Hurn Forest

Biodiversity Audit

2013

HURN PARISH COUNCIL

Forestry Commission

bournemouth airport

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Hurn Forest Biodiversity Audit

Appendices

Summary species data is included at the back of this report, and repeated in full in Appendix 2

Appendix 1: Base maps and aerial photographs

Appendix 2: DERC data and subsequent special analysis by species groups

Appendix 3: Conservation designations and condition assessments

Appendix 4: Original survey reports

Appendix 5: Photographs of Hurn Forest

Tables and maps

This report has been prepared by Simon Weymouth of SW Environmental on behalf of Hurn Parish Council.

1) Executive summary

The purpose of this report is, in part, to draw together the collective ecological knowledge of Hurn Forest in to one place. This includes current and historic records primarily sourced from the Dorset Environmental Records Centre (DERC) as well as the Forestry Commission (FC), in addition to any written reports for the Forest. The content of this report draws heavily on the previous work of Neil Sanderson (botanical assessment, landscape history and ecology, 2007) and the more recent records and reports from specialist surveys during 2013. These specialist surveys and their subsequent records and reports were conducted by Alan Lucas (fungi & birds), Mike Jeffes & David Evans (moths), Dr Sue Clarke & David Green (butterflies and day-flying moths), Dr Scotty Dodd (invertebrates), David Tamarind (reptiles), Simon Weymouth & Alan Lucas (birds), and Colleen Hope & Paul Hope (bats). Much of the content of this Biodiversity Audit comes directly from these respective survey reports, allowing the efficient preparation of this report.

Hurn Forest is believed to be an important place for common, rare and protected wildlife alike. However, there has been a lack of data to support this belief, with only limited ecological data and wildlife records from the last 30-40 years. At 5 kilometres long, and some 370 hectares in area, it constitutes a substantial and valued area, whether as a wildlife reserve and corridor, as a landscape feature, as a place to produce timber and other renewable products, or as a place for people to enjoy.

The starting point for this Biodiversity Audit was the limited existing data; DERC kindly provided the project with some 26,000 wildlife records for the area, which following analysis resulted in 1655 species recorded from the Forest, and 2347 species recorded from a 1 kilometre buffer around the Forest. DERC also provided maps showing the known priority habitats found here.

The following table of results (Table 1.1) shows how the Biodiversity Audit has increased the understanding of Hurn Forest and wildlife it supports. Whilst these are just numbers, the detail of this report sets out the importance of these species and the habitats that support them.

Table 1.1: Summary of new finds

Species Group	DERC DATA Number of species in Hurn Forest study area	DERC DATA Number of species in 1km buffer around Hurn Forest	Number of species recorded in Hurn Forest study area (2013 surveys)	Number of <u>new</u> species recorded in Hurn Forest study area (2013 surveys)	Of these new species, how many were not previously recorded from buffer area	Total number of species recorded in Hurn Forest study area over last 30-40 years
Lower plants (lichens, liverworts, mosses, horsetails, ferns)	134	115	67	21	10	155
Fungi	14	31	269	257	240	271
Plants	326	625	265**	41	11	367
Moths	484	426 / 838*	380	107	57 / 10*	591
Butterflies	32	35	25	0	0	32
Other insects (plus millipedes, centipedes, spiders, harvestman	518	898	333	235	167	753
Molluscs	3	21	1	1	1	4
Birds	111	141	61	1	0	112
Reptiles and amphibia	7	9	6	1	0	8
Fish	10	10	-	-	-	10
Bats	3	6	7	4	1	7
Other mammals	8	23	-	-	-	8
Other	5	7	-	-	-	5
Total	1655	2347 / 2759*	1414	668	487 / 440*	2323

* Includes records from Moors Close **2007 survey

It should be noted that a small number of these species will be attributable to the Moors River channel, which forms the boundary of the study area.

From both the individual surveys, and their collective weight of evidence, it can be concluded that Hurn Forest is an important place for common, rare and protected wildlife. **668 new species have been recorded for the Forest**. It should also be remembered that this Audit provides a snapshot, recording only those species that were encountered by the surveyors during their survey visits in 2013. There are no doubt hundreds of new species records for Hurn Forest still to be discovered.

Managed by the Forestry Commission, Hurn Forest represents a multi-purpose forest in which conservation, recreation and timber production co-exist. These varied objectives are balanced through the Forest Design Plan or management plan for the Forest. Whilst there are a range of views about the management of forests on areas of former heathland, what is proven through this report is that the management of Hurn Forest has allowed a wide range of wildlife to thrive. The data does also show that there have been some species declines and losses from the site, some of these are attributable to a loss of 'commoning' activities and some to the change from open to wooded habitats.

This Biodiversity Audit would not have been possible had Hurn Parish Council not been able to secure external funding. As such Hurn Parish Council is exceedingly grateful to the following for their generous support of this project:

- Bournemouth Airport Community Fund
- Lottery Awards for All
- Forestry Commission.

And finally, this is your Forest. Hurn Parish Council encourages you to get out there and enjoy it!

2) Introduction

Hurn Forest runs approximately north-south, supporting over 370 hectares of woodlands and heathlands between the Moors River Valley and the Avon Valley. Located in Hurn Parish and the wider Borough of Christchurch, it lies to the north and east of Bournemouth Airport, and to the west of the main A338, with major population centres of Christchurch and Bournemouth only a few kilometres to the south.

Hurn Forest is owned and managed by the Forestry Commission, and in accordance with their byelaws and the Countryside and Rights of Way Act (CRoW Act 2000), the public has a right of access to enjoy this fantastic resource. From public car parks on Matchams Lane to the east and Boundary Lane to the north, there is an array of formal tracks and informal paths through the Forest. These are extensively used by the local community and visitors alike for walking, orienteering, horse-riding, dog-walking, cycling and wildlife-watching. Hurn Forest is one of the major areas of green space for recreation in East Dorset.

Since the 1990's, Hurn Forest has undergone significant restructuring through the Forestry Commission's Forest Design Plans to create a mosaic of woodland and open habitats, both to improve the biodiversity value of the Forest and to increase the internal landscape interest. The Forest remains a working environment with forestry and tenant farming activities, supporting and managing a wide range of wildlife across habitats including broadleaf woodland, conifer woodland, valley mires, heathland and grassland.

A range of wildlife has been recorded in Hurn Forest, and some of this collective wildlife knowledge for the area has previously been collated (Sanderson, 2007). However, there were significant gaps in the knowledge base, and therefore it has been difficult to assess the overall wildlife value of this Forest. Hurn Parish Council has taken a lead to remedy this, and having successfully sought financial contributions from Bournemouth Airport Community Fund, Lottery Awards for All, and the Forestry Commission, has commissioned this

Biodiversity Audit for Hurn Forest. The Audit has assessed the existing data, responded to knowledge gaps by undertaking further ecological surveys, and brought together all of the information in to one report.

It is intended for this Biodiversity Audit to be used in a number of ways to inform any and all interested parties about the wildlife value of this Forest.

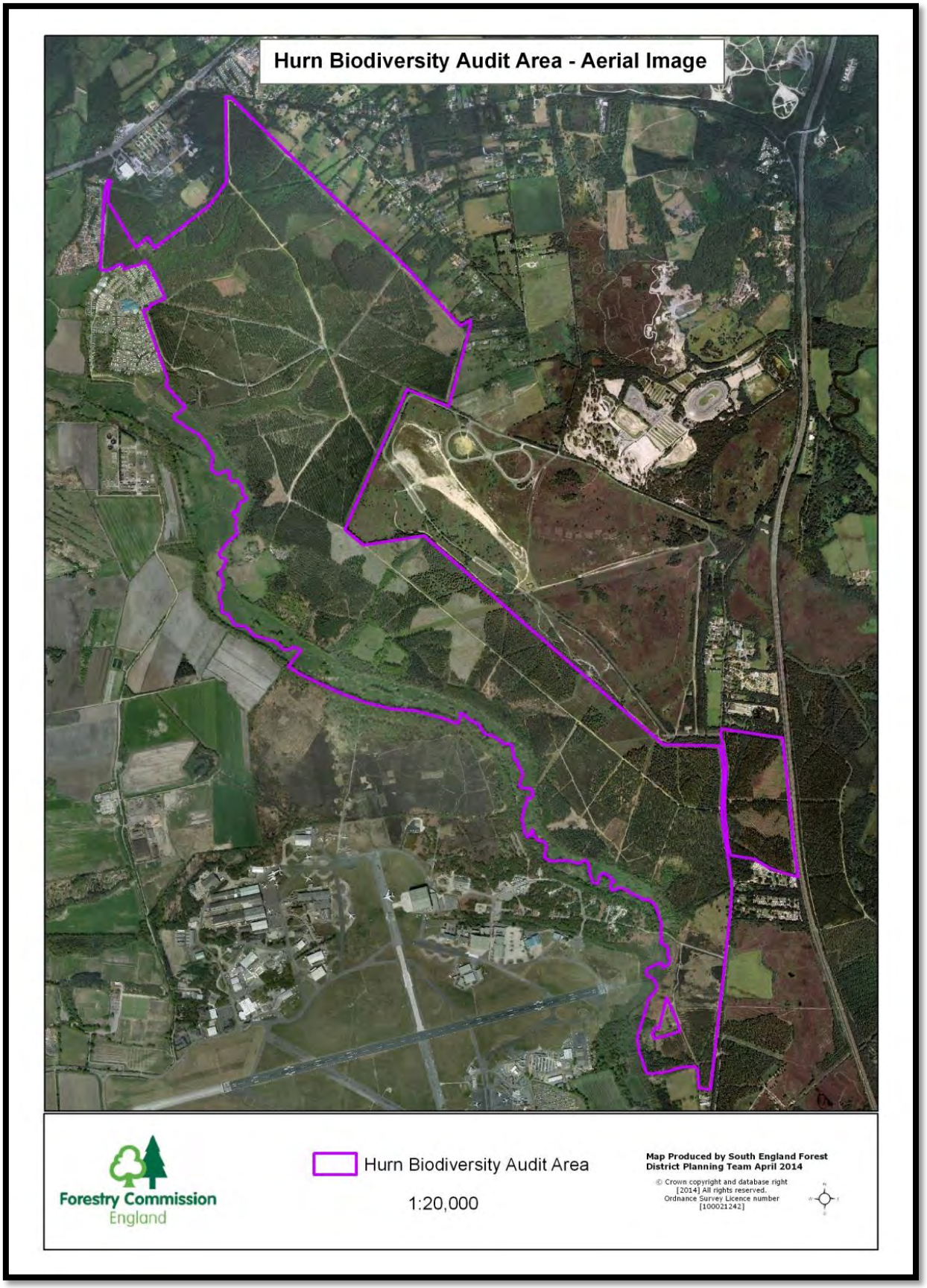
The purpose of this report is, in part, to draw together the collective ecological knowledge of Hurn Forest in to one place. This includes current and historic records primarily sourced from the Dorset Environmental Records Centre (DERC) as well as the Forestry Commission (FC), in addition to any written reports for the Forest. The content of this report draws heavily on the previous work of Neil Sanderson (botanical assessment, landscape history and ecology, 2007) and the more recent records and reports from specialist surveys during 2013. These specialist surveys and their subsequent records and reports were conducted by Alan Lucas (fungi & birds), Mike Jeffes & David Evans (moths), Dr Sue Clarke & David Green (butterflies and day-flying moths), Dr Scotty Dodd (invertebrates), David Tamarind (reptiles), Simon Weymouth (birds), and Colleen Hope & Paul Hope (bats). Much of the content of this Biodiversity Audit comes directly from these respective survey reports, allowing the efficient preparation of this report.

The following pages provide an aerial photograph of the study area, followed by the Forestry Commission's map showing their compartment and sub-compartment data for the site, including information on tree species and the year they were planted (Maps 1-4).

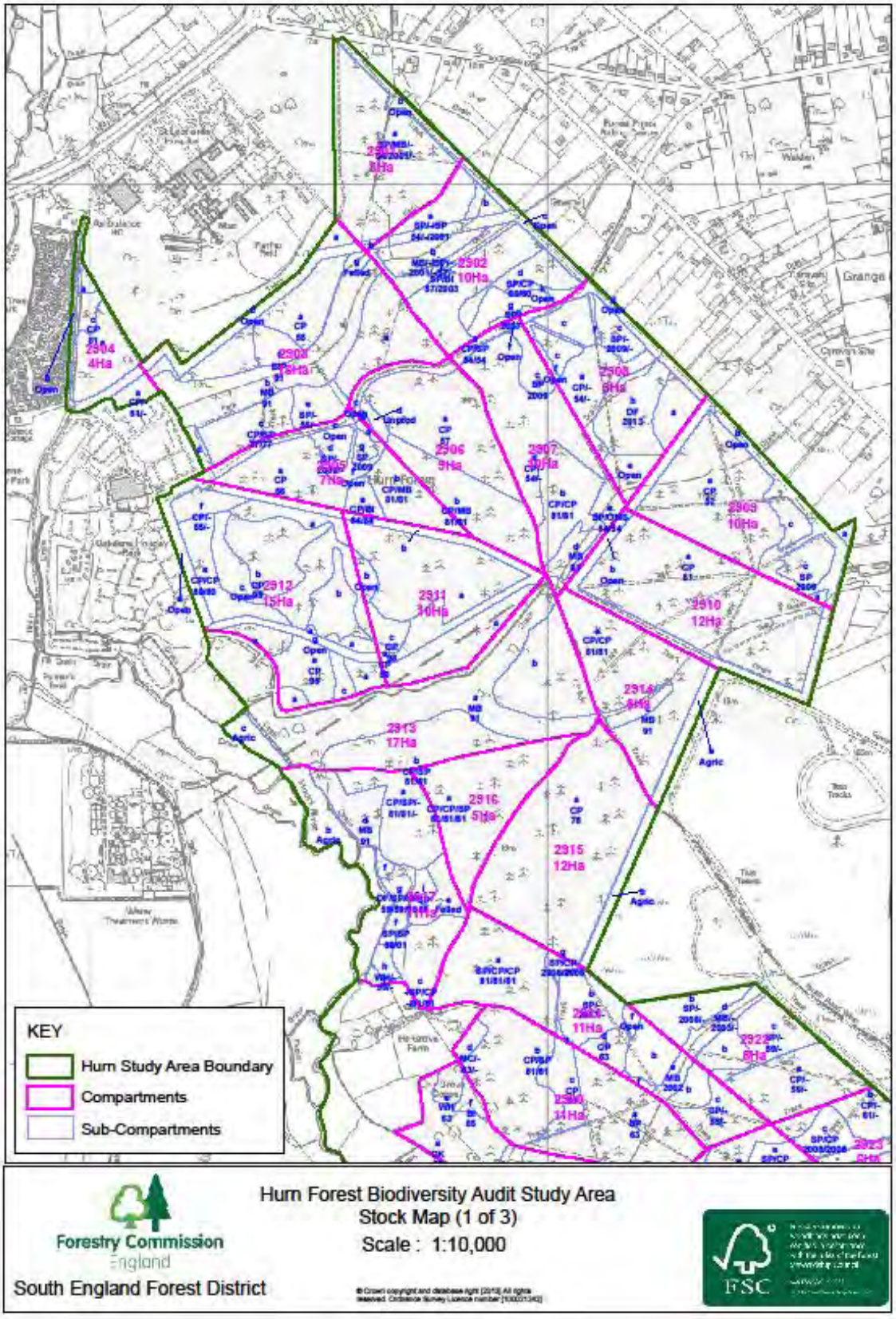
To assist with understanding the tree species listed in the compartment data, the abbreviations are explained in Table 2.1 below:

Abbreviation of tree species	**Common Name**	**Scientific Name**
BI	Birch	*Betula pendula / pubescens*
CAR	Common Alder	*Alnus glutinosa*
CP	Corsican Pine	*Pinus nigra var maritime*
DF	Douglas Fir	*Pseudotsuga menziesii*
MB	Mixed Broadleaves	-
OMS	Serbian Spruce	*Picea omorika*
SP	Scots Pine	*Pinus sylvestris*
WH	Western Hemlock	*Tsugu heterophylla*

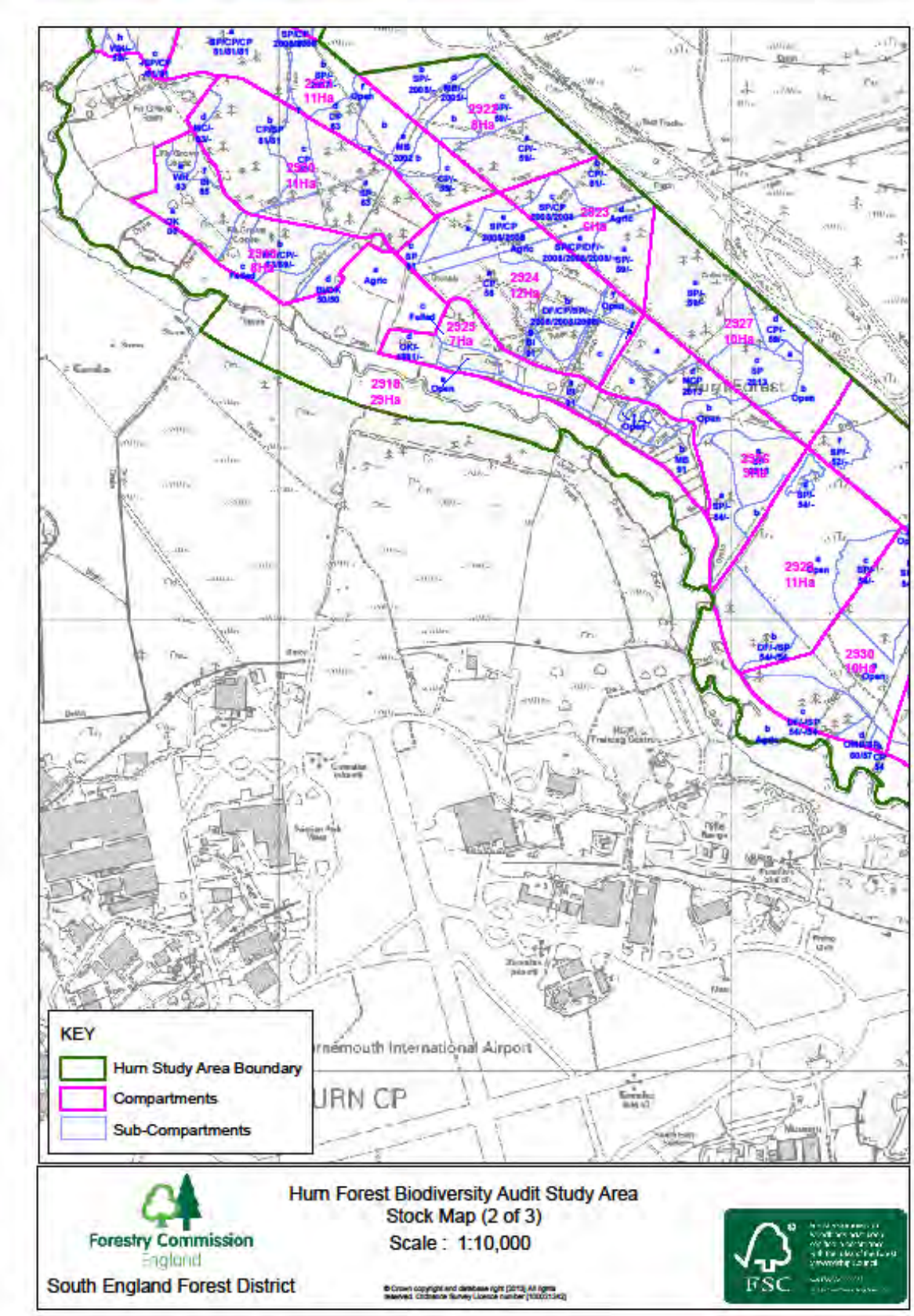
Table 2.1: Tree species codes



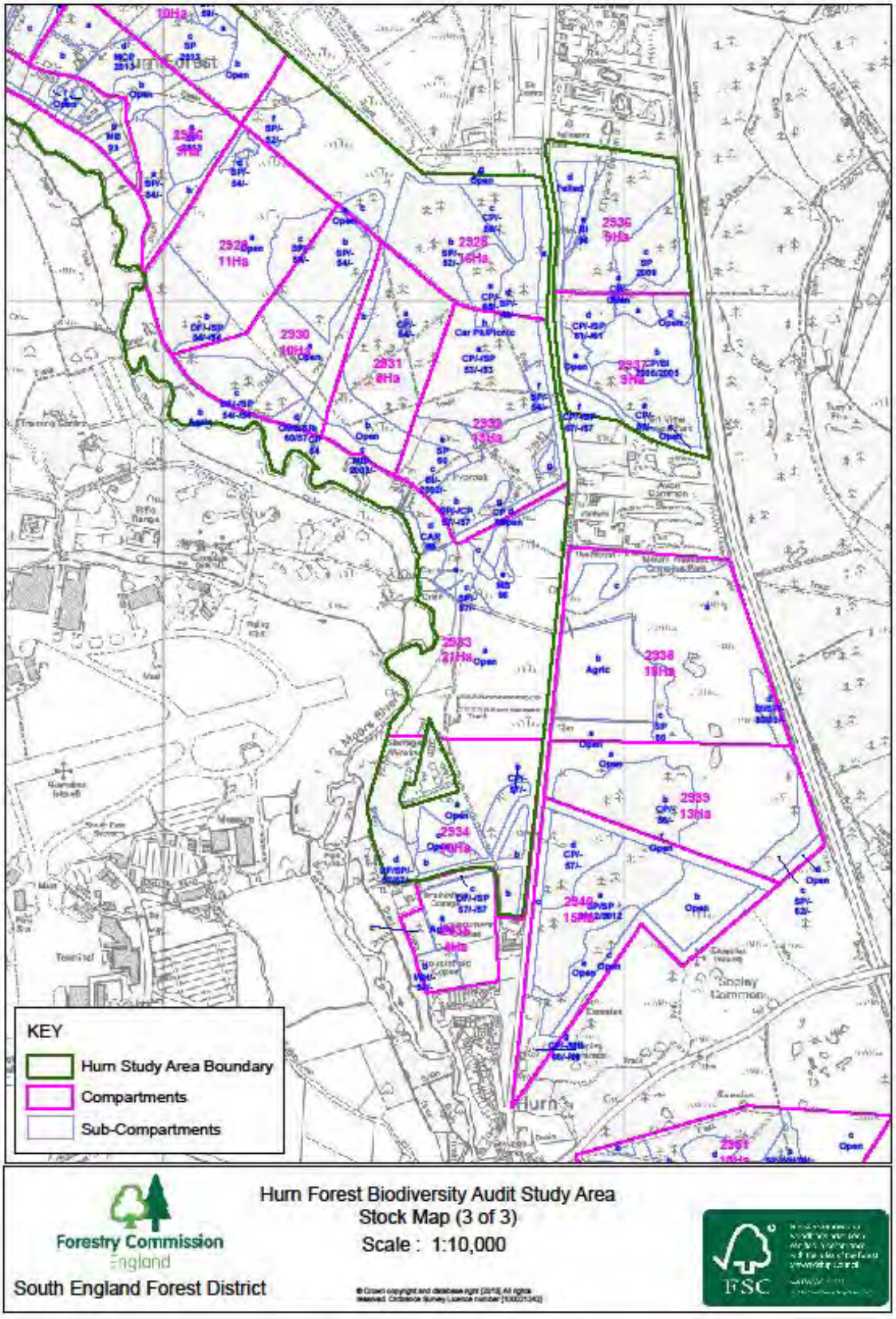
Map 1 – Aerial image of the study area.



