Betula</i> spp., <i>Ilex</i> , <i>Pinus</i> spp., <i>Prunus spinosa</i> , <i>Quercus</i> spp., <i>Rubus fruticosus</i> , <i>Sarothamnus scoparius</i> and <i>Salix</i> spp. (excluding <i>Salix repens</i>). Gorse species are considered separately. The presence of some scattered scrub is desirable in providing shelter, food sources, song posts, roosting sites, etc.	yes

Audit Trail

Rationale for limiting standards to specified parts of the site

Rationale for site-specific targets (including any variations from generic guidance)

The standard targets for dry heath have been applied with slight modification to accommodate the requirements of sand lizard and Annex 1 birds..

Rationale for selection of measures of condition (features and attributes for use in condition assessment)

(The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).

The targets used above are considered adequate to cater for the needs of the invertebrate assemblage associated with open, bare ground in heath, and for the reptile assemblage including smooth snake and sand lizard.

Table 3 Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT		To maintain the lowland wet heath, mire and bog habitats at Thursley Hankley and Frensham Commons SSSI in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:			
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)					
The targets below apply in all areas of wet heath, mire and bog.					
Criteria feature	Attribute	Measure	Site-specific Target	Comments	Use for CA?
Lowland wet heath, mire and bog	Vegetation structure: growth phase composition of ericaceous spp.	Visual assessment of cover, using structured walk or transects	In M16 type vegetation heather in all stages of growth present.	No one growth form should be dominant.	Yes
Lowland wet heath, mire and bog	Bare ground	Visual assessment of cover, using structured walk or transects	1 - 10% of the habitat should consist of bare, undisturbed, wet peat or open water.	Gaps in the vegetation are an important aspect of the habitat as they provide opportunities for establishment of the early successional phase and provide suitable habitat for a wide range of wetland invertebrates.	Yes
Lowland wet heath, mire and bog	Negative indicators: signs of disturbance	Visual assessment of cover, using structured walk or transects	<1% of habitat heavily eroded.	Record presence of signs of overgrazing or intensive fires.	Yes
Lowland wet heath, mire and bog	Vegetation composition: dwarf shrubs	Visual assessment of cover, using structured walk or transects	At least two species of dwarf shrubs present and at least frequent.	Dwarf shrubs include <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>E. tetralix</i> , <i>Genista anglica</i> , <i>Ulex gallii</i> , <i>U. minor</i> and <i>Vaccinium myrtillus</i> .	Yes
Lowland wet heath, mire and bog	Vegetation structure: cover of dwarf shrubs	Visual assessment of cover, using structured walk or transects	In areas of M16 type vegetation dwarf shrub cover should be between 25-75% intermixed with low vegetation . In M21 type habitat and bog cover of dwarf shrubs may be much lower, and between 10 and 50% is acceptable.	Dwarf shrubs include <i>Calluna vulgaris</i> , <i>Erica cinerea</i> , <i>E. tetralix</i> , <i>Genista anglica</i> , <i>Ulex gallii</i> , <i>U. minor</i> and <i>Vaccinium myrtillus</i> . The vegetation of the bogs should comprise an inter-mix of bryophytes (predominantly <i>Sphagnum</i> spp), graminoids and dwarf shrubs, with no one group dominating at the expense of others, although <i>Sphagnum</i> may dominate in exceptional cases (and this is acceptable).	Yes