Map 2 – Sub-compartment map for the northern section of the study area



Map 3 – Sub-compartment map for the central section of the study area



Map 4 – Sub-compartment map for the southern section of the study area

3) Purpose & aims

It is intended for this Biodiversity Audit to be used in a number of ways to inform any and all interested parties about the wildlife value of this Forest. It is hoped that documentation of this biodiversity will aid encouragement and protection of wildlife, both from the local community and decision-makers alike.

Due to the large scale of the Forest, and the dynamic nature of the habitats here, the study has focussed on the wildlife and habitats of the Forest proper, with only some consideration of the Moors River system.

The Biodiversity Audit aims to:

1. **Review and analyse the existing species records** – From the DERC and FC data available, there are a huge number of records for the site. A few species have not been recorded here for over 100 years, but hundreds have not been recorded since then 1980's and early 1990's. The Forest has undergone significant change in the last 20 years, and it is likely that many of the species that have not be recorded for several decades are still present here. As such the available data does not necessarily represent the true value of the Forest as it stands today.

2. **Undertake ecological surveys for key species** – an analysis of existing ecological data has revealed some key gaps in species records. Therefore the biodiversity audit seeks to close these gaps with the following surveys:

   - Fungi
   - Butterflies & day-flying moths
   - Bats
   - Reptiles
   - Other invertebrates.

   The Audit is also an opportunity to continue to gather data on some of the better-recorded groups such as the bird communities using the Forest, and the moth assemblages (which have been the subject of study here for a number years).

3. **Provide a central reference document –** pulling together the data in to one place, providing analysis of this, and assessing the Forest habitats and their value for wildlife. The report also makes recommendations, both for future management to enhance the biodiversity value and for future scientific study.

4) Geology, Topography & Climate

Geology

The geology of this area is covered by the updated British Geological Survey Sheet 329 Bournemouth (Bristow et al, 1991).

The underlying solid geology belongs to the Tertiary Bracklesham Group, which consists of thick bands of sand alternating with thinner clay bands.

The oldest Bracklesham Group deposit underlying the study area is the Poole Formation, which outcrops in a small area of lower ground to the far south. This consists of an unnamed sand (equivalent to the Parkstone Sand Member in the Ringwood Forest area? (Sanderson, 2007)) and is capped by a thin clay, called the Parkstone Clay. The clay gives rise to a small seepage line by, and extending into, Sopley Common (Cmpt. 2940). Above the Pool Formation Hurn Forest is entirely underlain by the Branksome Sand. There are indications in slight seepages from an unmapped clay band within the Branksome Sand in the south centre of the forest (Cmpt. 2927) but no other evidence any variation within the solid geology.

The far southeast of the study area, north of Sopley Common and in the east of Fillybrook, occupies a section of the substantial third terrace of the River Avon. In addition, in the far southwest there is a section of the third terrace of the Moors River. Otherwise only small patches of higher terraces are mapped. The third terrace is very sandy, while higher terraces are much more gravely and further unmapped eroded traces of high terraces can be detected on hilltops by the presence of gravel.

In several places during the field survey possible signs of windblown erosion, presumably of periglacial origin, were noted on the third terrace and in adjacent areas. These are most marked in the east Cmpt. 2938 and Cmpt. 2939 where frequent irregular hollows are separated by ridges. A further substantial blow out with apparent dunes was spotted under the flight line (Height Restriction Zone, HRZ) in Cmpt. 2933. Vegetation features suggest that blown sands also extend from Fillybrook Bottom (Cmpt. 2936 & 2937) across the A338 into Avon Common (Cmpt. 2940) off the study area. These periglacial blown sand complexes (cover sands) are part of an extensive area stretching from Week Common to Cowards Marsh on the west side of the Avon on the lower terraces. At Cowards Marsh these are deep enough to be mapped by the geological map but they are apparently thinner to the north. They also occur at scattered locations on the east side of the River Avon, especially between Bisterne and Kingston North Common. Where still occupied by heathland, these cover sand areas are marked by species rich acid grassland with inland sand dune communities and strongly dry heaths, along with wet hollows with a diversity of ponds, mires and wet heaths.

The two largest bottoms are mapped as being filled with deep drift deposits, with head (mixtures of clay, slit sand and gravel washed down in to bottoms under peri-glacial conditions) mapped in Cmpt. 2903 and peat in Cmpt. 2913. Smaller bottoms are similar but have not been mapped. During the field mapping peat proved to be more widespread than indicated on the geological map.

The floodplain of the Moors River is mapped as alluvium.

Soils

The general pattern of the soils in the area is summarised by the Soil Survey of England & Wales (1983) soil association map and descried by Findlay et al (1984). The map shows that the Sollom 2 soil association dominates the area, but with a patch of Southampton soil association on plateau gravel in the far south and Shirrel Heath 1 soil association along the slope down to the Moors River. The floodplain of the Moors River within the study area is too narrow to be mapped but field observations suggest that it is dominated by clay rich alluvial gleys but with deep peat deposits in localised back swamps fed from inland aquifers. This would put the main floodplain soils closest to the Fladbury 1 Association that dominate the River Stour floodplain to the south but with the back swamps in the Islesham 1 Association.

- Sollom 2 (641b), this soil association dominates the site. It is developed in sandy Tertiary deposits. Gentle slopes have seasonally waterlogged Typical Gley Podzols, with better drained Humus and Humo-ferric Podsols on steeper slopes. Patches of clayish subsoil produce patches of seasonally water logged Stagnogley Podzols. Relic patches of plateau gravel supporting well drained podzols with reddish clay enriched subsoils (Paleo-argillic Podzols). Spring fed bottoms have seasonally waterlog shallow peat layers over sand (Typical Humic-sandy Gley Soils) and permanently waterlogged deeper peats (Raw Oligo-Amorphous Peat).

- Southampton (634), this is mapped on the small plateau gravel outcrop in the far south above Sopley Common. This association has dominant Paleo-argillic Podzols, well drained podzols with reddish clay enriched subsoils.

- Shirrel Heath 1 (631c), this is mapped as occupying a strip along the slope down to the Moors River. It probably also extends further south to the higher ground in the HRZ. The association covers areas where well drained sandy soils result in Humo-ferric Podsols being dominant.

- Islesham 1 (861a), this association dominates the floodplain of the Moors River north of Hurn Forest. This association covers large areas of bottomlands with

permanently high water tables in sandy soils, with peaty top soils or deep peat. At Hurn it covers the main mires and peaty back swamps along the eastern side of the Moors River Floodplain but is absent from the alluvial floodplain.

- Fladbury 1 (813b), this association is likely to be the main association within the floodplain within the study area. The soils here are mainly Pelo-alluvial Gley Soils. These are seasonally waterlogged soils on floodplains, with clay rich sub-soils. There are also Typical Alluvial Gley Soils without clay subsoils.

Topography

The study area occupies the floodplain of the Moors River and the higher land between the Moors River and Avon River. This was planed into terraces by the prehistoric Avon and Moors Rivers, which are marked by plateau gravel and sand deposits. The lower sandy terrace is prominent to the south but in this area only small fragments of the higher gravel terraces remain. The majority of the study area has a low relief with rise of only 8m from 10m to 18m in the north of the forest. The site is dominated by a level eroded plateau cut into by shallow valleys with a slightly more marked drop into the river floodplain.

To the far south there is more marked relief with a relic hill left between the Moors River and the River Avon at Sopley Common producing a 20m rise from the third terrace at 10m to the 30m high point on the hilltop. This is part of the dramatic heathland scarp rising above the River Avon floodplain and low terraces, which stretches south to Town Common.

Climate

Due to its location close to the south coast, Hurn Forest has a temperate climate with moderate variation in annual and daily temperatures. From 1981 to 2010 the annual mean temperature was 10 to 11 °C. The warmest months are July and August, which have an average temperature range of 12 to 22 °C, while the coolest months are January and February, which have an average temperature range of 1 to 8 °C. Average annual rainfall in Hurn Forest is around 800 mm, significantly below the national average of 1,126 millimetres. Since 1960, temperature extremes as measured at Hurn Airport have ranged from 34.1 °C in August 1990, down to −13.4 °C in January 1963 (Source: Royal Netherlands Meteorological Institute (KNMI), via Wikipedia). The lowest temperature recorded in recent years was −10.4 °C in December 2010. Climate data is shown in Table 4.1.

Table 4.1: Showing climate data from the Hurn Airport weather recording station:

Climate data for Hurn Airport (10m asl), 1981–2010 (record high/low from 1960-2010)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	14.7 (58.5)	15.3 (59.5)	21.0 (69.8)	25.0 (77)	27.6 (81.7)	33.8 (92.8)	33.9 (93)	34.1 (93.4)	27.9 (82.2)	25.2 (77.4)	17.6 (63.7)	16.0 (60.8)	34.1 (93.4)
Average high °C (°F)	8.4 (47.1)	8.5 (47.3)	11.0 (51.8)	13.5 (56.3)	17.0 (62.6)	19.8 (67.6)	22.1 (71.8)	22.0 (71.6)	19.3 (66.7)	15.3 (59.5)	11.5 (52.7)	8.7 (47.7)	14.76 (58.56)
Average low °C (°F)	1.5 (34.7)	1.2 (34.2)	2.7 (36.9)	3.8 (38.8)	7.2 (45)	9.8 (49.6)	11.9 (53.4)	11.6 (52.9)	9.4 (48.9)	7.1 (44.8)	3.7 (38.7)	1.6 (34.9)	5.96 (42.73)
Record low °C (°F)	−13.4 (7.9)	−10.9 (12.4)	−10.2 (13.6)	−5.7 (21.7)	−3.6 (25.5)	0.4 (32.7)	2.6 (36.7)	2.1 (35.8)	−1.4 (29.5)	−6.4 (20.5)	−9.6 (14.7)	−10.5 (13.1)	−13.4 (7.9)
Rainfall mm (inches)	86.9 (3.421)	62.5 (2.461)	64.7 (2.547)	53.9 (2.122)	49.5 (1.949)	51.6 (2.031)	47.8 (1.882)	51.8 (2.039)	65.3 (2.571)	100.7 (3.965)	100.5 (3.957)	100.0 (3.937)	835.2 (32.882)
Avg. rainy days	12.8	9.6	10.8	9.1	8.8	7.7	7.9	7.3	9.0	12.6	12.5	12.3	120.4
Avg monthly hrs of sunshine	66.5	84.5	121.4	185.1	218.5	229.5	232.0	214.6	159.1	115.2	80.1	60.3	1,766.8

Sources: UK Meteorological Office website and Wikipedia

5) Historic landscape and land-uses

Introduction

The following review of the areas landscape history was made mainly from easily available maps and from field interpretations and is not intended to be a detailed history of the area.

Methods

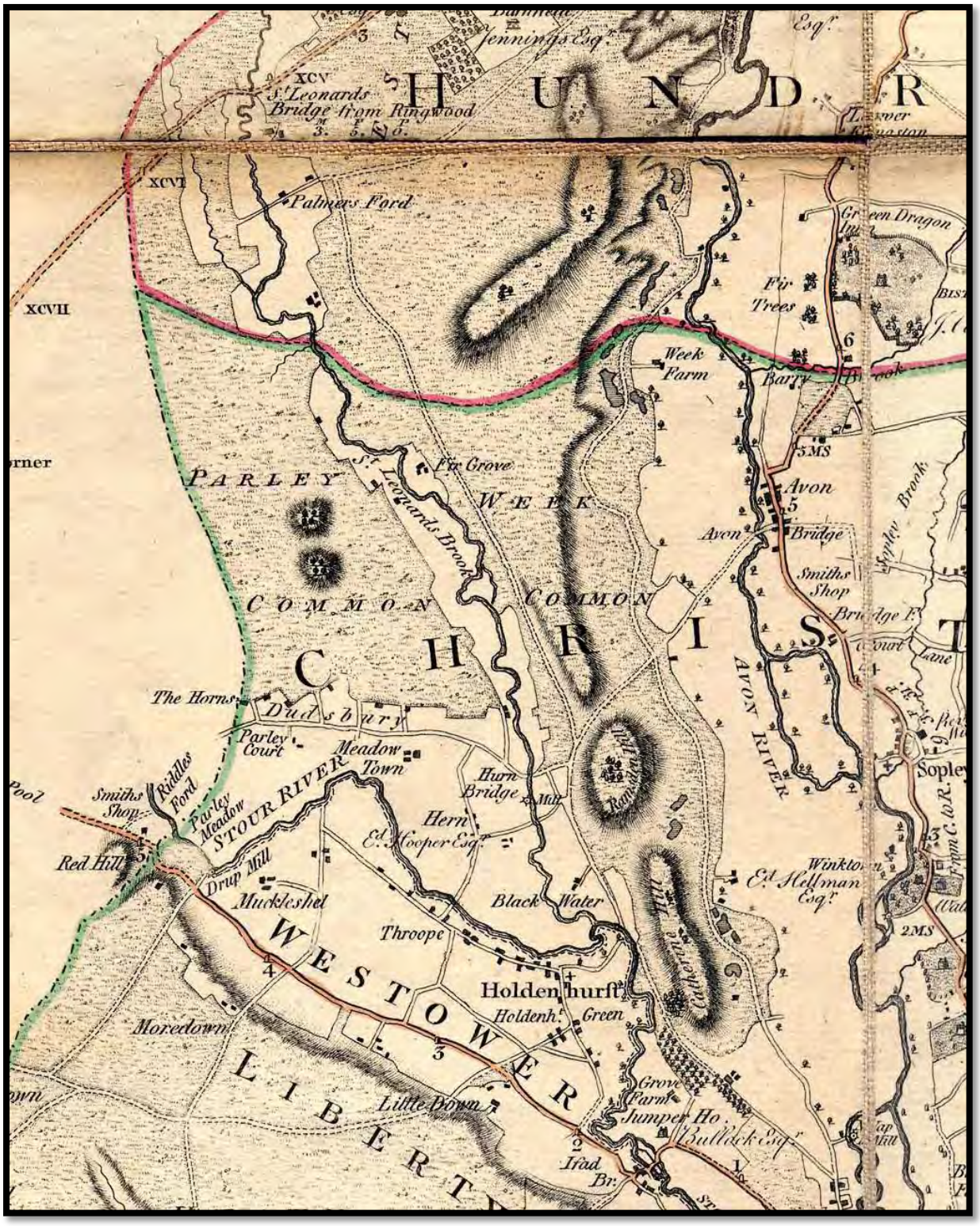
The landscape history is an outline assessed using readily available map sources and from field observations. A more detailed history would require more detailed research on original documents.

Sources

The following sources were used in addition to Maps 5-11 in subsequent pages:

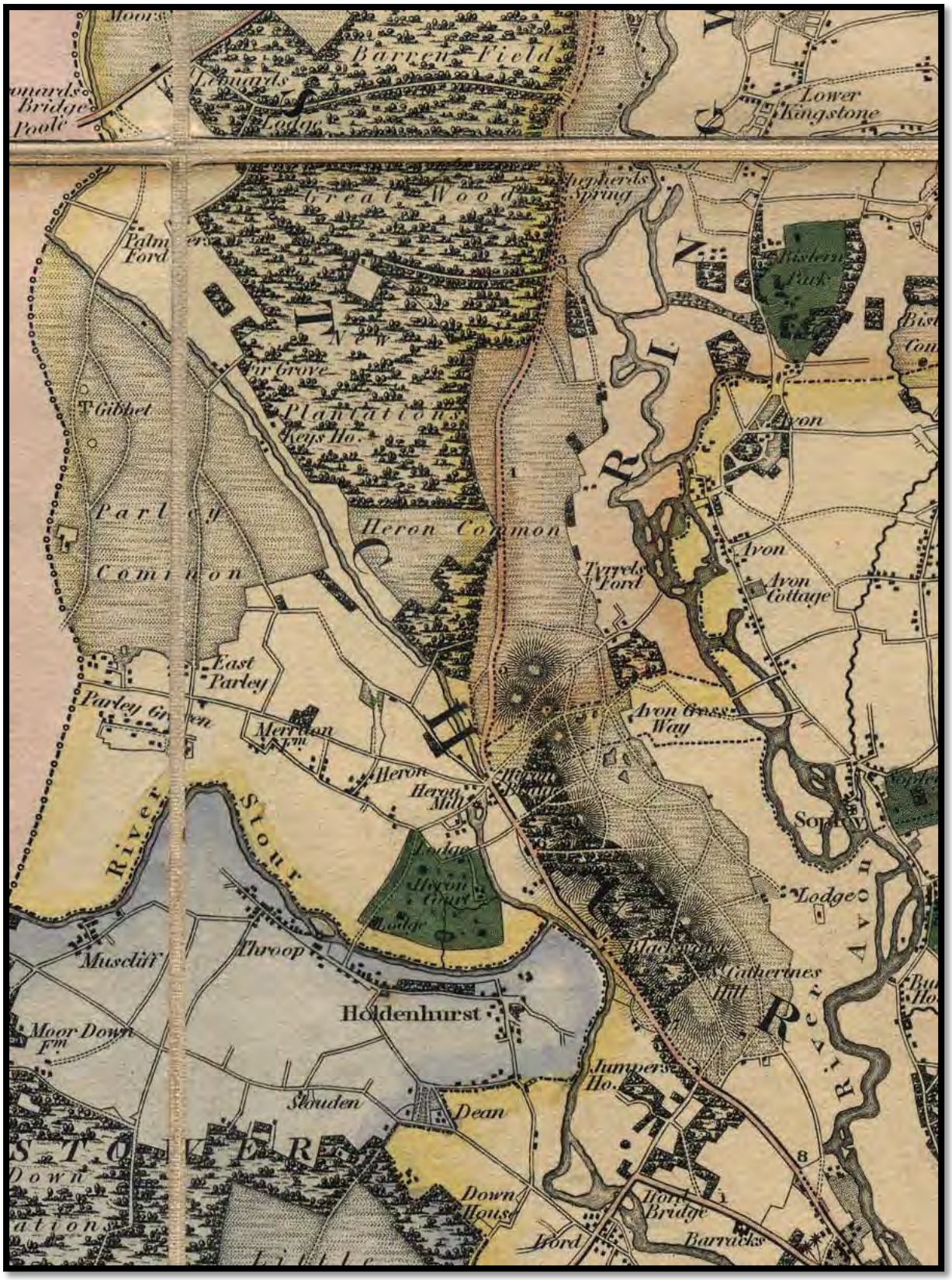
- A series of 6" Ordnance Survey Map 35NE dating from 1895 and 1907. Shows the north west of the study area.
- 1946 to 1947 Air photographs held by the Forestry Commission in the Queens House, Lyndhurst. An important set of air photographs showing the study area just before planting. They confirm the accuracy of the 1947 Ordnance Survey map.
- 1961 Air photographs held by the Forestry Commission in the Queens House, Lyndhurst. Shows the Forest after the main period of first planting.

The local floras (Brewis et al, 1996 and Woodhead, 1994) were searched for older records of plants. A brief examination of the library of the New Forest Centre was made, with the help of Richard Reeves, to search for information of New Forest Common rights applying to this area. Dates of enclosure acts were obtained from <http://hds.essex.ac.uk/em/first.html>.

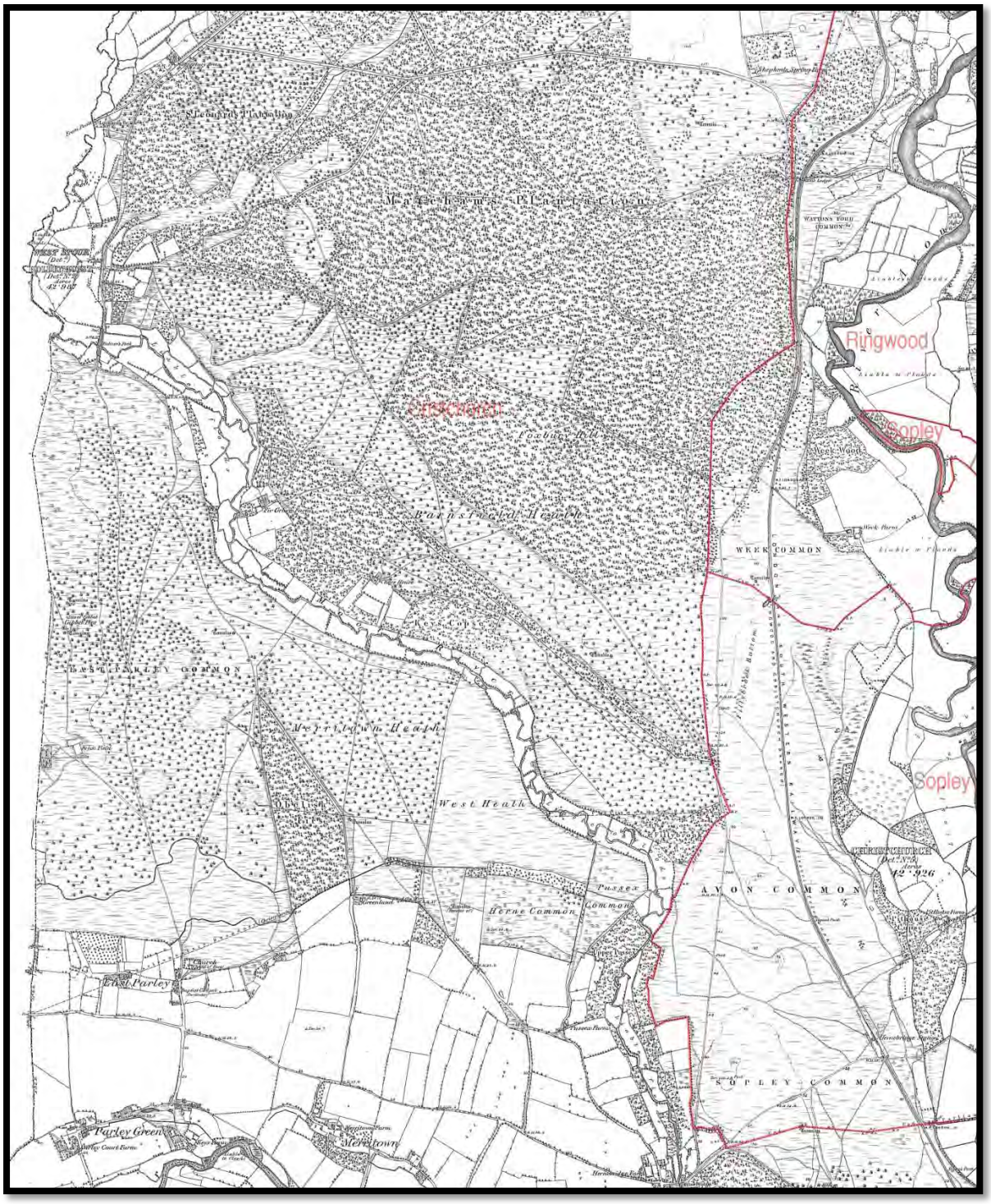


Milne's map of 1791 (**Map 5**), this shows the study area before large scale enclosure.

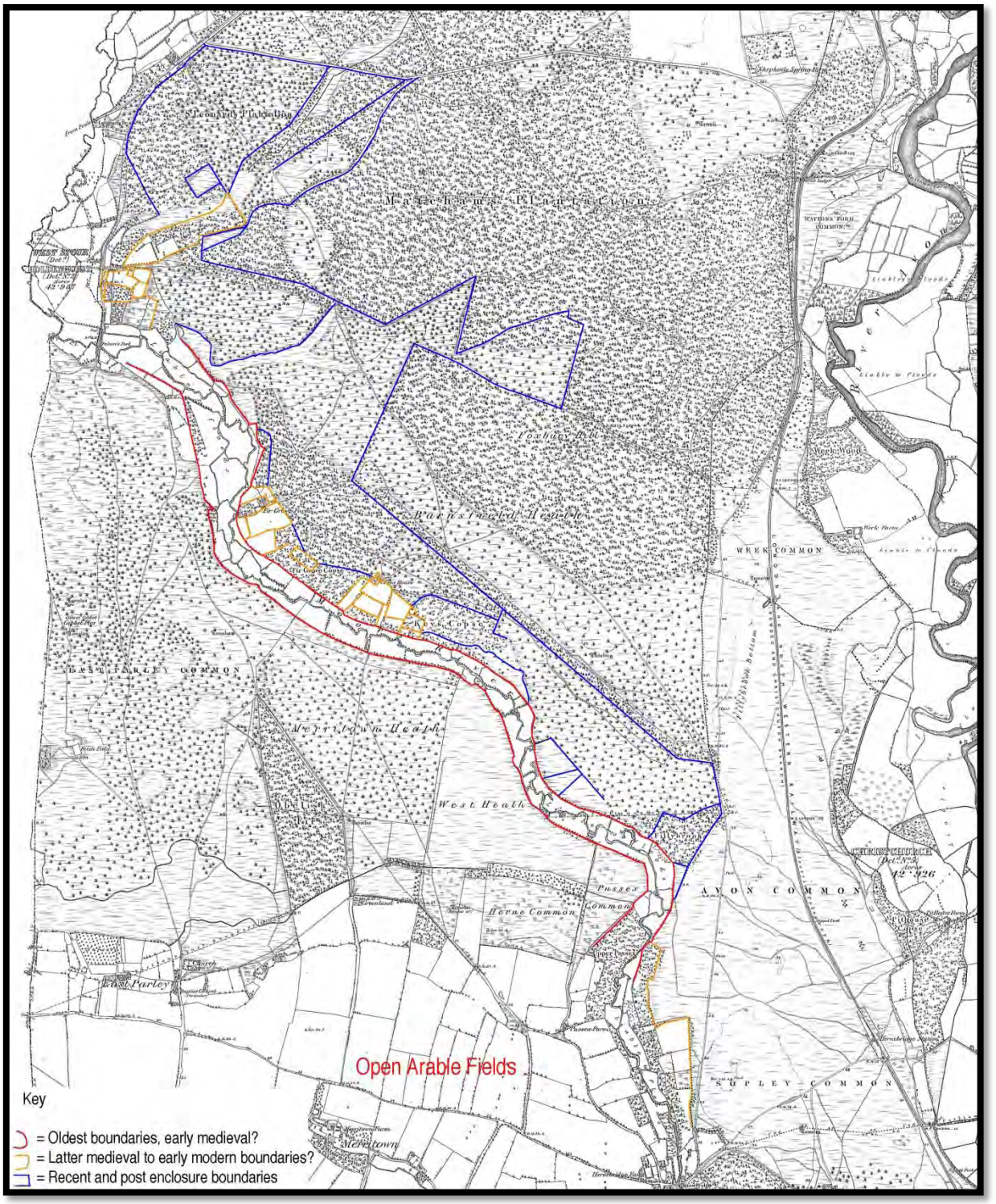
The 1805 Poole 2'' to 1 Mile and the Christchurch 1797 3'' to 1 Mile Ordnance Survey Drawings <www.collectbritain.co.uk/personalisation/osdmap.cfm>. These were used as the basis for the final engraving of the 1st series 1" Ordnance Survey maps. The bulk of the area is covered by the Poole drawing and is on the eastern edge of the sheet. A detailed map showing the whole of the area just as large scale enclosure was starting. As the area is covered two surveyors drawings, a reprint of the 1810 OS maps is reproduced here (**Map 6**) from < http://www.geog.port.ac.uk/webmap/hantsmap/ hantsmap/ hantsmap.htm >. This reprint differs from the early prints and the surveyor's drawings only in the latter addition of railways.



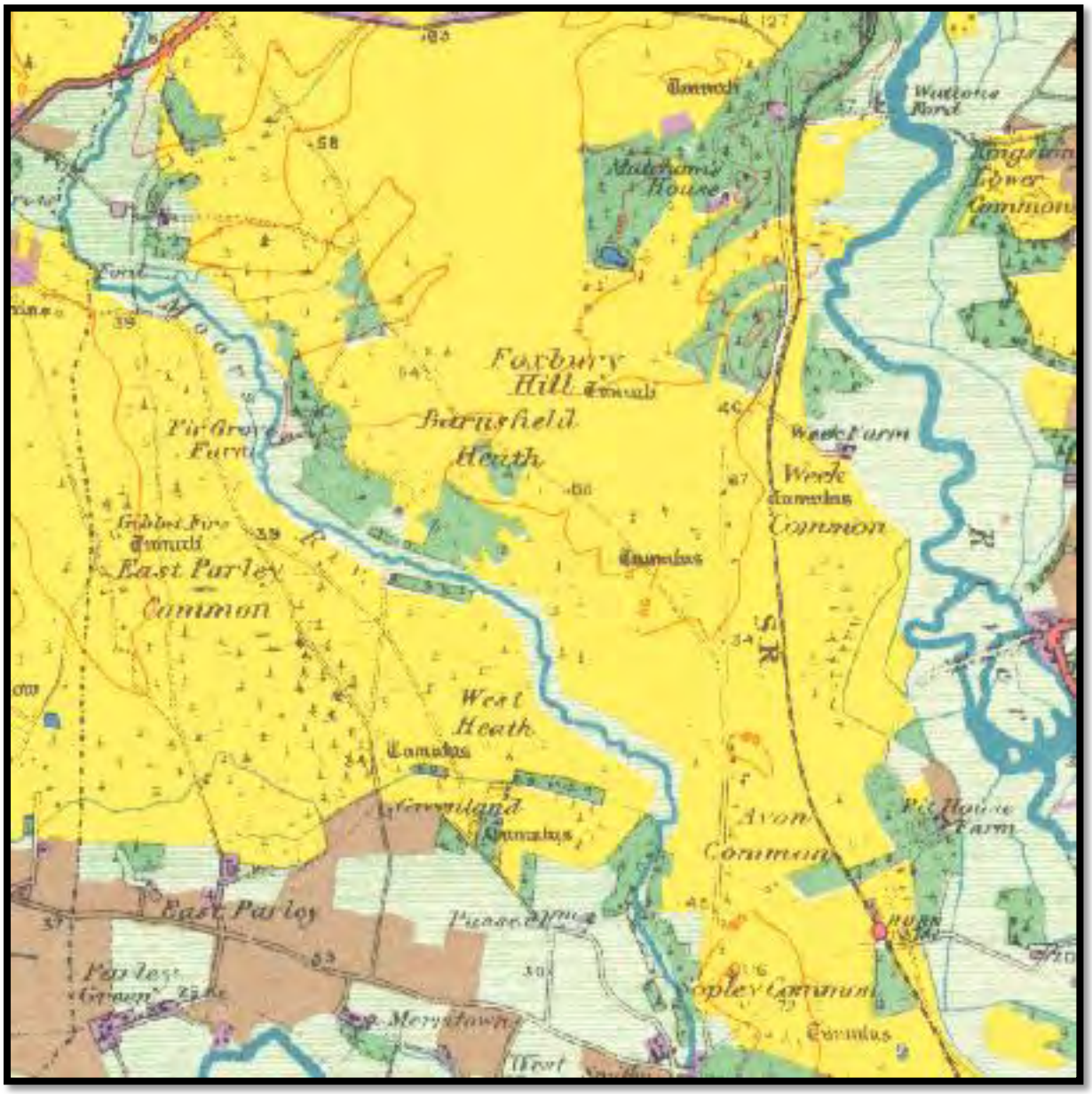
Greenwood's maps 1826 (**Map 7**), this shows the study area having under gone extensive enclosure to the north-west.



The first series 6" Hampshire Ordnance Survey Map of 1870 (**Map 8**) showing Parish boundaries in red. A very detailed map showing features such as the distribution of Gorse.

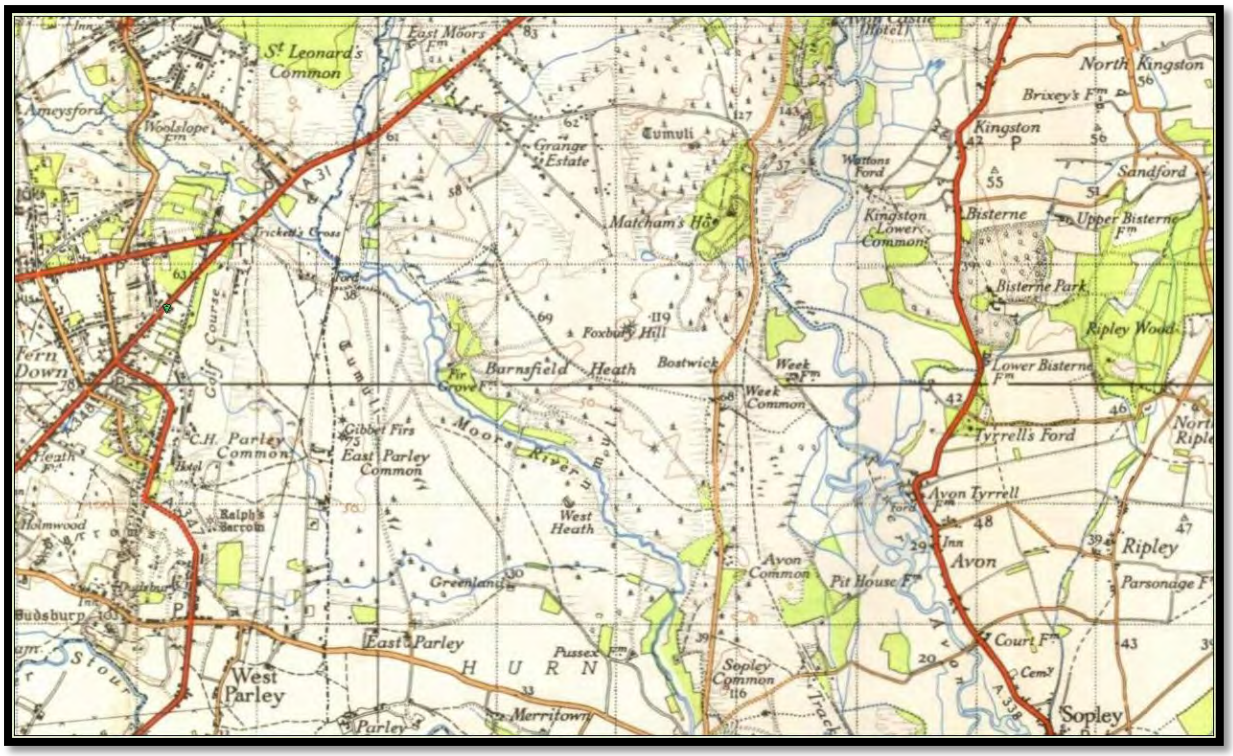


The first series 6" Hampshire Ordnance Survey Map of 1870 (**Map 9**) showing Enclosure History.



The 1930s Land Utilisation Map of Great Britain 10 Mile to One Inch and larger scale The Land Utilisation Survey of Great Britain are available on the internet <www.visionofbritain.org.uk/maps/map_lib_page.do> (**Map 10**). This shows the area before either the Forest Enterprise plantings or ribbon development on adjacent land.

Yellow = rough grazing, Green stripes = Enclosed grassland, Solid green = Woodland, Brown = Arable & Blue = Open water.



The 1947 One Inch to the Mile New Popular Ordnance Survey Maps are also available on the internet and show the area just before conifer planting began <www.visionofbritain.org.uk/maps/map_lib_page.do> (**Map 11**).

Medieval and Early Modern Landscape

The great heathlands of Dorset and the New Forest are the result of early, mainly Bronze Age, clearance and cultivation of acidic sandy soils (Tubbs, 2001); the area is characterised by hilltop Bronze Age barrows. This farmland appears to have been abandoned by the Iron Age and the heaths became huge areas of unenclosed rangeland utilised by communities settled on adjacent richer soils. This pattern can still be seen in the earliest accurate map of the area, the Milne's map of 1791 (**Map 5**), covering Hampshire, which the study area was part of until 1973. The slightly latter 1810 OS 1st series 1" Ordnance Survey (**Map 6**) shows both counties, although by then, some enclosure had commenced.

The bulk of the study area was part of a vast area of unenclosed heathland common stretching from just north of Christchurch in the south for 20km to Lopshill Common (Crendell Common) in the north (**Map 7**). It was generally about 3 to 5km wide to the north but began to narrow at the north of the study area and was about 1km wide by Sopley Common to the south of this area. This must have amounted to well over 40km^2 of common land. This block of heathland was separated from the heathland to the west by the anciently enclosed farmland along the Moors River and from the New Forest by the wider enclosed lands of the River Avon.

This vast area of heathland was managed by the communities situated along the edge. This will have mainly have been by rights of common, with each parish or manor having rights only to the area of heathland contained within its common. In practise none of the commons were separated by fencing and animals were free, as of right, to wander across the commons, although neighbouring commoners equally had the right to drive stray animals back (the right of vicinage). The area covered by the study area included the following parishes, as indicated by the earliest available edition of the 6" Ordnance Survey maps (**Map 8**), with the names of the pre-enclosure commons within the study area:

Old Hampshire:

Parish: Christchurch; much was probably originally called Hern Common (this name has now apparently been displaced west across the Moors River)

Sopley; Avon Common.

There have been suggestions that as late as the 1740's the Moors River floodplain was unenclosed and that this block of common was contiguous with the Horton and Parley blocks of heathland (Webb, 1986). This appears to be based on a misinterpretation of the very poor maps of Isaac Taylor. In fact the Moors River floodplain was anciently enclosed and much of it carries common rights over the New Forest. For this to have been accepted by the crown this land must have been enclosed before the beginning of the 17th century. To the south in the study area, however the enclosed floodplain is very narrow, only about 125m wide, so this is a minor point.

The situation in relation to New Forest Common rights was briefly followed up with Richard Reeves at the New Forest Centre Library, who proved a mine of information. This could be followed up in much more detail, including the exact boundaries of the manors involved. The basis of the New Forest common rights claimed along the Moors River at Hurn Forest is probably the 1670 claim of Forest rights by Sir Robert Jason for the manor of Hurn. This claimed Forest grazing for the period from the 3rd of May to the 14th of September and rights of mast. This claim of summer grazing was characteristic of manors in the River Stour area of Christchurch Parish and represents the typical right of the hay producing manors along this river and the River Avon in the medieval period. By the early modern period manors along the Avon had extended their claims to all year round grazing, but summer grazing survived into the 1670 claims along the Stour and Moors River. Mapping of the land on which Forest rights were accepted by the crown in 1852 shows most of the floodplain on the left bank and all the fields on higher ground at Fir Grove Farm and Keys House were accepted as carrying forest rights. By this time these were rights for all year round grazing. There are curious gaps with odd fields not having rights, this may just reflect the determined effort of the crown solicitors to reject as many rights as possible. In addition to this the western section of St Leonard's Peat North was also within an enclosure on which Forest rights were successfully claimed. Of particular interest was the Earl of Marlborough's New Forest Claims of 1852. This includes a claim for Fir Grove Farm. Tithe map numbers for each field are given, so it would be possible to map the field names and land uses given more time. The field names include quite a few 'Grounds' as 'Coppice Ground', Poor Ground' and 'Great Ground'. These are nearly all listed as arable and are presumably on the higher ground by Fir Grove and possibly Keys House. The other fields are listed as meadow; meaning hay meadow, pasture is listed separately as in Palmers Ford to the north, but there was no pasture on Fir Grove Farm. The meadows are mainly named 'Mead' or 'Cowleaze' as 'Great Cowleaze', 'Coppice Mead', 'Moors Mead' and 'Moors Cowleaze'. There are also meadows called 'Gold Withy', 'Island Meadow' and 'Hay Rick Meadow'. The use of coppice in names implies an adjacent long established woodland and moor adjacent peat bog. An annotation on the claim says that: "the late tenant Mr Soams used to send to the Forest, he occupied this farm many years – he died ? 4 years ?".

This hints at a particularly complex situation in this area in the medieval period with manors using both their own commons (less fertile?) and practising summer transhumance to the (more fertile?) New Forest. The aim of this may have been to maximise the production of hay from floodplains. It is notable that in 1852 Fir Grove Farm contained no enclosed pasture. Richard Reeves noted that hay producing land was especially short within the core parishes of the New Forest and that this may have a bearing on the distribution of outlying parishes with common rights. The latter are mainly those with large floodplains and a high capacity for hay production.

At the southern end of these extensive heathlands enclosure patterns (**Maps 8 & 9**) indicate that the earliest enclosures were mainly on those parts of the 4th and 5th terraces closest to

the main river floodplains of the Avon and Stour, beyond the study area. Field patterns of long narrow fields suggest that open fields (common arable fields) were widespread on these terraces. The floodplain enclosures were likely to be very early as well. Probably younger than this are more rectangular fields and woods on the edge of the heaths. These are still often old as they have veteran trees on their banks and carry Forest rights.

Within the study area there is a clear indication of a large scale organised enclosure of the Moors River floodplain. An outer boundary bank snakes along the length of the floodplain margin, which, when it encounters back swamp mires normally carefully excludes the peat deposits leaving them on the commons. This enclosure is likely to be medieval in date and may be very early. The careful avoidance of the peat moors is interesting. 1946 air photos clearly show signs of extensive peat cutting on these mires. On the New Forest at least, peat cuttings are thought to be medieval in date and to have been abandoned long before the early modern period (Tubbs, 2001).

Also within the study area, there are several areas of later rectangular enclosures, at the site of Keys House, Fir Grove Farm and around Palmer's Ford. The first two look fairly organised and are likely to represent 'official' encroachments on Hurn Common, establishing farms to manage the adjacent valuable floodplain hay fields. These are likely to be quite old, potentially medieval as well. The enclosures east of Palmer's Ford are more irregular and likely to be early modern squatter settlements. Field names with 'coppice' and indications of small enclosed woods by Fir Grove Farm on the 1811 OS Map (**Map 6**) suggest that there were small coppices near the houses but the exact location of these is obscured by 19th Century enclosures and plantings. They probably included the existing Oak stands below Key House. These are on podzols so were presumably enclosed from heathland at some time.

On the heathlands both Milne (1791) and the First Series OS Map (1811) (**Maps 5** & **6**) both show the ponds developed in ancient windblow hollows along the edge of the Avon floodplain as far north as Week Common. The few clumps of trees shown on hill tops on Milne adjacent to the study area are probably ornamental 18th century Scots pine clumps.

In summary, by the late 18th century the bulk of the study area was part of a series vast heathland commons, centred on very infertile podzol dominated soils that defied productive cultivation. The commons included sizable peat cuttings in mires along the margin of the Moors River floodplain. The western edge of the study area, however, extends into ancient enclosures along the Moors River, the floodplain of which supported valuable hay meadows. These enclosures include probably early medieval enclosures for hay on the floodplain and latter medieval or early modern enclosures for small farms on the slopes above the floodplain. The lower section of St Leonard's Peat North was also enclosed on the edge of an apparent squatter settlement at Palmer's Ford.