Lowland wet heath, mire and bog	Vegetation structure: cover of <i>Sphagnum</i> .	Visual assessment of cover, using structured walk or transects	>10%.	<i>Sphagnum</i> spp. should be a frequent component of all wet heath, mire and bog areas. The presence of <i>Sphagnum</i> is a good indicator of suitably wet conditions and adequate management to keep tall-growing species in check.	Yes
Lowland wet heath, mire and bog	Vegetation composition: cover of <i>Polytrichum</i>	Visual assessment of cover, using structured walk or transects	<5%	High frequency and cover of <i>Polytrichum</i> spp may indicate excessive shading or too frequent burning.	yes
Lowland wet heath, mire and bog	Vegetation composition: graminoids	Record presence, using structured walk or transects	At least 1 species (not including <i>Molinia caerulea</i>) at least frequent and 2 species at least occasional throughout.	Graminoids include <i>Agrostis</i> spp., <i>Carex binervis</i> , <i>Carex panicea</i> , <i>Eriophorum</i> spp, <i>Trichophorum cespitosum</i> . There is a separate target relating to <i>Molinia caerulea</i> .	Yes
Lowland wet heath, mire and bog	Vegetation composition: graminoids	Visual assessment of cover, using structured walk or transects	Cover of <i>Molinia caerulea</i> <50%	It is recognised that <i>Molinia caerulea</i> is a characteristic component of wet heath and mire habitats. High cover is not necessarily a problem as long as sward height is generally low and it is not able to out-compete other low-growing plants. An increasing abundance of <i>Molinia</i> and development of a tussocky structure may indicate fluctuating water levels and undesirable hydrological change.	Yes
Lowland wet heath, mire and bog	Vegetation composition: desirable forbs	Record presence, using structured walk or transects	At least 1 species at least occasional, including <i>Anagallis tenella</i> , <i>Drosera</i> spp, <i>Eleocharis</i> spp, <i>Galium uliginosum</i> , <i>Narthecium ossifragum</i> , <i>Pedicularis sylvatica</i> , <i>Polygala serpyllifolia</i> , <i>Potentilla erecta</i> , <i>Rhynchospora alba</i> , <i>Succisa pratensis</i> , <i>Trichophorum cespitosum</i> .	This is a naturally rather species-poor community and the presence of just one forb species is sufficient to meet the target although higher plant diversity is desirable.	yes
Lowland wet heath, mire and bog	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	<1% exotic species	Exotic species include <i>Rhododendron ponticum</i> , <i>Pinus sylvestris</i> and <i>Gaultheria shallon</i> .	Yes
Lowland wet heath, mire and bog	Negative indicators: Species	Cover of <i>Myrica gale</i>	<30% cover in mires and bogs	<i>Myrica gale</i> is a characteristic and often prominent component of mires and bogs. It is usually indicative of good habitat quality. However, the species can become overwhelmingly dominant in some situations because of its competitive advantage and avoidance by grazing animals to the detriment of other species.	yes

Lowland wet heath, mire and bog	Negative indicators: Species		< 1 % cover of ragwort, nettle, thistles and other herbaceous spp indicative of disturbance and raised nutrient levels.	Species in this list can be beneficial for a range of invertebrates and only become indicators of negative quality if they are over the established limit. Species in this category include <i>Cirsium arvense</i> , <i>Digitalis purpurea</i> , <i>Epilobium</i> spp., <i>Ranunculus repens</i> , <i>Senecio jacobaea</i> , <i>Rumex obtusifolius</i> , <i>Urtica dioica</i> .	yes
Lowland wet heath, mire and bog	Negative indicators: Species	Visual assessment of cover, using structured walk or transects	<5% cover of trees & scrub	Tree and scrub spp include <i>Betula</i> spp., <i>Pinus</i> spp., and <i>Salix</i> spp. (excluding <i>Salix repens</i>). Exclude <i>Myrica gale</i> as this has a separate target.	yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
The standard targets for wet heath and bogs have been amalgamated. Some of the standard targets for bogs have been omitted as they are not considered relevant at this site.
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
The targets used above are considered adequate to cater for the needs of the invertebrate assemblage associated with fen and swamp habitats.
Other Notes

Table 3 Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT	To maintain the standing open water habitat at Thursley Hankley and Frensham Commons SSSI in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
The targets below apply to the main ponds and lakes, not to bog pools or ditches and drains.	