Enclosure

By the end of the 18th century advances in agricultural technology made large scale cultivation of heathland soils appear more possible. Also the introduction of Scots Pine provided early silviculturalists with a tree that could produce economic crops from podzols. In addition, commons were seen by landowners as archaic institutions that were an obstacle to progress. In combination this produced the enclosure movement, which had swept through England since the 18th century. Earlier enclosures concentrated on open arable fields and commons on more fertile soils, but high agricultural prices during the Napoleonic wars lead to a massive wave of enclosure across even the most infertile heathland commons from the 1790s to the 1810s. This often went further than agricultural common sense would dictate; although most of the Dorset Heaths lost their common rights in this period (Kerr, 1968), they proved not to be worth cultivating and most remained heathland or were planted with pine. This was especially so as agricultural prices dropped after Napoleonic wars.

The 1791 Milne Map (**Map 5**) shows the heaths as unenclosed but by 1870 (**Map 8**) all the commons in the parish of Christchurch within the study area were enclosed. Within Sopley parish, Avon Common and Sopley Common were still open. The web site 'The Enclosure Maps of England and Wales' <hds.essex.ac.uk/em/first.html> indicates that Hampshire Records Office holds enclosure awards and maps dated 1805, 1811, 1827 and 1876 for Christchurch and 1866 for Sopley Common. Consulting these and the relevant tithe maps, would give more detail on the sequence of enclosure within the study area. The Sopley Enclosure Act did not appear to have been applied by 1870. This late enclosure, presumably left the common south of the study area open, as this is now registered common land as Sopley Common, however, Avon Common has been enclosed.

19th and Early 20th Centuries

Unlike surrounding heathlands, those between the study area and the A31, within Christchurch Parish, were much changed by enclosure. In other areas of enclosed heathland in the vicinity, most survived as open heath, or reverted after a short period of cultivations, with a few small plantations created. South and east of St Leonard's afforestation with conifers was extensive, starting between 1791 and 1811 (**Maps 5** & **6**) and by 1826 dominated the landscape (**Map 7**). The detailed 1870 map (**Map 8**) shows the small remaining areas of heathland are depicted as covered by scattered, presumably self sown, conifers. The only treeless areas of former common shown in 1870 are the mires, with the exception of the Fillybrook mire, which was within a plantation.

A notable feature of the unplanted heaths, as mapped in 1870 (**Map 8**), was the rarity of Gorse. This is still the case.

The vegetation history of the general area south and east of St Leonard's after 1870 is quite startling. Later 6" OS maps of the north west of the study area show a marked decrease in tree cover in 1895 and 1907. Even more startling are the 1930's Land Utilisation Survey of Great Britain (**Map 10**) and One Inch to the Mile New Popular Ordnance Survey Map (**Map 11**) published in 1948, which show much of the area had reverted to heathland. On the latter, woodland is recorded as surviving mainly at Fir Grove Copse, to the north of Fir Grove Farm, the south west of Keys Copse and at Fillybrook to the south. With the exception of Fillybrook, all the mires are shown as treeless. A suggested mechanism for this deforestation is the 1862 Ringwood to Christchurch railway, which closed in 1935. Fires caused by the steam trains will have cause forest fires, which would destroy the plantations and prevent replanting.

The thorough disappearance of plantation shown on the 19th and early 20th century maps is more than confirmed by the 1946 air photographs. These show huge stretches of treeless heath. The mires in particular are spectacular, with intricate surface patterning visible, probably reflecting old medieval peat diggings and very few trees beyond Fillybrook and small mires within Fire Grove Copse. Even at Fillybrook, most of the western section of the mire appears only partly wooded, with the original plantation having mainly failed. In the larger mires, trees were otherwise confined to:

- Only the far west of the Key Copse mire.
- In the smaller mire south of St Leonard's Peat South, the area of deep wet peat was tree free but woodland was well developed on the drier peat in the west.
- A very thin strip in the far west of St Leonard's Peat South.

- A couple of patches in the centre and far east of St Leonard's Peat North are wooded.

The survival of visible surface patterning on the mires is suggestive that extensive grazing still was still occurring. The more productive floodplain mires will have certain rapidly overgrown with coarse vegetation and trees if they had not been grazed. What is certain is that there was a sizable heathland paddock (Cmpt. 2920) and a grazed settlement edge green with converging stock tracks by and east of Fir Grove Farm. This latter area was certainly still grazed in 1946.

The 1946 air photographs show the floodplain as much more open at this time as well, especially to the south. Field notes from Norman Moor held by Natural England at Slepe Farm from the 1940s indicate a fairly open floodplain with rough grazing, including open Moorgrass *Molinia* grasslands, dominating the floodplain. The latter could refer to the open mires off the anciently enclosed floodplain but could also imply *Molinia* grassland within enclosed floodplain. Certainly his description is of a very different, and much less improved, floodplain grassland habitat than occurs over much of the farmed floodplain now (D. Kite, pers. com.).

As the study area is within old Hampshire, the area was not covered by Professor Good's 1930s plot sampling in Dorset. There is in fact a complete lack of localised old plant records from the study area; it was just a small area of heathland within a vast spread of heathland. The star species of the site, Gingerbread Sedge *Carex elongata* (NS), was not even recorded until 1985. Woodhead (1994), however, does describe many species as being recorded as widespread in the Christchurch area in 1883 and 1900 floras but had become rare by the 1990s. These include *Carex rostrata* (HN), *Carex vesicaria* (HN), *Eleogiton fluitans*, *Filago vulgaris* (NT), *Hypericum elodes*, *Lycopodiella inundata* (EN), *Orchis morio* (NT), *Ranunculus omiophyllus*, *Potentilla palustris* (HN), *Rhynchospora fusca* (NS), *Salix repens*, *Scutellaria minor* and *Valeriana dioica* all of which have been recorded within the study area since the 1980s. These are a mixture of heathland and floodplain species. The only rare species recorded from the study area, that appear to have increased since the end of the 19th century are *Crassula tillaea* (NS), *Illecebrum verticillatum* (VU) and *Parentucellia viscosa* (HN). All of the latter are probably responding to the current climatic warming.

Other species will have occurred within the Study Area and been lost without record. Two strong possibilities are Marsh Gentian *Gentiana pneumonanthe* (NS) and Slender Cottongrass *Eriophorum gracile* (NT). The former had a large population on East Parley Common, west of the airport and reaching to within a few hundreds meters of Forestry Commission land, which had been completely lost to conversion of heathland into improved grassland in the 1970s; the last record was of a single plant in an unploughed fragment in 1991. This species may have occurred in Wet Heath on the margins of the mires within the study area. The nationally rare *Eriophorum gracile*, is a species confined to transitions between base rich and base poor mires which has declined catastrophically in the 20th

century. It is assessed now as a Near Threatened Red Data Book species, rather than a higher threat category, as the few remaining sites (four in England) are all under appropriate management. This had two old sites recorded from just outside of the study area. The best known was at Avon Peat, in the section of Forest Enterprise land excluded from this study area (just to the east of the main A338) on the margin of the Avon floodplain. Here it occurred in the transition between floodplain mire and acid valley mire, where it was recorded by Linton in 1905 and later by Mr J. E. Lousley before 1956. Searches in 1978 by R P Bowman failed to re-find it (Winship, 1994 & Hants Plants < www.hantsplants.org.uk/ >). The 1961 air photographs show this mire to have been treeless at this date. The transition zone is now entirely covered by trees. A second record was made by G Gent in 1965 at SU105 026 just north of the A31 (Winship, 1994). This appears to have been in the next valley mire feeding into the Moors River floodplain north of St Leonard's Peat North. The site has since been thoroughly destroyed by land filling.

Mid to Late 20th Century

The first indication of the major changes of the 20th century, which were to alter the landscape of the wider area more than enclosures, was the ribbon development of the Grange Estate between the 1930 land use survey and the 1946 air photographs. Since then there has been considerable suburban and military development to the east of the study area. This has a direct effect on the area in the form of water pollution from surface run off from both areas.

Within the study area the Forestry Commission acquired the land in 1952 and planted up much of the area between 1952 and 1959. The main crops were Corsican and Scots Pine but with Sitka Spruce, Douglas Fir, Japanese Larch and Western Hemlock also planted. The deep peat areas in the main mire complexes were mostly not planted, or drained, but shallow peat areas at the heads of the valley mires were frequently ploughed and planted with conifers. The Height Restriction Zone (HRZ) east of Hurn Airport and the grazed heathland paddock east of Fir Grove Farm (Cmpt. 2920) remained open heathland

The 1961 air photographs give an overview of the condition of the study area at the end of the main planting phase. The main open mires already show some tree colonisation:

- The numbers of trees on St Leonard's Peat North was increasing.
- Scattered trees had colonised St Leonard's Peat South as far as the junction of the two upper arms but the mire was still mainly open

- In the mire complex east of Keys Copse, the eastern half of the floodplain mire had become densely wooded but the rest of the unplanted section of system were still open.
- The open area in the south west of Fillybrook was still open, while some tree colonisation had begun along the inner edge of the adjacent main floodplain here.

The grazed heathland paddock east of Fir Grove Farm (Cmpt. 2920) remained open heathland and was still open in 1961 but the stock maps indicate that it was planted with conifers in 1963. The upper sections of St Leonard's Peat South were planted with trees but these were lost to wildfire in 1976. The dense growth of Birch and Sallow on this mire dates from regowth after 1976 on both the planted and unplanted mire. All other areas of open mire were also lost to tree colonisation since 1961.

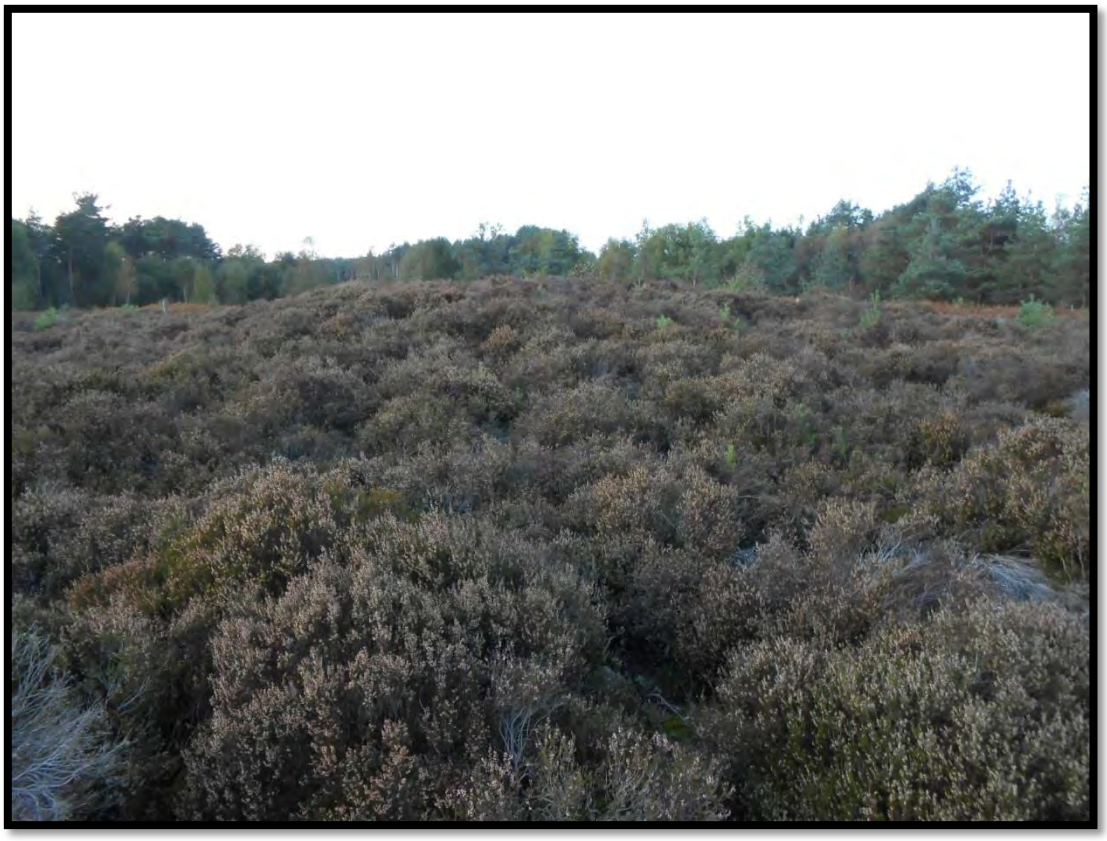
The valley mires of St Leonard's Peat North and St Leonard's Peat South and the Height Restriction Zone had long been leased to first the Hampshire Naturalist Trust and after 1973 to the Dorset Wildlife Trust as nature reserves. These resulted in a great deal of recording and small scale conservation management, such as the creation and maintenance of the open ponds in St Leonard's Peat South. The latter has maintained a number of species that would otherwise be extinct locally such as the Bladderwort *Utricularia australis*. On the other hand the reserves resulted in no large scale conservation work, for example about 10ha of open mire vegetation completely disappeared from St Leonard's Peat South during this period. The lease of the nature reserves has expired and was not renewed, as the Forestry Commission wished to take conservation management back in house.

The Forestry Commission has already started a programme of heathland restoration with sizable area of dry heath restored in the south of the study area.

Management of historical features

There is one Scheduled Ancient Monument within the plan area, lying adjacent to Barnsfield Heath. There are a further nine unscheduled monuments within Hurn Forest and all are Bronze Age Barrows (funeral monuments).

The Forestry Commission has prepared and maintains management plans for all Scheduled Ancient Monuments on their land, and these are approved by English Heritage. The Unscheduled Ancient Monuments are afforded the same protection as scheduled monuments and will be managed to establish shallow rooted cover in an open heathland setting.



The above photograph shows the slightly domed nature of a barrow covered in heather (vegetation cover that protects the feature from surface erosion, but does not cause significant root damage).

6) Ecological context

The Conservation Resource

By the end of the 20th Century the former continuous blocks of heathland and floodplain habitat, of which the study area was part, had been broken up by conversion to plantation and more intensive farmland and by urban development. Surviving areas of conservation interest have been designated at a national and international level, and so are afforded protection through wildlife policy and legislation.

For the purposes of this document it is useful first to consider the remnant habitats across the landscape before the detail of that which resides within the designated sites.

Heathland

To the north and south, the study area is closely connected to surviving heathland habitats. To the north the SSSI/SAC/SPA heathland of Barnsfield Heath abuts a large section of the north eastern boundary of the study area. This itself is closely connected to heathland at Avon Heath County Park, Matchams and Week Common. There are also areas of species rich acid grasslands in more heavily altered areas of ex-heathland at St Leonard's Hospital, Matchams and Grange Estate not included with SSSIs. Heaths to the north of the A31 are separated by this road and a wide band of urban development at St Ives.

To the south, the Height Restriction Zone is contiguous with the SSSI/SAC/SPA heathland Sopley Common. This is split by the dual carriageway of the A338, which will isolate the area to the south for some ground dispersed species but many air dispersed species will not be so strongly effected. To the south of the road there is the large heathland of Town Common. To the east of the road there is also the remains of a transition between heathland valley mire and flood plan mire at Avon Peat, similar to those at St Leonard's Peats (partly SSSI, partly SNCI).

To the west and north west, conversion to farmland and urban development has strongly isolated most of the relics of the former heath to the west of the Moors River, from each other and from the study area. The exception of the remains of Merritown Heath and West Heath (now mis-named Hurn Heath) north of the airport. This is separated by the floodplain of the Moors River from the study area. However, for air dispersed heathland species, this heath is closer to the surviving heathland east of the Moors River than to the formerly contiguous heathland of West Parley Common.

Together these form a block of loosely interconnected heathland habitat extending from St Leonard's Hospital and Avon Heath Country Park in the north to the south of Town Common. Within the study area existing restoration in Cmpt. 8427 to Cmpt. 8430 has

strengthened the linkage between Bransfield Heath, Merritown Heath/West Heath and the Height Restriction Zone.

The whole block shows the same split between the north west and south east, seen in the study area. The more unusual landscapes to the south east include windblown sand features such as the acidic wetlands in basins formed by blowouts and inland sand dune vegetation. The latter appear unique features in the context of the Poole and Hampshire Basin heathlands. As well as the Dry and Wet Heaths, and the associated birds, reptiles, lichens and invertebrates, the heathland habitat within the block is noted as a major Parched Acid Grassland site in a national context (Sanderson, 1998). This includes very rich examples of typical Poole/Hampshire Basins Acid Grasslands (U1f predominant) in the south of Avon Country Park, St Leonard's Hospital and at Matchams. In contrast drier grasslands (U1b, U1a) and inland sand dune communities (U1c, SD11, SD12) are found on the sandy Avon lower terraces. The latter includes some Hampshire sites on the east bank of the Avon. As is not untypical, of the Dorset Heaths (Sanderson, 1998), several very rich grasslands, including Crabs Field within the study area, are excluded from the SSSIs.

Finally the heathland valley bog to floodplain fen transitions along the fringe of the Moors River and Avon River floodplains are very rare features. These are much damaged by the colonisation of trees since the 1940s but appear unmatched elsewhere in the region.

Moors River

Whilst the study area includes a section of the lower floodplain of the Moors River. Obviously the actual river still forms a strong corridor through the site, although river water quality has changed in the last half century, with increased qualities of chalk water from treated sewage, and tree cover increasing along the riverbanks. In contrast the floodplain vegetation has suffered much more than the heathlands, with nearly all the hay meadows converted to improved grassland and the marginal floodplain fens colonised by trees. The latter were always patchily distributed but the hay meadows once extended continuously for 13km from the junction with the River Stour to Potterne (**Map 6**). As such the small amounts of surviving unimproved floodplain grassland is severely fragmented for any sensitive species that require species rich unimproved grassland or undrained wet grassland. Fragmentary surviving grassland suggests there was a graduation from fairly conventional combinations of fen meadow (M23a) and drier hay meadow (MG5) in the study area, to *Molinia* dominated acid floodplain fen meadows with Marsh Gentian *Gentiana pneumonanthe* further north. **The latter has equivalents in the Netherlands but no other examples are known in Britain.**

Designated sites of conservation importance

In and around Hurn Forest are sites which are designated as being of:

International Importance – Natura 2000 sites (Special Protection Area for Birds [SPA], Special Area of Conservation [SAC], and Ramsar). (**Map 12**)

National Importance – described as Sites of Special Scientific Interest (SSSI). (**Map 13**)

County Importance – described as Sites of Nature Conservation Interest (SNCI). (**Map 14**)

The designated sites in the local area cover a broad range of habitat types including rivers and their floodplains, wet woodland, mire grassland and heathlands.

Special Protection Area (SPA)

The Dorset Heathlands SPA has been notified for breeding European Nightjar (12.8% of GB population), Wood Lark (6.8% of GB population) and Dartford Warbler (26.1% of GB population) and for wintering Hen Harrier and Merlin.

The component SSSIs include Town Common SSSI within the study area and Hurn, Parley, St. Leonards and St. Ives Heaths SSSIs immediately adjacent. St. Leonards and St. Ives Heaths SSSI was extended into the study area after the notification of the SPA, the extension includes SPA qualifying species but is not within the SPA.

The vulnerability statement given in the Natura 2000 statement is:

> The Dorset Heathlands have become a fragmented heathland area through extensive losses to agriculture, forestry and urban development. In recent years these land use changes have been almost halted through changes in national and local policy. However, the scale of previous fragmentation and development has left a number of adverse pressures and many heaths in or near urban areas suffer recreational use pressure and a high incidence of wildfires, and are sometimes also disturbed by infrastructure works.
>
> The heaths are affected by several old mineral extraction permissions, some still active. These will require review under the Habitats Regulations to ensure no adverse effect on integrity. Agreement has already been reached on drawing back the possible working of some permissions. In and around the urban areas there are now well established initiatives to manage and contain recreation uses, and to more effectively control the occurrence and spread of fires. At two

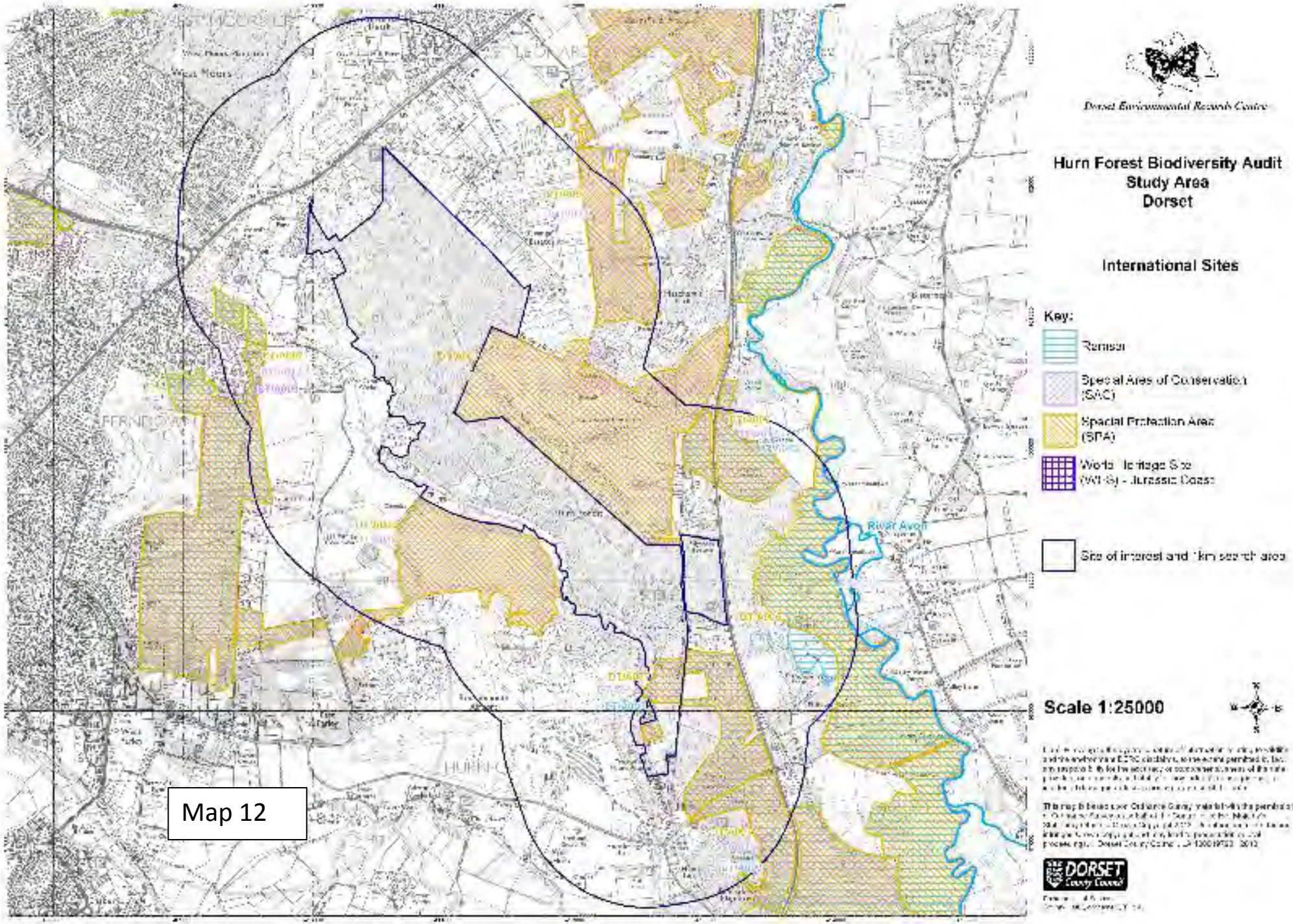
old waste sites within the Heathlands leaching has occurred. This has been addressed through re-capping.

The decline in use for traditional agriculture has resulted in a successional trend to scrub and woodland together with invasion by conifer and introduced scrub species, especially Rhododendron. Financial support schemes and management initiatives, which aid the removal of scrub and encourage the re-establishment of traditional management in the form of extensive grazing, now cover much of the heath area. About 43% of the site is now held as National Nature Reserves, Local Nature Reserves and non-statutory nature reserves.

Fragmentation has increased edge and patch size effects on the heathland ecology. This is being addressed through re-creation projects to expand and link heath fragments by removing areas of conifer plantation and converting some agricultural land back to heathland.

Hurn Forest supports strong populations of some of the species for which the Dorset heathlands SPA is designated, in particular breeding nightjar and resident Dartford warbler. Woodlark has bred in Hurn Forest in recent years, although only one pair was recorded on the edge of the Forest in the 2013 season.

Dartford Warbler (left) and Nightjar (below)


Dorset Environmental Records Centre
Hurn Forest Biodiversity Audit
Study Area
Dorset
International Sites
Key:
Ramsar
Special Area of Conservation (SAC)
Special Protection Area (SPA)
World Heritage Site (WHS) - Jurassic Coast
Site of interest and 1km search area
River Avon
Scale 1:25000
DORSET County Council
Map 12

Special Areas for Conservation (SAC)

Dorset Heaths SAC has been notified for the following Annex 1 habitats (habitats categorised as being of European importance):

4010 Northern Atlantic wet heaths with Erica tetralix: for which this is considered to be one of the best areas in the United Kingdom.

4030 European dry heaths: for which this is considered to be one of the best areas in the United Kingdom.

6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*): for which the area is considered to support a significant presence.

7150 Depressions on peat substrates of the *Rhynchosporion*: for which this is considered to be one of the best areas in the United Kingdom.

7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*: for which the area is considered to support a significant presence.

7230 Alkaline fens: for which the area is considered to support a significant presence.

9190 Old acidophilous oak woods with *Quercus robur* on sandy plains: for which the area is considered to support a significant presence.

Annex 2 species listed are:

Southern Damselfly *Coenagrion mercuriale*: for which this is considered to be one of the best areas in the United Kingdom.

Great Crested Newt *Triturus cristatus*: for which the area is considered to support a significant presence.

The component SSSIs include Town Common SSSI within the study area and Hurn, Parley, St. Leonards and St. Ives Heaths SSSIs immediately adjacent. St. Leonards and St. Ives Heaths SSSI was extended into the study area after the notification of the SAC, the extension includes SAC qualifying habitats, although the extension is outside of the SAC.

The vulnerability statement given in the Natura 2000 statement is the same as the one given for the SPA.

The study area occupies a central position with the SAC heaths south of the A31 in the far east of the Dorset heaths but is largely not included within the SAC.

Dorset Heaths SAC directly abuts on to The Dorset Heaths (Purbeck and Wareham) and Studland Dunes SAC, which was notified separately as this area included priority Annex 1 habitats including Bog Woodland.

In addition the New Forest SAC, 5.5 kilometres to the east, also shares a similar range of heathland habitats (**Map 12**).

The Avon River SAC also passes within 1km of the study area to the east; this has been notified for riverine habitats not found in the study area.

Town Common SSSI within the study area includes high quality examples of European dry heath (H2a, H2c & H1d/H11) and Northern Atlantic wet heaths with Erica tetralix (M16a). There are also fragments of Depressions on peat substrates of the *Rhynchosporion* (M16c), but the decline in quality of the latter is illustrated by the total loss of *Lycopodiella inundatum* (EN NS) from the heaths south of the A31 (last seen 1990 from within the study area) and the loss of *Rhynchospora fusca* from the study area (last recorded from the Height Restriction Zone in 1971). More productive Northern Atlantic wet heaths with Erica tetralix (M16b) have been lost to *Molinia* overgrowth (M25a).

Within Hurn Forest but beyond the SAC boundary, several of these Annex 1 habitats occur in relic or recently restored heathland. Some of the latter is extensive and has been notified as SSSI after the notification of the SAC. Within these high quality European dry heath (H2c) has survived or been produced. Some fragmentary Northern Atlantic wet heaths with Erica tetralix (M16a) survives on rides but within restored areas only poor quality *Molinia* dominated wet heath (M25a) has been restored. The latter probably reflects lack of grazing.

It appears likely that *Molinia* meadows (M24) once occurred with the mire complexes draining down into the Moors River. However, these are degraded to such an extent that one of the key species for identifying core communities within this Annex 1 habitat, *Cirsium dissectum*, appears to be extinct within the study area. Originally qualifying *Molinia* Grasslands (M24c & M25b) probably occurred at the head of the mires on shallow peat soils. In addition qualifying *Molinia* Fen (M24a & M25c) probably occurred where acid valley bog water mixed with more enriched river floodwater at the inner edges of the floodplain fens. The loss of this habitat is due to the colonisation or planting of trees after the removal of grazing. Drainage does not appear to have been significant.

The 19th century Oak plantations fringing the Moors River are developing towards the Annex 1 habitat Old acidophilous oak woods, as at Fir Grove Copse. With Rhododendron removal, limited intervention and the elapse of a few hundred years these will become ancient old growth woodlands.

Other than the Annex 1 habitats listed for the Dorset Heaths SAC, two European habitats may occur within the study area and another may have once occurred. Old records of *Eriophorum gracile* from similar nearby valley bog/floodplain fen transitions and the current survival of species such as *Carex rostrata*, *Potentilla palustris*, *Carex curta* and *Utricularia australis* with St Leonard's Peat South suggests that important examples of 7140 Transition mires and quaking bogs once occurred in the neighbourhood. They are most likely to have occurred in St Leonard's Peat South within the study area and Avon Peat just east of the study area. This habitat has been lost by the colonisation of trees due to the lack of grazing. Drainage does not seen to have been factor in the latter two sites.

The Bog Woodlands (W4b) that have colonised the original open mires are potentially referable to the priority habitat 91D0 Bog woodland. This is not normally taken to apply to recent secondary examples of this vegetation, especially if these have spread as a result of interference with the hydrology (Sanderson, 2004a). Most of the examples on deep peat within the study area have not spread as a result of drainage but due to the loss of grazing, compounded by the after effects of wild fires, but are very recent (post 1946). The oldest stands in Fir Grove Copse, however, are more than 150 years old and are beginning to accumulate the characteristics of ancient Bog woodland. If left long enough then the recent Bog Woodlands would develop similar biodiversity interest to ancient Bog Woodlands.

In a recent report on the European context of British grasslands Rodwell et al (2007) discuss the definition of the Annex 1 habitat 2330 Inland dunes. They point out that JNCC's definition of the Annex 1 habitat in Britain, as only grasslands with the grass *Corynephorus canescens*, is at variance with the definitions used in Europe. Even the standard interpretation manual (European Commission, 2003) differs with the JNCC definition, listing NVC communities Carex arenaria – Cetrelia aculeata Dune Community (SD11) and Carex arenaria – Festuca ovina – Agrostis capillaris Dune Grassland (SD12) as communities included within Annex 1 habitat 2330 Inland dunes. Rodwell et al (2007) agree that SD11 and SD12 should be included with this Annex 1 habitat, even if the grass *Corynephorus canescens* is absent. If this case is accepted, then it is likely that the lower Avon sand terraces, including parts of the study area, would quality as an SAC containing the western most examples of this Annex 1 habitat.

Neither Annex 2 species, Southern Damselfly *Coenagrion mercuriale* or Great Crested Newt *Triturus cristatus*, have been recorded from the study area or seem very likely to have been present in the past.

Old oak woodland at Fir Grove Copse

Former mire now covered in secondary woodland

Sites of Special Scientific Interest (SSSI)

Three SSSIs occupy substantial areas of the study area (**Map 13**), Town Common SSSI, St. Leonard's and St. Ives Heaths SSSI and Moors River System SSSI.

Town Common SSSI

The northern end of this SSSI includes most of the Height Restriction Zone Cmpt. 2933, although excluding the nationally important Parched Acid Grassland to the north of Crabs Field in Cmpt. 2933. A patch of heath south of the sewage works is also included Cmpt. 2934. Again high quality Parched Acid Grassland is also carefully excluded. The citation summarised the interest of the whole SSSI as:

> Town Common SSSI covers an extensive tract of lowland heathland centred on a hilly ridge separating the floodplain of the Avon Valley from the Moors River. Exposures of the deposits forming this ridge are of special geological interest. The topography is diverse, and with variations in the underlying geology and drainage conditions, there is a varied mosaic of heathland plant communities. Areas of succession from open heath to conifer and mixed woodland add further interest. The heathland is especially valued for a wide assemblage of bird, reptile, dragonfly and other invertebrate species distinctive to this habitat, including several that are nationally rare or scarce. Further heathland, wet grassland and other wetland covered by the adjoining Avon Valley, Moors River and Hurn Common SSSIs place Town Common within an exceptionally large tract of such habitats for lowland Britain. This entire area has a national and international importance for its wildlife interest.

Town Common SSSI has two Condition Assessment units within the study area:

Town Common SSSI Unit 1: SSSI within Cmpt. 2933

Main habitat: Dwarf shrub heath - lowland

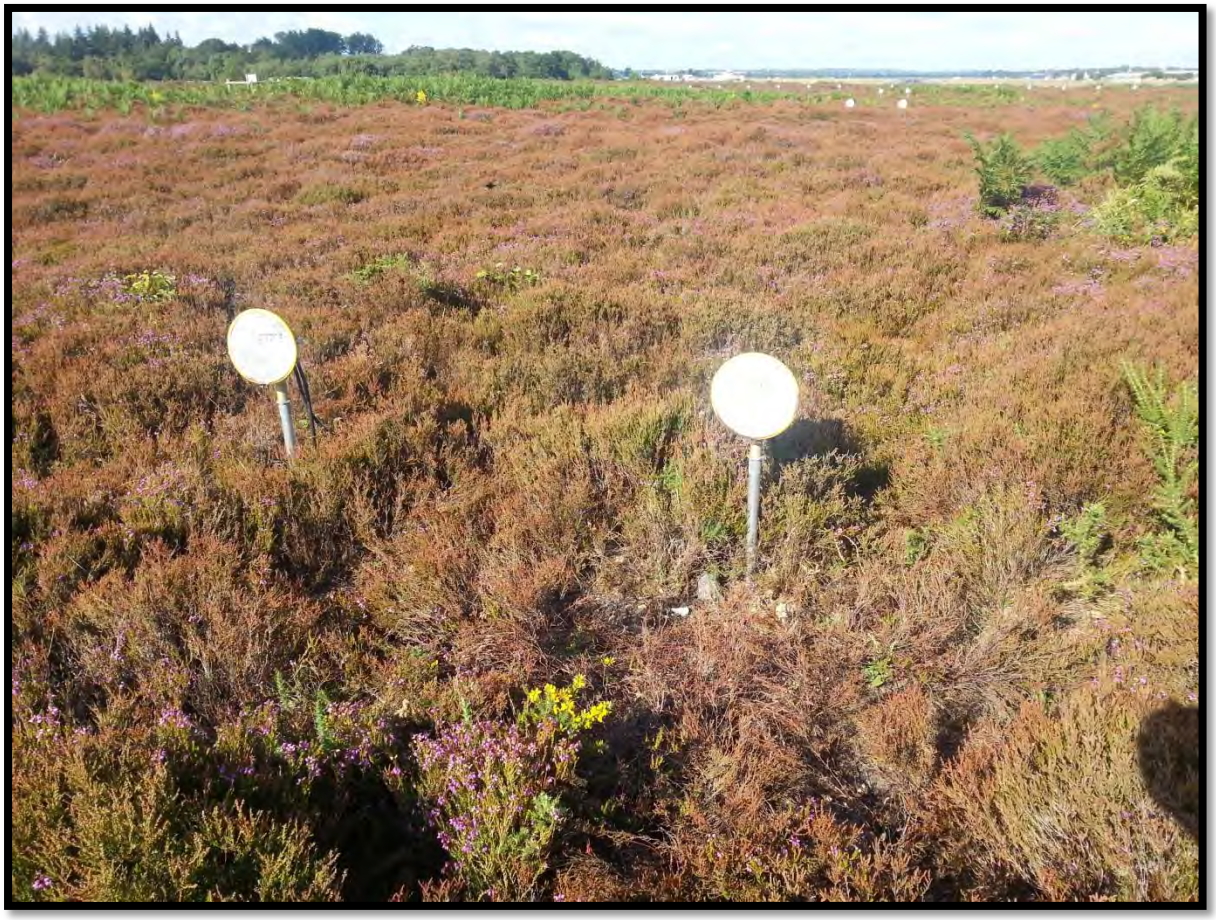
Condition: Unfavorable Declining

Town Common SSSI Unit 2: SSSI within Cmpt. 2934

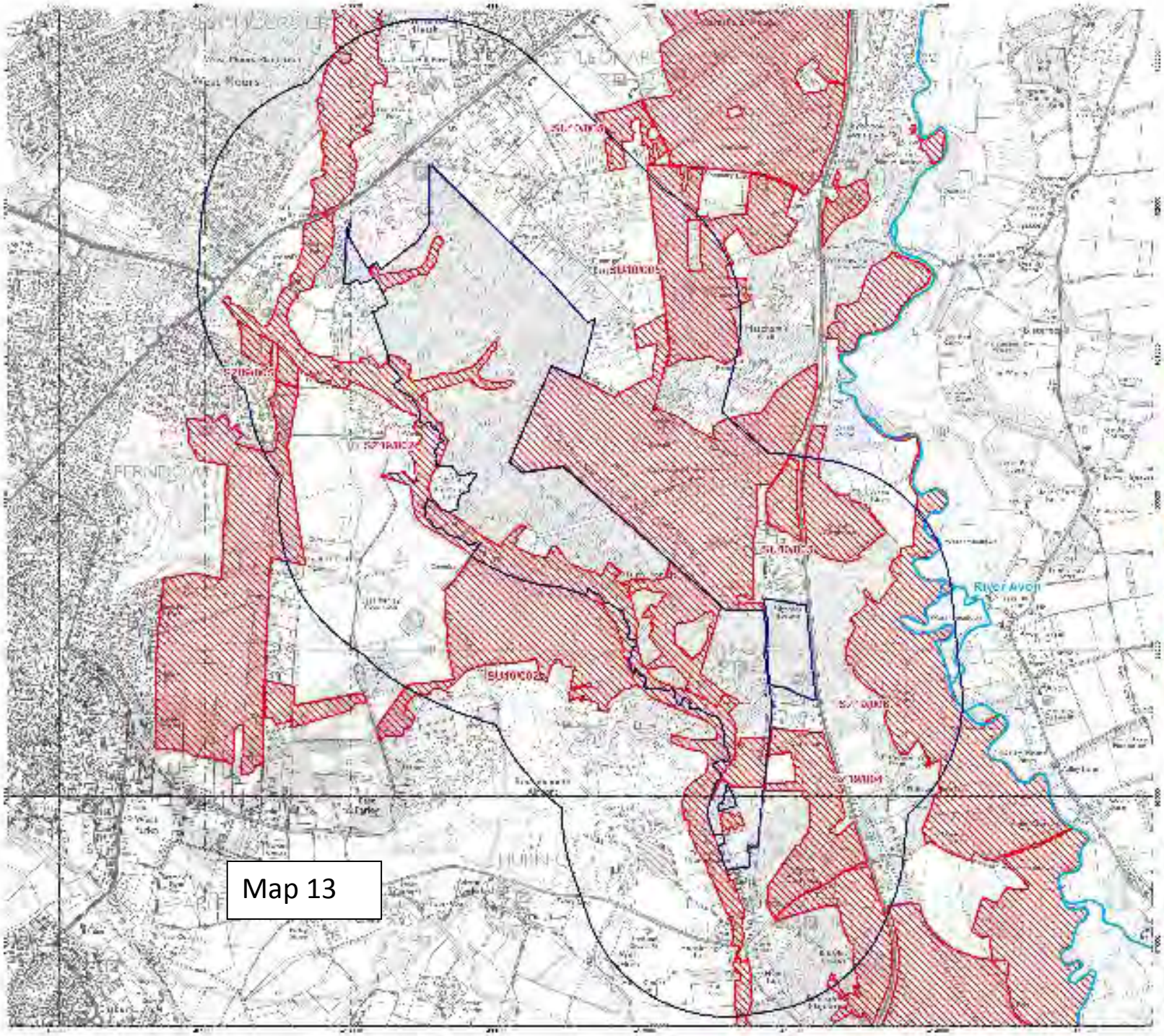
Main habitat: Dwarf shrub heath - lowland

Condition: Unfavourable Recovering

Detailed comments on habitat condition over time can be found in **Appendix 3**.



Town Common – in the Height Restriction Zone (landing lights in foreground).



Dorset Environmental Records Centre

Hurn Forest Biodiversity Audit
Study Area
Dorset

Nationally Designated Sites

Key:

- Plantation on Ancient Woodland Site (PAWS)
- Ancient Semi-natural Woodland (ASNW)
- Area of Outstanding Natural Beauty (AONB) - Dorset
- Butterfly Conservation Reserve
- National Nature Reserve (NNR)
- RSPB Reserve
- Site of Special Scientific Interest (SSSI)
- Site of interest and 1km area of area

Scale 1:25000

Map 13

DORSET County Council

St Leonard's And St Ives Heaths SSSI

The restored heathland within Cmpt. 2926 to 2930 has been added to this SSSI in 1999, which extend north to Avon Heath County Park. The citation summarised the interest of the whole SSSI as:

> The St. Leonards and St. Ives Heaths are notified for acidic grassland, dry and wet heath, and mire vegetation types (including: sheep's-fescue *Festuca ovina* – common bent *Agrostis capillaris* – sheep's sorrel *Rumex acetosella* grassland; heather *Calluna vulgaris* – dwarf gorse *Ulex minor* heath; dwarf gorse *U. minor* – bristle bent *Agrostis curtisii* heath; bog moss *Sphagnum auriculatum* bog pool community; cross-leaved heath *Erica tetralix* – bog moss *S. compactum* wet heath; bog asphodel *Narthecium ossifragum* – bog moss *S. papillosum* valley mire and purple moor-grass *Molinia caerulea* – tormentil *Potentilla erecta* mire). The site is also notified for nationally scarce plants; the assemblage of breeding birds of lowland heath habitat and significant breeding populations of the rare Dartford warbler *Sylvia undata*, nightjar *Caprimulgus europeaus* and woodlark *Lullula arborea*; its contribution as part of the Dorset heathlands towards supporting significant wintering populations of hen harrier *Circus cyaneus* and merlin *Falco columbarius*; important populations of smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* and nationally rare and scarce invertebrates.

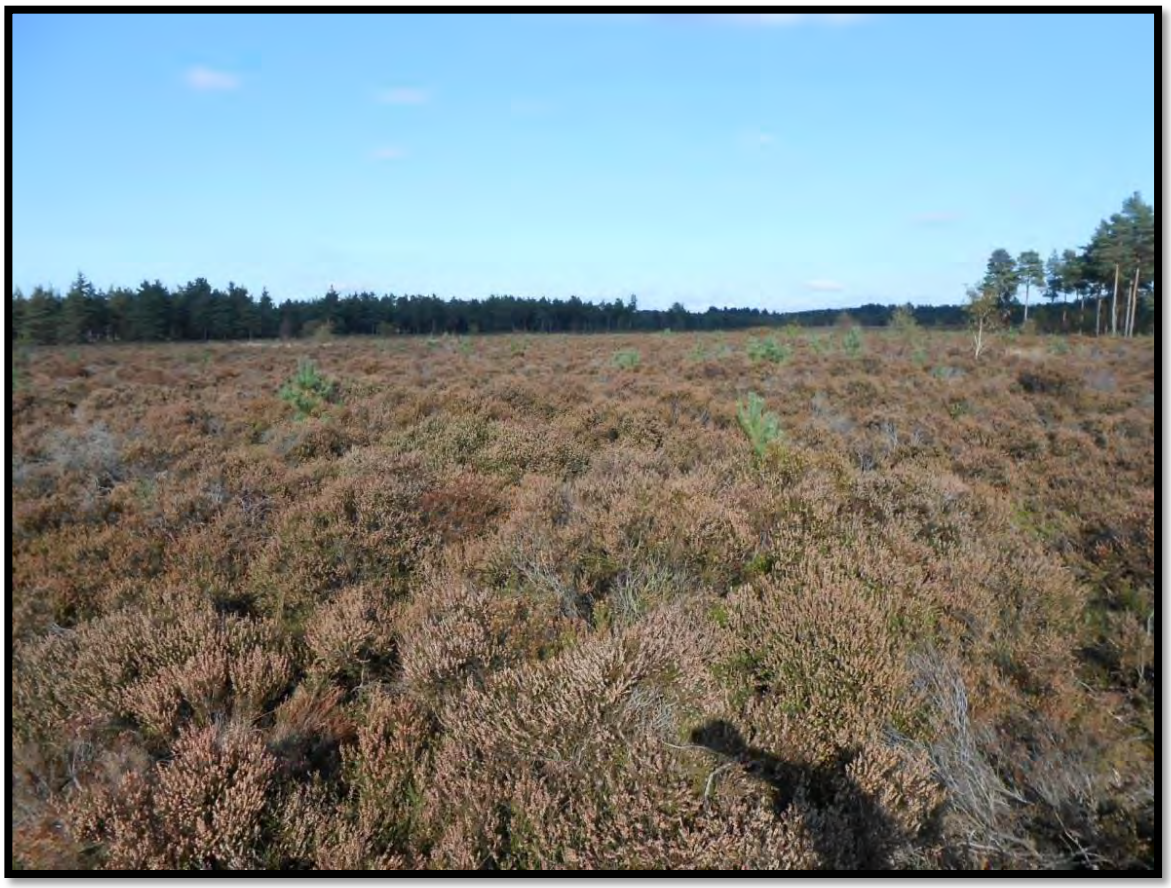
St Leonard's And St Ives Heaths SSSI has one Condition Assessment unit within the study area:

St Leonard's And St Ives Heaths Unit 24: Cmpt. 2926 to 2930

Main habitat: dwarf shrub heath - lowland

Condition: Unfavourable Recovering

Detailed comments on habitat condition over time can be found in **Appendix 3**.