Site-specific standards defining favourable condition					
Criteria feature	Attribute	Measure	Target	Comments	Use for CA?
Standing open water	Vegetation composition: macrophyte community composition	Fixed point sector/transect sampling (boat or shore-based methods).	At least two characteristic macrophyte species typical of good water quality present.	Characteristic macrophytes which might be expected in ponds in this context might include <i>Ceratophyllum demersum</i> , <i>Littorella uniflora</i> , <i>Pilularia globulifera</i> , <i>Myriophyllum alterniflorum</i> , <i>M. spicatum</i> , <i>Elatine hexandra</i> , <i>Juncus bulbosus</i> , <i>Potamogeton lucens</i> , <i>Potamogeton crispus</i> , <i>P. praelongus</i> , <i>P. obtusifolius</i> , <i>P. berchtoldii</i> , <i>Zannichellia palustris</i> and <i>Chara</i> spp.	Yes
Standing open water	Vegetation composition: macrophyte community composition	Fixed point sector/transect sampling (boat or shore-based methods).	Non-native species should be absent or present at low frequency. Cover of benthic and epiphytic filamentous algae should be less than 10%.	Occurrence of <i>Elodea nuttallii</i> or <i>Elodea canadensis</i> at >40% frequency in unproductive waters, and >50% frequency in more productive waters, is indicative of unfavourable condition. Excessive growth of filamentous algae on lake substrate or macrophytes is indicative of nutrient enrichment.	Yes
Standing open water	Vegetation composition: macrophyte and emergent community composition	Fixed point sector/transect sampling (boat or shore-based methods).	Characteristic zones of vegetation should be present, both submerged and emergent. Maximum depth distribution should be maintained.	The maximum depth at which submerged vegetation is able to grow is a direct indicator of water clarity and also a general indicator of the status of the macrophyte community. Generally, emergent and floating/submerged vegetation should be present. Characteristic emergent vegetation in this context might include <i>Carex rostrata</i> , <i>Menyanthes trifoliata</i> , <i>Phragmites australis</i> and <i>Equisetum fluviatile</i> .	Yes

Standing open water	Water quality	Visual assessment or water quality analysis if data available.	No indications of excessive nutrient levels appropriate to lake type. No excessive growth of cyanobacterial or green algae.	All the ponds on site receive water from a low nutrient catchment and the ponds should exhibit characteristics of low nutrient, acidic systems. Blue-green or green algal blooms would not be expected to occur if water quality is good.	yes
Standing open water	Hydrology	Visual assessment	There should be a natural hydrological regime No evidence of impacts arising from lowered or artificially raised water levels. No significant loss of marginal vegetation	The natural flushing rate and seasonal water level fluctuations of the lake should not be affected by modification of or abstraction from inflow streams. Evidence of lowered water levels include loss of marginal or littoral vegetation or large areas of exposed lake substrate. It is accepted that there is long-established recreational use of Frensham Great Pond. The presence of the established 'beach' should not be interpreted as indicating unfavourable condition but expansion of areas of bare lake shore should be noted.	yes
Standing open water	Lake substrate	Visual assessment	Shoreline predominantly natural. Natural lake substrate present.	No more than 5% of the shore of any water body should heavily modified through engineering, construction or bunding (not including dams).	yes

Audit Trail

Rationale for limiting standards to specified parts of the site

Rationale for site-specific targets (including any variations from generic guidance)
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Rationale for selection of measures of condition (features and attributes for use in condition assessment)

(The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
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Other Notes

Table 3 Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT	To maintain the lowland broadleaf woodland habitat at Thursley Hankley and Frensham Commons SSSI in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	
The targets below apply to the areas of long-established woodland only.	

Site-specific standards defining favourable condition					
Criteria feature	Attribute	Measure	Target	Comments	Use for CA?
Lowland broadleaf woodland including NVC types W5 and W10	Composition	Assess by field survey using structured walk and/or transects.	At least 95% of cover in any one layer of site-native or acceptable naturalised species. Death, destruction or replacement of native woodland species through effects of introduced fauna or other external unnatural factors not more than 10% by number or area in a five year period.		Yes
Lowland broadleaf woodland including NVC types W5 and W10	Structure	Assess by field survey using structured walk and/or transects.	Ground flora present over at least 75% of total woodland area. Canopy cover present over 70-90% of stand area.		Yes
Lowland broadleaf woodland including NVC types W5 and W10	Indicators of local distinctiveness	Assess by field survey using structured walk and/or transects, or as appropriate to feature.	At least 80% of ground flora cover should be characteristic of the woodland type.		Yes
Lowland broadleaf woodland including NVC types W5 and W10	Regeneration potential	Assess by field survey using structured walk and/or transects.	Signs of seedlings growing through to saplings to young trees at sufficient density to maintain canopy cover (or equivalent re-growth from coppice stumps).		yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

Acknowledgements:

Consultees on the management plan were:

- Dr Isobel Alonso – Natural England – Heathland specialist
- Graham Steven – Natural England – Lead advisor land management
- James Adler - SWT Grazing project manager
- Scott Dodd – SWT invertebrate specialist
- Dominic Price- Ilex ecology - Plant specialist
- Mike Coats – RSPB Farnham Heath project manager Reserve
- Patrick Murphy – Elstead parish council chair
- Marcus Turley – Surrey Heathland Project
- Dr Rob McGibbon – Foot - print ecology