Moors River System SSSI

This long SSSI covers the length of the Moors River. It includes the large valley mires on the edge of the floodplain and into the ex-heathlands and all the floodplain along the edge of Hurn Forest. The citation summarised the interest of the whole SSSI as:

> The Moors River is a small lowland river which supports an exceptional diversity of aquatic and wetland plants. The vegetation varies from a type characteristic of mixed geology, low gradient rivers in the middle reaches to a type more typical of chalk streams towards the confluence with the River Stour. On the upper reaches, the River Crane exemplifies a small chalk stream with a diverse and substantially natural habitat structure. This part of the river system supports species rich assemblages of aquatic invertebrates, including several rare and uncommon river species. Downstream, the Moors River and associated water features are notable for an outstanding dragonfly fauna. The river system also supports several fish, bird and aquatic mammal species of conservation importance.
>
> Although the character of riparian land along the river system has been extensively modified through conversion to improved grassland, there is a more widespread presence of semi-natural wetland than on many small rivers in lowland situations. The wetland includes habitats such as swamp, tall-herb fen and fen woodland. These often occur in a diverse mosaic with wet, rushy pasture (fen meadow) and partly improved neutral grassland, usually with a network of ditches. The mosaics are extensive for Dorset, locally occupying the entire valley bottom on the Crane and the narrow floodplain on the lower reaches of the Moors River. Some of the vegetation types in these areas are species rich.

Moors River System SSSI has seven Condition Assessment units within or immediately adjacent to the study area:

Moors River System Unit 53: the unfarmed floodplain and associated mire at Fillybrook in cmpt. 2933 and Cmpt. 2932c

Main habitat: Fen, marsh and swamp - lowland

Condition: Unfavourable Recovering

Moors River System Unit 51: southern area of tenanted farmland, Cmpt. 2933d.

Main habitat: Neutral grassland - lowland

Condition: Unfavourable recovering

Moors River System Unit 50: Cmpt. 2925 (Mire east of Keys Copse) & Cmpt. 2919 (east of Fir Grove Copse)

Main habitat: Broadleaved, mixed and yew woodland - lowland

Condition: Unfavourable Recovering

Moors River System Unit 45: the main area of tenanted farmland on the floodplain

Main habitat: acid grassland - lowland

Condition: Unfavourable Recovering

Moors River System Unit 47: the area of St Leonard's Peats South within East Dorset (NW of Cmpt. 2913).

Main habitat: Broadleaved, mixed and yew woodland – lowland

Condition: Favourable

Moors River System Unit 48: the area of St Leonard's Peats South within Christchurch (SE of Cmpt. 2913).

Main habitat: Broadleaved, mixed and yew woodland - lowland

Condition: Favourable

Moors River System Unit 46: St Leonard's Peats North, Cmpt. 2903b.

Main habitat: Broadleaved, mixed and yew woodland - lowland

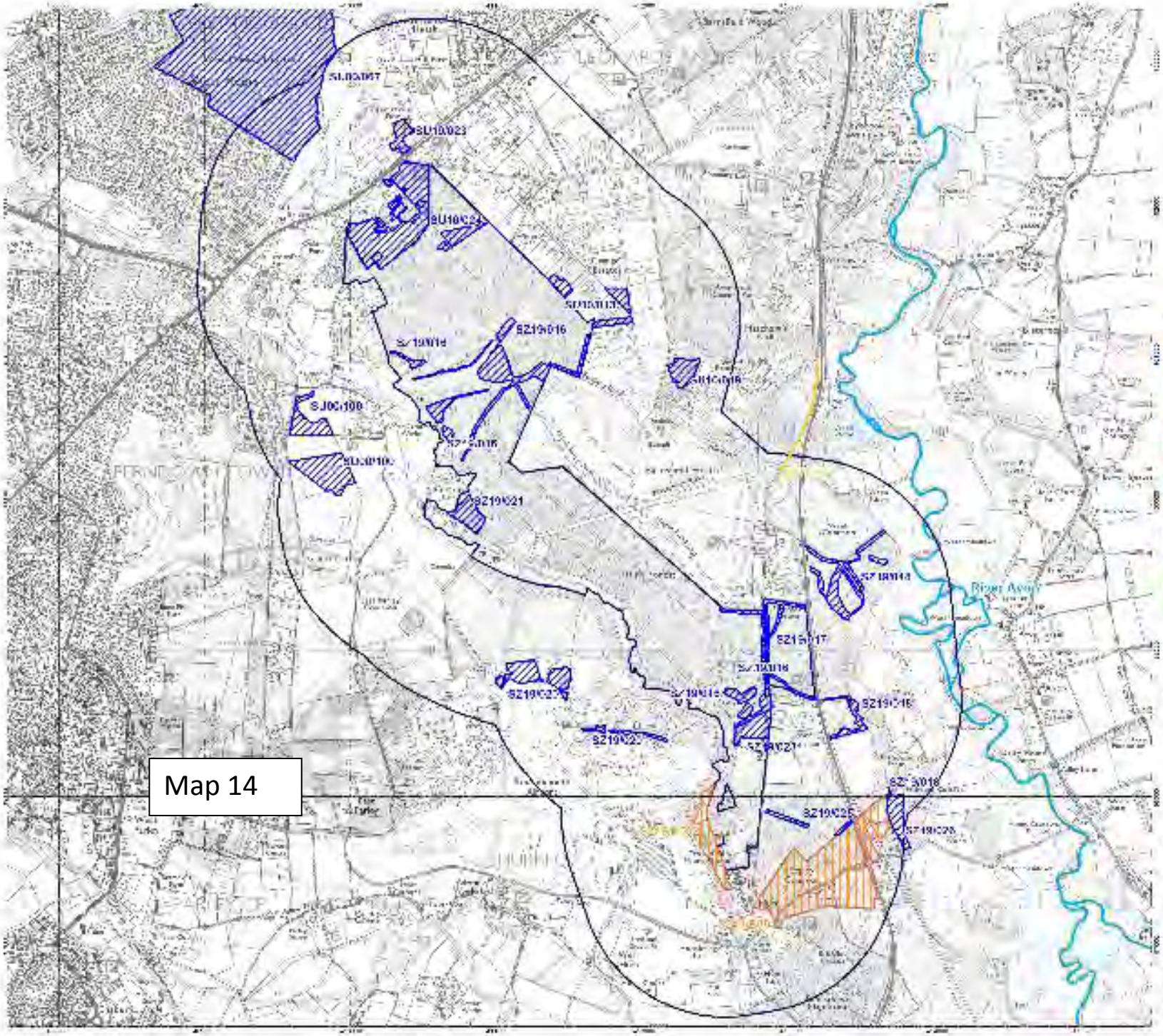
Condition: Unfavourable recovering

Detailed comments on habitat condition over time can be found in **Appendix 3**.

Sites of County Interest

In Dorset sites of county interest are called Sites of Nature Conservation Interest (SNCIs) (**Map 14**). In Hurn Forest, these mostly consist of a scatter of relic heathland along rides, or areas of recent wet woodland at the head of former valley mires. More substantial sites are the Oak wood and Bog Woodland at Fir Grove Copse, the Carr with a large *Carex elongata* population in Cmpt. 2917 and the Parched Acid Grassland and floodplain mire in Crabs Field in the Height Restriction Zone. The latter is of national importance and its exclusion from the SSSI is odd to say the least.

The above photograph shows the ride south of Matchams Lane Car Park, a component area of Hurn Forest SNCI.



Dorset Environmental Records Centre

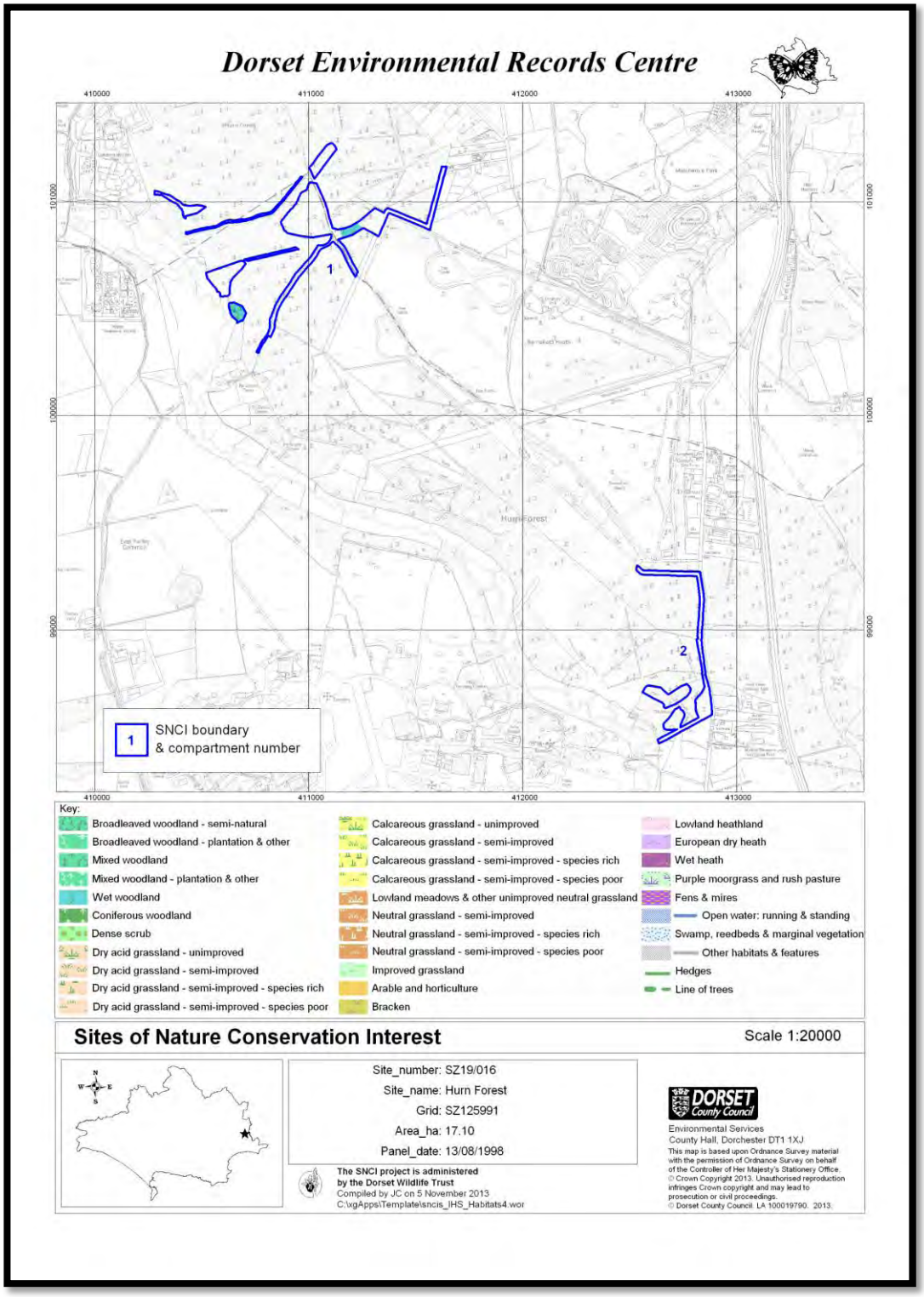
Hurn Forest Biodiversity Audit
Study Area
Dorset

Local Sites

Key:

- Conservation verge
- Dorset Wildlife Trust (DWT) Reserve
- Local Nature Reserve (LNR)
- Regionally Important Geological Site (RIGS)
- Site of Nature Conservation Interest (SNCI)
- Veteran Tree Site
- Veteran Crackwood Tree
- Site of Interest and 1km search area

Scale 1:25000

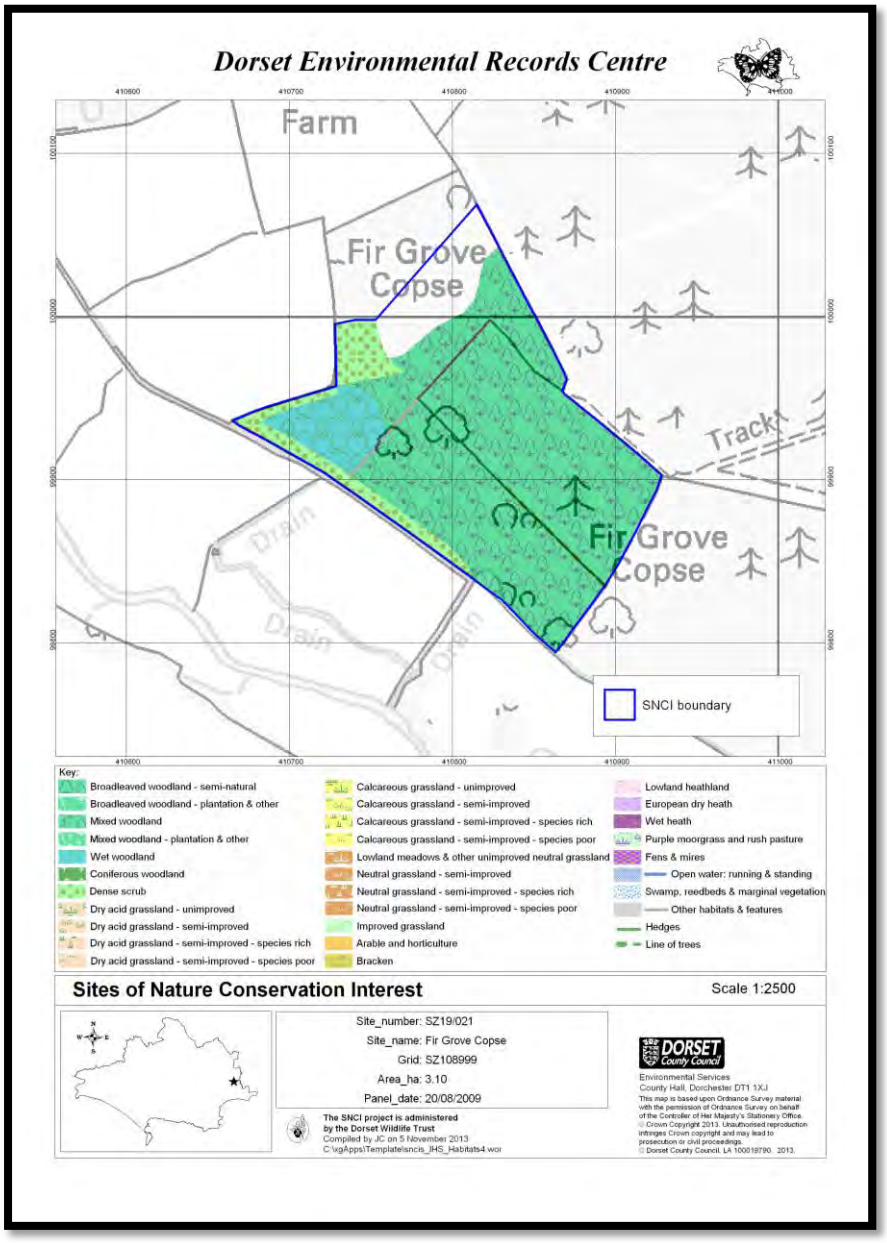


Hurn Forest SNCI

The site consists of a network of wide rides trackways through the pine forest. The tracks fall in to two categories; gravel tracks with wide verge habitats, unmade rides with remnant heath. In some places wet, carr woodland is developing.

Fir Grove Copse SNCI

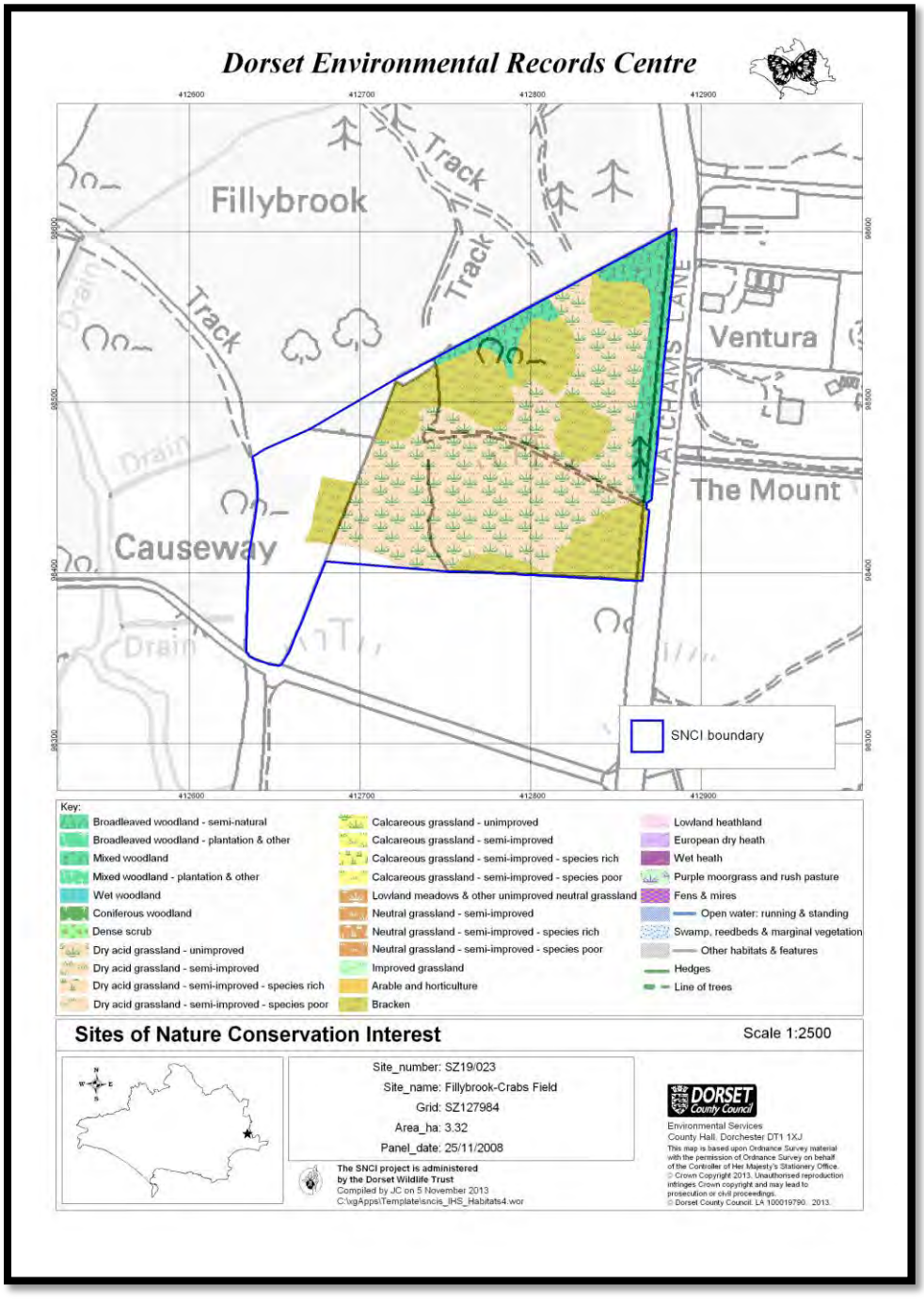
Fir Grove Copse comprises largely Oak and Birch woodland with a small area of wet Birch-Purple Moor-grass woodland on the edge of a large area of Forestry Plantation – Hurn Forest – and abutting Moors River SSSI. An interesting flora in the area of wet woodland includes White Sedge, Royal and Narrow Buckler-fern and Sphagna. The drier woodland supports a sparse flora with patches of Bracken, seedling trees and shrubs and scattered plants typical of acid soils including Climbing Corydalis, Bristle Bent, Cross-leaved Heath, Pill Sedge and Heath Wood-rush. There is also a good lichen flora on the older trees. It appears that there has been a great deal of Holly and Rhododendron clearance across the site.



The area of Oak-Birch woodland – with Climbing Corydalis and Early Hair-grass – extends beyond the current boundary therefore it is recommended that the boundary is extended to a boundary bank that marks the edge of this area. (An old boundary bank surrounds much of the site with dense holly along much of its length but there are also more recent banks and ditches). At the opposite end the current boundary takes in an area of conifer plantation.

Fillybrook – Crabs Field SNCI

Fillybrook-Crabs Field SNCI is located north of Hurn, to the east of the airport, and adjoins Town Common SSSI to the south and Moors River System SSSI to the west. Immediately to the north there is an extensive area of coniferous plantation. The site largely comprises short, rabbit-grazed, species-rich, unimproved, acid grassland on sandy soil (Bracklesham Beds) and includes moss and lichen-rich areas, patches of Heather and 15 Dorset Notables. In the west of the site, there is a wet depression with a number of fen species including Cyperus Sedge, Bog Myrtle and Common Meadow-rue. Mixed woodland and bracken occurs around the edges of the site.



Biodiversity Action Plan

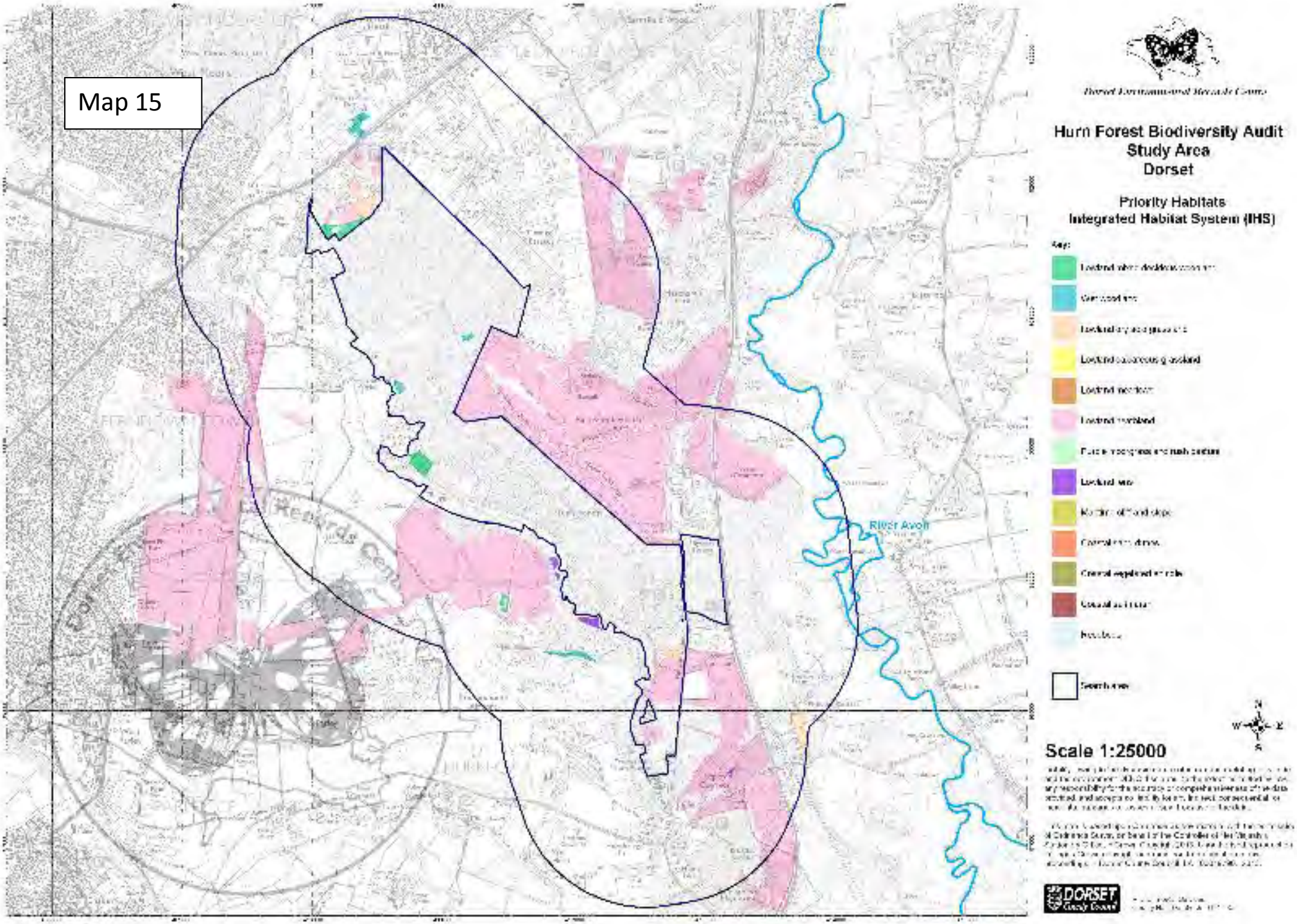
The Biodiversity Action Plans were part of the British Government's response to the Rio Biodiversity Convention and hence is part of its international responsibilities. For this reason the CROW Act gives bodies such as the FC a duty to have regard to the conservation of BAP habitats and species in carrying out their responsibilities. (* = habitats or species added 2007 (Biodiversity Reporting and Information Group, 2007)).

Map 15 shows the extent of priority habitats in the local area of Hurn Forest. As can be seen from the map, there are gaps in knowledge and data held by the Dorset Environmental Records Centre. Hurn Forest supports a range of priority habitats which whilst mapped by Sanderson in 2007, have not yet been digitised and adopted in to the County records.

Lowland Heathland: the study area obviously can, and is, making a major contribution to the achieving of targets for restoration within the Lowland Heathland Habitat Action Plan. Priority BAP species associated with this HAP, and found within the study area, are listed below

Priority BAP species of Lowland Heathland:

- Marsh Club Moss *Lycopodiella inundata*
- Nightjar
- Tree Pipit*
- Woodlark
- Common Lizard
- Sand Lizard
- Smooth Snake*
- Adder*
- Slow-worm*
- Silver Studded Blue
- Grayling*


Map 15
Hurn Forest Biodiversity Audit
Study Area
Dorset
Priority Habitats
Integrated Habitat System (IHS)
Key:
River Avon
Scale 1:25000

There are no records of Nail Fungus *Poronia punctata* but this species will have occurred in the past and would reappear if pony grazing was re-introduced.

Lowland Acid Grassland: in addition important existing habitats covered by the Lowland Acid Grassland BAP, there is the potential to restore further areas on formerly cultivated areas. Priority BAP species associated with this HAP, and found within the study area, are listed below.

Priority BAP species of Lowland Dry Acid Grassland:

- Coral Necklace* *Illecebrum verticillatum*
- Annual Knawel* *Scleranthus annuus*
- Nightjar
- Woodlark
- Adder*
- Slow-worm*
- Grayling*
- Small Heath*

Lowland Fens: this habitat (which includes ground water fed bogs) has been largely lost to the spread of scrub, but has potential for restoration. Priority BAP species associated with this HAP, and found within the study area, are listed below.

Priority BAP species of Lowland Fens:

- Dingy Mocha *Cyclophora pendularia*

The 1946 air photographs show that habitat suitable for the Priority BAP species Curlew was present then. It is possible that mire restoration would restore this habitat.

Wet Woodland: this habitat barely existed on the site in 1946 but has spread extensively, replacing the BAP habitats Lowland Fen and Rush Pastures & Lowland Meadows. The main issue is to determine, as with most lowland wet woodland sites, is how much wet woodland should be restored back to the original more biodiverse mire and *Molina* Grassland habitats and how much retained. Priority BAP species associated with this HAP are listed below.

Priority BAP species of Wet Woodland:

- Goat Moth* *Cossus cossus*

Purple Moor Grass and Rush Pastures & Lowland Meadows: shallow peat at the heads of the mires once supported extensive Purple Moor Grass and Rush Pastures habitat (replaced by Lowland Fen on deep peat, including *Molina* Fen), but this is largely replaced by Wet Woodland. The habitat also occurred extensively in the former hay meadows on the Moors River Floodplain, where it graded into Lowland Meadows in drier sections of the floodplain. Some patches of Purple Moor Grass and Rush Pastures habitat survive. Scrub clearance and grazing restoration could restore the habitat where lost to scrub. Ceasing fertiliser applications and resorting hay cropping from the floodplain would restore unimproved grassland here. Priority BAP species associated with this HAP, and recorded from the study area, are listed below.

Priority BAP species of Purple Moor Grass and Rush Pastures:

- Grass Snake
- Dingy Mocha *Cyclophora pendularia*
- Marsh Fritillary

Rivers*:** this habitat was added to the list of BAP habitats in 2007. The Moors river as an SSSI certainly qualifies as a BAP quality river. Priority BAP species associated with this HAP, and recorded from the study area, are listed below. On sites improvements would be produced by tree coppicing, other improvement will require wider catchment actions.

Priority BAP species of Rivers:

- Otter

- Water Vole
- Grass Snake
- Eel*

Ponds**:** this habitat was added to the list of BAP habitats in 2007. Nutrient poor ponds within the Height Restriction Zone and St Leonard's Peats are of sufficient quality to qualify as BAP quality ponds, but are also integral parts of Lowland Heath and Lowland Fen habitats. There is potential for creating other ponds of interest.

7) Current management

The Working Forest

Hurn Forest was planted in 1950s in response to the Government objective of providing the nation with a strategic reserve of timber. The sandy and gravelly soils at Hurn are well-suited to growing species of pines, and most of the woodland compartments across the Forest support either Corsican or Scots pine. Less common conifer species here include Western Hemlock, Douglas fir, Bishop pine and Serbian spruce. Due to the poor nature of the soils, the majority of the Forest area is not well suited to growing broadleaves.

With so much of the woodland area potentially reaching maturity at the same time (all planted in the 1950's), the FC has worked to diversify the age structure. Through the Forest Design Plan (FDP) and its predecessors – restructuring the Forest has happened with early clearfells in the 1980s and again in 2000's. As such the Forest is developing a varied structure of different woodland compartments, with different species and ages and therefore character. As is shown in the FDP (next section), this is an ongoing process, with a number of compartments now at maturity. Some compartments will be 'over-mature' by the time they come to be felled, but this will have allowed greater age diversity in the new crops across the Forest that have been planted each decade since the 1980's.

Through diversifying the woodland age structure there are a wide range of benefits (landscape, amenity, economy etc.) but most importantly for this report it is the variety and succession of habitats it provides.

Rotational forestry on heathland soils provides a wide range of habitats over space and time. Forestr activities create disturbed ground and temporary open space through the clearfells and restocking – providing successional habitats and associated opportunities for flora and fauna for the first 12-15 years following replanting. Heathland, scrub and woodland species all benefit from this. And through the Design Plan these successional habitats develop within the context of a network of more permanent habitats such as grasslands, heathlands, scrub and mature woodland that can be found in Hurn Forest along tracks, rides, boundaries and permanent open space (areas of managed heathland). This network of more permanent habitats provides the stable core from which individual species can move within the Forest and can colonise new or ephemeral habitats as they occur.

Forest Design Plans

As a Government body, the Forestry Commission (FC) consults widely on the management principles it applies to land under its stewardship. The national framework through which FC conveys their management aims and objectives are called Forest Design Plans (FDP), in which both the long-term vision and upcoming management activities are documented.

The FDP is prepared in draft form and is then consulted on through local events with a wide range of stakeholders. These Stakeholder Fora contain representatives from local residents, wider access and recreation groups, various conservation bodies, the timber and land management industry, and a number of statutory bodies. Feedback from all parties is recorded and from this the FC then prepares a final FDP which endeavours to balance these varied interests.

Like all Government bodies, the FC's remit evolves over time. But in broad terms, for the land management by the FC (the Public Forest Estate), it must balance the needs of conservation, public access and enjoyment, and revenue generation through the production of renewable forest products.

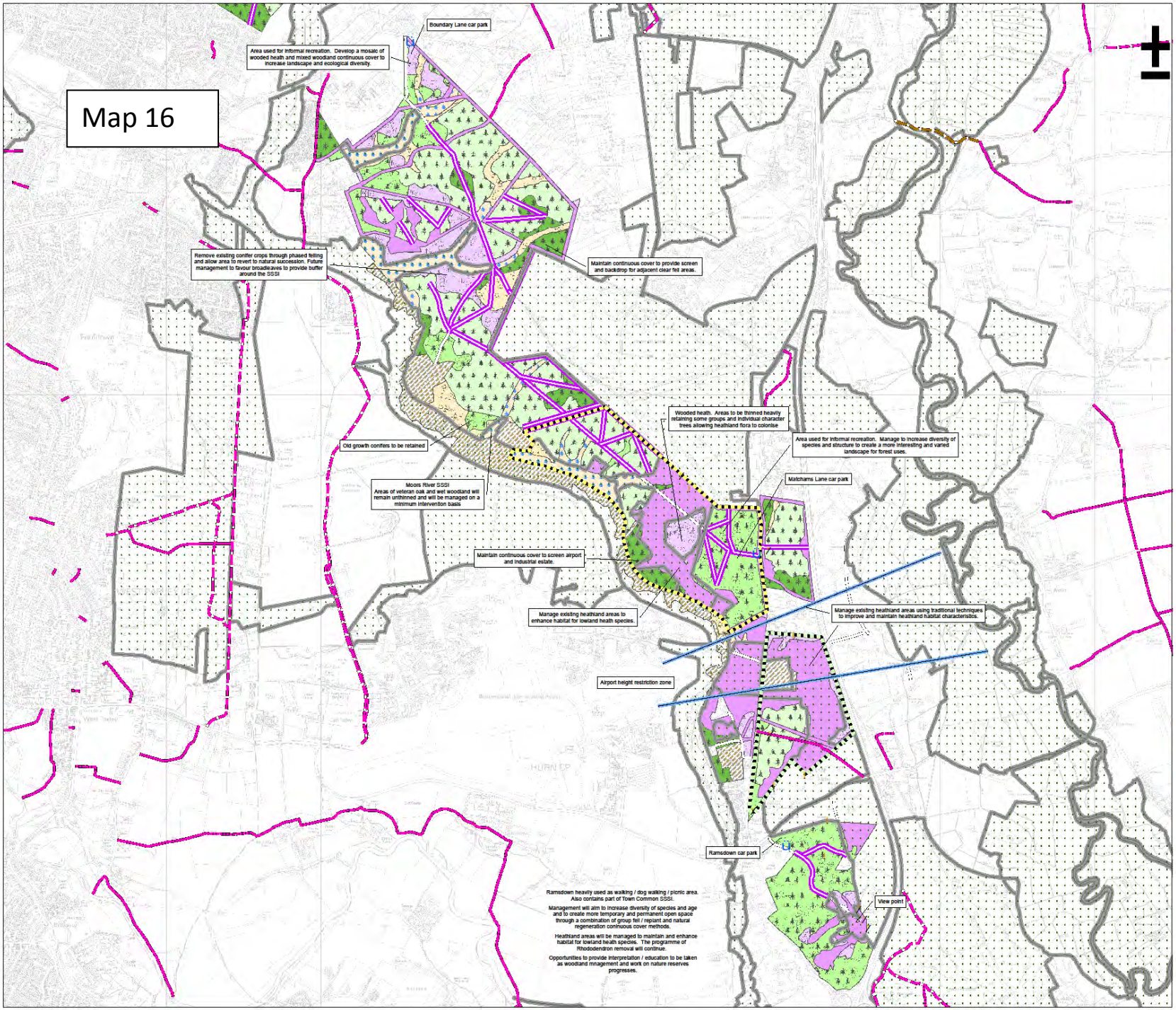
There is a FDP for Hurn Forest and Ramsdown, a publicly accessible document which can be found at www.forestry.gsi.gov.uk . Hurn Parish Council has had an input into the FDP through the stakeholder consultations to ensure that the views of the local community were taken into account as much as possible.

In the FDP there is a 'Design Concept' or long-term vision (**Map 16**), a map showing the distribution of Forest habitats in the future and therefore a target for managers to achieve. This Design Concept sets the direction, but the speed of change to achieve this is dictated by a wide range of factors and so the timescale for some Forest habitats might be within 10 years, for others it might be 50-100 years.

Further to the Design Concept are maps showing Felling and Habitat Management, and Restocking (**Map 17 & 18**). The Felling and Habitat Management Map details the 5 year periods in which clear-felling is scheduled to take place. It also shows those areas of woodland where thinning of mature trees will be favoured in order to provide the right conditions for young trees to regenerate under woodland cover (described as continuous cover). The Restocking Map sets out the intended tree species to replant after clearfelling, based on an assessment of a range of environmental conditions (most importantly soil type and climate) to determine suitable species.

Critically, it is this cyclical silvicultural system of clearfell-replant that drives much of the habitat dynamics and associated wildlife interest in Hurn Forest.

The latest version of the FDP for Hurn Forest was prepared in 2009 and is scheduled for review in 2019.



New Forest District
NEW 204 and NEW 206

Forestry Commission England

Design Concept

Hurn and Ramsdown

Illustrates the main features and broad character of the forest in the long term

Legend

- Scheduled Ancient Monument (SAM) managed according to approved SAM Plan
- Unscheduled Ancient Monument - protect during forest operations
- Airport height restriction zone
- Bridleway
- Byway open to all traffic
- Footpath
- Grazing units
- Proposed grazing unit
- Site of Special Scientific Interest (SSSI)
- Heathland ride management
- Broadleaf woodland to be sustained mainly by natural regeneration to provide a permanent tree cover but at the same time providing a variety of different age and canopy heights. Some small scale felling and replanting may take place where conditions are unsuitable for natural regeneration. Any conifers will be removed over time through thinning or group felling
- Conifer woodland sustained by a cycle of clear felling, replanting and thinning. Woodland will contain a mosaic of open spaces and a diversity of species and age classes to enhance the visual quality.
- Continuous cover mixed woodland sustained by thinning and natural regeneration to produce a permanent tree cover but at the same time providing a variety of different age and canopy heights.
- Continuous cover conifer woodland sustained by thinning and natural regeneration to produce a permanent tree cover but at the same time providing a variety of different age and canopy heights.
- Existing Ancient Semi Natural Woodland (ASNW). Woodland that contains greater than 80% site native species.
- PAWS restoration sites - areas where ancient woodland sites have historically been replanted with non-native species. The intention is to restore these sites over time to contain greater than 80% native species through thinning and natural regeneration.
- Coppice stands maintained using traditional rotational coppice techniques
- Wet woodland sustained by minimum intervention. The removal of non-native species or interventions in accordance with SSSI management plans will be accepted.
- Heathland - areas managed and maintained as open heathland.
- Wooded Heath - areas managed as heathland but with up to 20% tree cover in either isolated groups or individual character trees. Areas have been designated as wooded heath either for landscape purposes or because the area contains a high conifer seed bank that would be difficult to eradicate in the medium to long term and hence meet the criteria for pure heathland.
- Grassland - area maintained as open grassland
- Mire (marsh/bog) habitats that will be kept clear of trees and scrub. Hydrological regimes restored and grazing introduced where practical.
- Streamside corridors that will be managed in accordance with the Forests and Water Guidelines.
- Pond
- Agricultural land
- Felled / unplanted areas

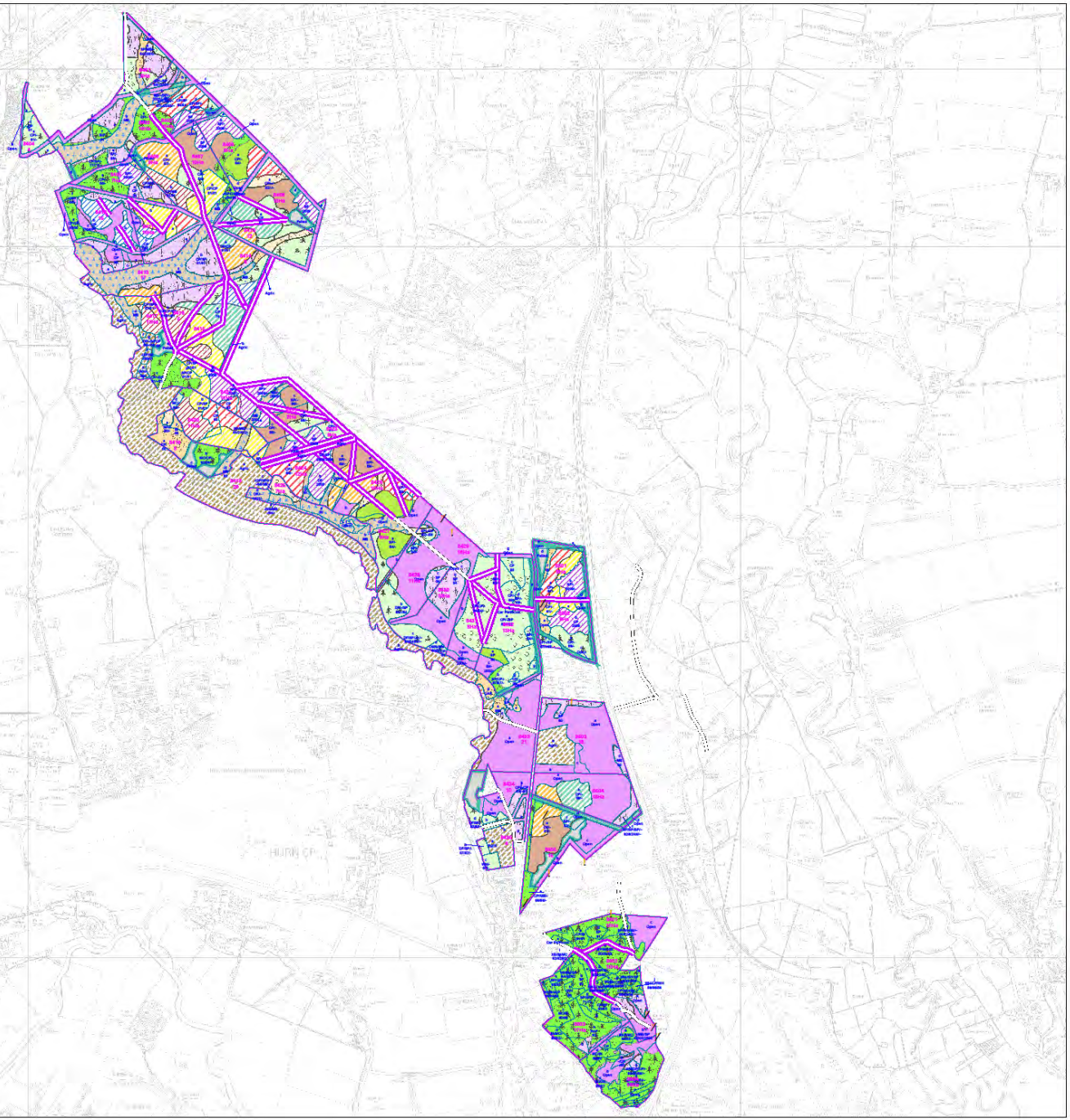
Approved by:

Deputy Surveyor: Conservator:
Date: Date:

Date: 6 May 2009 Scale: 1:12,000

Forester

Map 17



New Forest District
NEW 204 and NEW 206

Forestry Commission England

Felling and Habitat Management

Hurn and Ramsdown

Illustrates timing of felling and management proposals within period of plan

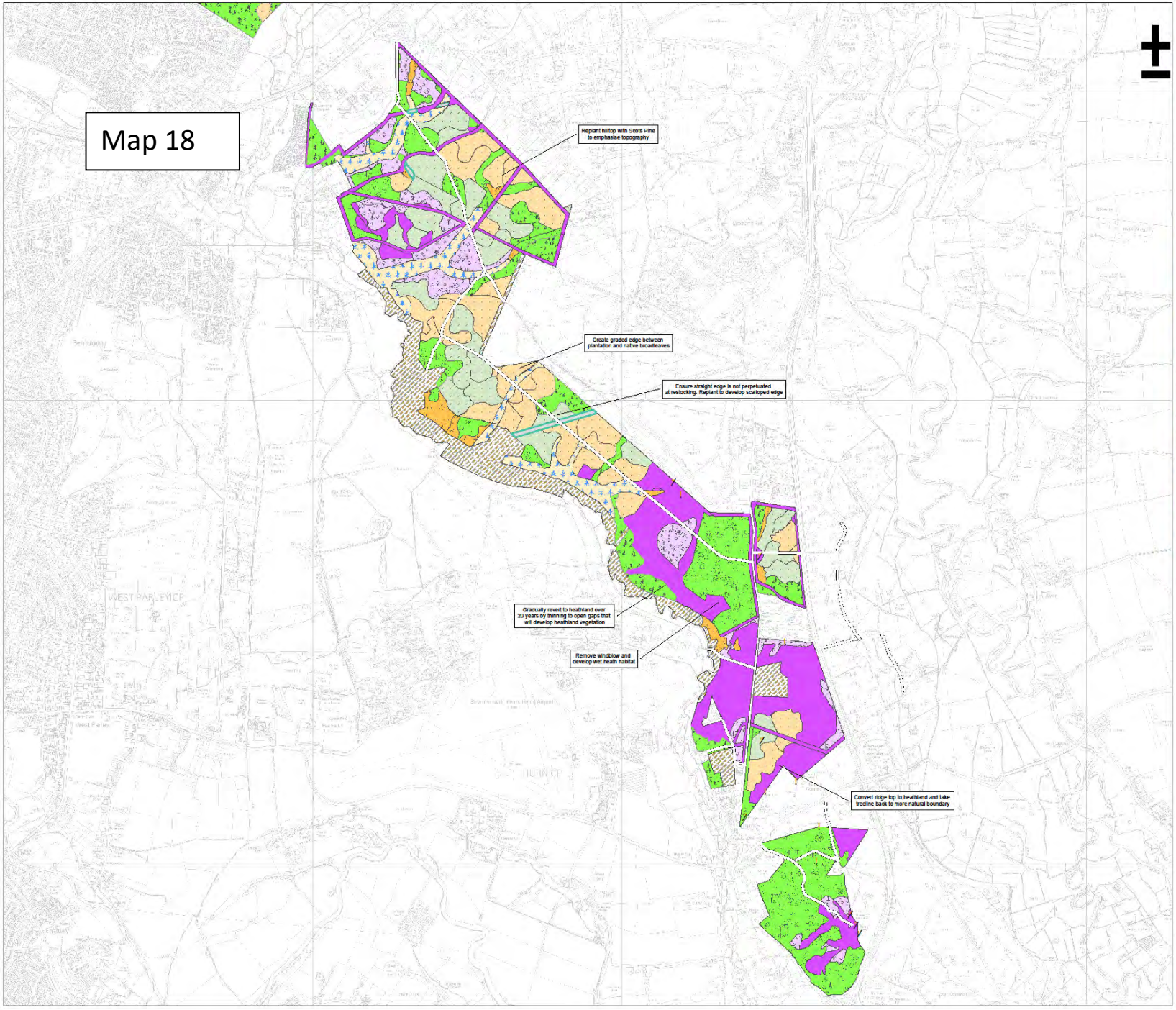
Legend

- Scheduled Ancient Monument (SAM) managed according to approved SAM Plan
- Unscheduled Ancient Monument - protect during forest operations
- Heathland ride management
- Felling period 2007-2011
- Felling period 2012-2016
- Felling period 2017-2021
- Felling period 2022-2026
- Felling period 2027-2031
- Felling period 2032-2036
- Felling period 2037-2041
- Felling period 2037-2041
- Felling period 2047 & beyond
- Manage for continuous cover of conifer using a uniform or group shelterwood system to promote natural regeneration.
- Manage for continuous cover of mixed woodland using a uniform shelterwood system to promote natural regeneration.
- Manage for continuous cover of broadleaves using a uniform shelterwood system to promote natural regeneration. Any remaining conifers to be removed through phased thinning treatments.
- Manage for continuous cover of mixed woodland using a group shelterwood system to promote natural regeneration of both conifer and broadleaf species with the balance in favour of broadleaf species.
- Manage for continuous cover using an irregular shelterwood system to promote the development of mixed woodland of varying structure and diversity.
- Manage existing Semi-natural woodland through selective thinning and coppicing of the understorey (where appropriate) to promote regeneration of native broadleaves.
- Pond
- Mire (Bog/Marsh) - Remove/keep clear of trees/scrub. Restore hydrological system using drain blocking and bedlevel raising where required. Graze where possible.
- Wet woodland - Minimum Intervention except to remove non-native species or manage in accordance with SSSI Management Plan where relevent.
- Heathland - Restore and maintain heathland using traditional heathland management techniques where possible including grazing, controlled burning, bracken control and gorse swiping.
- Heavily thin to produce heathland flora by retain wide, irregularly spaced groups and individual character trees
- Agricultural Land managed by tenancy agreement
- Felled / unestablished areas

Approved by:

Deputy Surveyor: Conservator:
Date: Date:

Date: 6 May 2009 Scale: 1:12,000



New Forest District
NEW 204 and NEW 206
Restocking Plan

Forestry Commission England

Hurn and Ramsdown

Indicative of the structure of the woodlands at the end of the plan period

Legend

- Scheduled Ancient Monument (SAM) managed according to approved SAM Plan
- Unscheduled Ancient Monument - protect during forest operations
- Scots Pine
- Corsican pine
- Douglas Fir
- Other conifers
- Mixed broadleaf
- Natural succession
- Natural regeneration of native broadleaves
- Natural regeneration of broadleaf woodland
- Natural regeneration of native broadleaves through thinning
- Natural regeneration of mixed woodland
- Coppice
- Research plot / seed orchard
- Natural regeneration of conifer woodland
- Grassland
- Single tree selection
- Acid mire
- Wet woodland
- Wooded heath
- Heathland
- Mires
- Pond
- Open
- Agriculture
- Mineral site

Approved by:

Deputy Surveyor:
Date:

Conservator:
Date:

Date: 6 May 2009

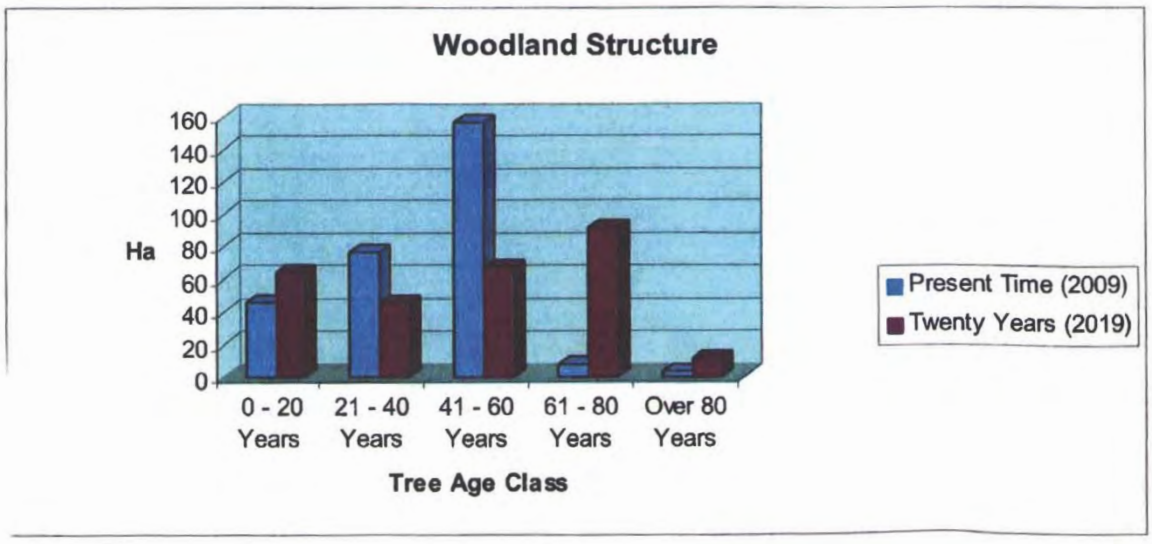
Scale: 1:12,000

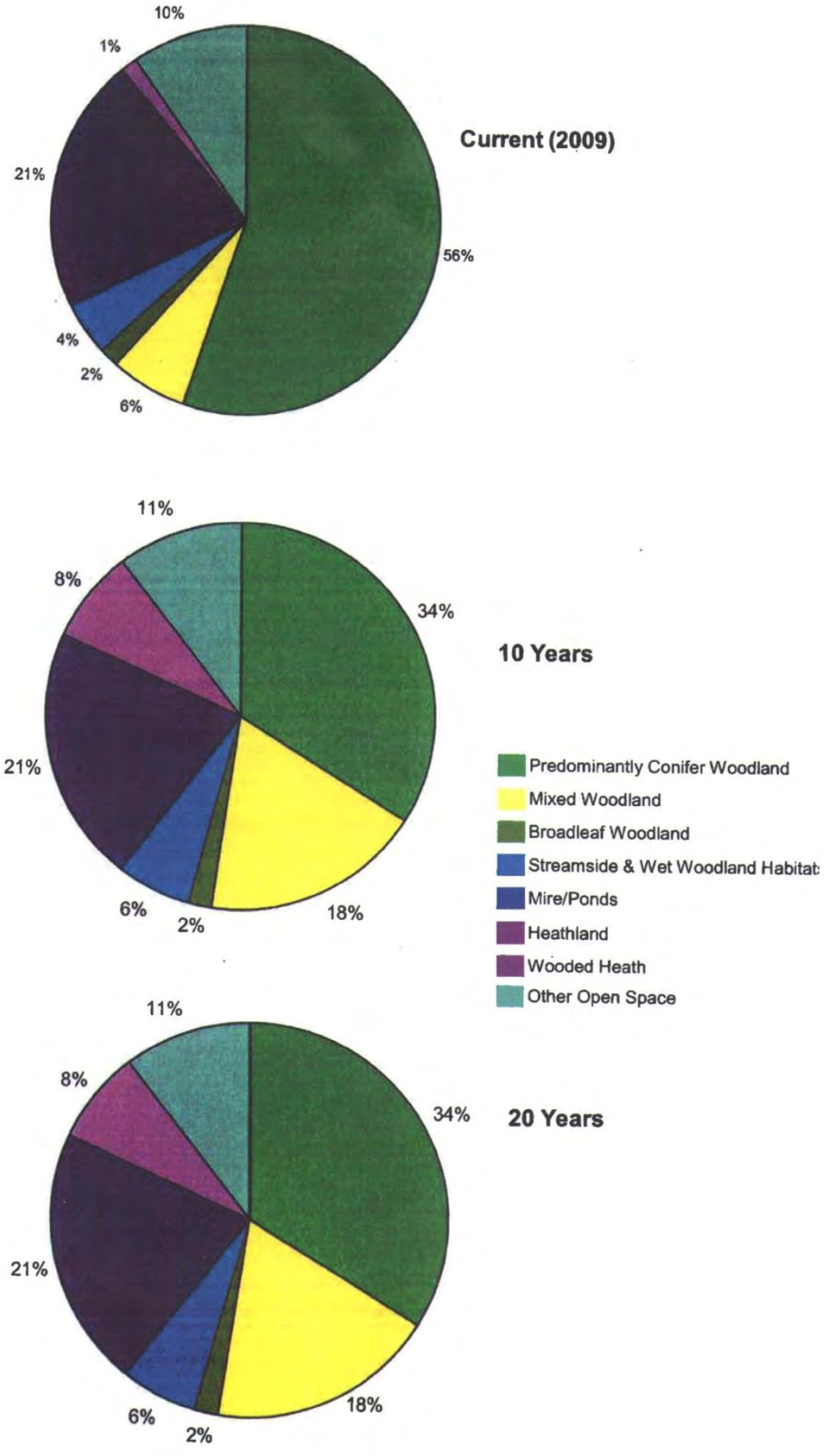
The following summary habitat statistics are taken from the current FDP (2009), and cover the combined habitats of Hurn, Avon & Sopley Commons, and Ramsdown:

Habitat Type	Area (Hectares)				
	Present Time (2009)	In 10 years time	Change from present	In 20 years time	Change from present
Predominantly Conifer Woodland	270.5	165.9	-104.7	166.4	-104.1
Mixed Woodland	30.7	89.7	58.9	89.7	58.9
Broadleaf Woodland	9.0	9.9	1.0	9.8	0.8
Streamside habitats/wet woodland	22.0	30.5	8.5	30.5	8.5
Heathland	104.9	104.4	-0.4	104.1	-0.8
Wooded Heath	6.0	37.4	31.4	37.4	31.4
Other Open Space	48.2	52.2	4.0	52.2	4.0
Total Land Area	**491.3**	**490.1**		**490.1**	

Notes:

Predominantly Conifer Woodland – conifer species occupy at least 70-80% of the canopy.
Mixed Woodland – neither broadleaved or conifer species occupy more than 70-80% of the canopy.
Streamside Habitats/Wet Woodland – Mixture of open habitats and broadleaved woodland along watercourses or areas of wet/bog woodland.
Heathland – Open heathland habitat with less than 5% tree cover
Wooded Heath – Heathland with up to 30% tree cover comprising scattered groups and individual trees
Mire – Open habitat comprising wet mire communities possibly interspersed with niches of wet and dry heath.
Other Open Space – areas of permanent open space including agricultural land, wayleaves, car parks etc.




10%
1%
21%
56%
4%
2%
6%
Current (2009)
11%
8%
34%
21%
6%
2%
18%
10 Years
Predominantly Conifer Woodland
Mixed Woodland
Broadleaf Woodland
Streamside & Wet Woodland Habitat
Mire/Ponds
Heathland
Wooded Heath
Other Open Space
11%
8%
34%
20 Years
21%
6%
2%
18%

From FDP to work on the ground

At a high level, the Forest Design Plans (FDP) provide the FC with a business plan, showing where, when and how much timber wil be harvested. It also highlights where and when investment in new woodland planting will be required over time. Importantly, the FDPs (and the subsequent timber production forecast) provide the timber industry with information that they can also use to adapt their own business plans. Examples of the industry might include harvesting contractors, haulage companies, timber buyers, sawmills etc..

At the local level the FDP allows the FC to plan management operations on the ground, providing both the compartments to be thinned and felled and the period in which to do it. This allows the Beat Forester to plan and deliver harvesting operations, as well as the subsequent ground preparation and restocking activities.

The following table (Table 7.1) shows timber harvesting volumes for Hurn Forest over the last decade. In financial terms this equates to an average annual income from timber sales of perhaps £125k for Hurn Forest as a whole:

Table 7.1: Timber production in recent years

Year	**Volume of timber harvested**
2004	6,567m^3
2006	5,890m^3
2007	9,764m^3
2013	15,016m^3
Total:	**37,237m^3**

The current markets for this timber include house-building and the wider construction industry, packaging and carcassing, fencing and garden products, and a rapidly growing woodfuel (chip) energy market.

A look in to the future of this working forest

Timber production

The FDP allows the FC to model the future timber yields from the Forest, which they call a production forecast. The following table shows the predicted timber volumes to come from the study area of Hurn Forest over the next 20 years. These predictions are based on computer models and species growth patterns and a host of other variables and so need to to be treated as an estimate rather than fact, but do provide an excellent guide to the future productivity. Over 99% of the volume detailed in Table 7.2 below is conifer, the vast majority being Scots and Corsican pine.

Table 7.2: Timber production forecast

Felling period in FDP	Predicted volume of timber to harvest
2013-2016	12,124 m^3
2017-2021	20,540m^3
2022-2026	16,570m^3
2027-2031	18,090m^3
2032-2036	14,320m^3
Total:	**81,644m^3**

Forest health

Whilst the Forest is now developing a more varied age structure across the woodland compartments, the number of different tree species remains limited due to the nature of the soils. Across England the FC is acutely aware of the risks to tree health, and the need not only to diversify the tree species within forests, but also within individual compartments.

At Hurn the fate of Corsican pine is already in question, with a fungal disease called Red Band Needle Blight affecting growth and prohibiting the planting of this once successful species. This will substantially affect Hurn, and significant elements of the Restocking Map in the FDP will need to change in favour of suitable alternative tree species. On these poor soils species to consider for replanting might include Western Hemlock, Scots pine, Maritime pine and Douglas Fir (where evidence of better soil fertility). Planting mixtures will also need to be considered as the FC attempts to reduce the risk to tree health from future pests and dieases, and the effects of a changing climate within the lifespan of these trees.

Douglas fir seedling with mature Corsican Pine behind

Whilst the Forest Desing Plan describes the large-scale management of habitats across the Forest, it does not catalogue the wide variety of other conservation activities that take place. Below is a list of some of the more regular activities:

- Ride widening to develop open habitats and scrub between rides and tree crops (either as part of harvesting operations, or with the help of conservation volunteers).
- Tractor swiping of grass rides to vary structure and prevent coarse grasses dominating
- Tractor swiping of track edges and banks to promote varied vegetation structure for reptiles and invertebrates
- Cutting and/or controlled burning of small patches of heather, again to promote varied structure and ages of heather and thereby enhance opportunities for wildlife
- Removal of regenerating pine seedlings from the heathland (either with staff or with the help of conservation volunteers)
- Creation of sand scrapes using an excavator, to provide egg laying opportunities for sand lizards as well as benefit invertebrates.
- Clearance of Rhododendron to benefit woodland ground flora.

In addition to the various activities by the Forestry Commission, parts of the Forest and all of the Moors River floodplain to the east of the channel is managed by Mr Korbutt (and his parents before him). From the holding at Fir Grove Farm, Mr Korbutt's family has been rearing cattle and cutting hay on the fields in the Forest and on the floodplain since 1951. Through the 1950's – 1970's they had a small dairy herd of Gurnsey cows. Since this time they moved across to a suckler herd. They are very sympathetic to the botanical interests and value of the floodplain. This low intensity agriculture has maintained some of the botanical (and no doubt other wildlife interests) interest that would have been lost had more intensive agricultural practices been applied.

8) Public enjoyment of Hurn Forest

Hurn Forest is greatly valued by the local community for the recreational open space it provides. The Forest is primarily accessed by car from car parks located at either end of Hurn Forest, one adjacent to the Matchams Lane and the other off Boundary Lane. From these two main access points there is significant footfall from the public. The car parks receive light but regular use throughout the day, not just mornings and evenings.

A caravan park and campsite are located close to the north-west boundary of the forest and access to the Forest can be gained directly from these facilities. The central portion of the Forest is some way from any access points and beyond the range of most informal walkers; as a consequence the centre of the Forest is usually quiet.

Matchams Lane Car Park

There is substantial amenity value to this attractive environment for recreation, with sheltered rides and tracks through woodland to enjoy when weather conditions are poor (or very hot), as well as paths across open habitats to explore. A mixture of broadleaf and conifer woodlands provide colour and variety through the seasons, with ornamental plantings such as red oak providing visual diversity.

Red oaks

Hurn Forest is one of only handful of sites in this part of East Dorset where there is a substantial area of natural greenspace for recreation. It is free to use the car parks, and offers a variety of circular walks.

Whilst surveying the wildlife of the Forest over the last 12 months, the following informal observations have been made about how people use the Forest:

- Numerous individuals walking with their dogs.
- Friends and families have been seen meeting up in the car parks in order to walk together in the Forest (with or without dogs).
- Mothers with young children in puchchairs walking and jogging.
- Young families seen walking and cycling in the Forest in the evenings and at the weekend.
- Individuals and groups riding their bikes.
- Horse riders alone and often in pairs.
- Children playing near to the campsite.
- It is of note that very few people have been seen using a GPS or map – suggesting most are familiar with the area.

Green Infrastructure

It is likely that the vast majority of people who visit Hurn Forest live within a few kilometres of the car parks. With an estimated 47,000 people living in Christchurch, 183,000 in Bournemouth and 400,000+ across the south-east Dorset conurbation, there is a substantial local population and a limited amount of 'natural greenspace' for recreation.

The South East Dorset Green Infrstructure Strategy (July 2011) (SEDGIS) sets out "an overarching strategy to deliver, manage and maintain current and future green infrastructure assets". Whilst much of this document is not relevant to Hurn Forest, there are a few sections which are. However, these sections do appear to contradict each other, with one suggesting the Forest be managed primarily for conservation with only limited public access, and another suggesting that Hurn become an important recreational link between Moors Valley/Castleman Trail in the north and Christchurch and Bournemouth in the south.

Hurn Forest (along with Ringwood Forest, West Moors Plantation and Ramsdown) is described as being in the Lowland Heath Restoration Zone and associated SEDGIS Project. "Conservation and enhancement of the internationally important lowland heathlands in South East Dorset is a key priority. This project will focus on the opportunities for heathland expansion and in securing land adjacent to heathlands which will allow the species and habitats to be more robust against urban related pressures and predicted changes in

climate." As such Hurn is described as 'Grade 3' – "Sites Managed for Nature Conservation". Such Grade 3 sites are described as having the following characteristics:

- some managed public access
- low levels of facilities for residents and visitors
- high ecological sensitivity – national and
- international designations
- manage to restrict public access to the benefit of ecological assets.

However, in contrast with this is the SEDGIS Project called the Moors Valley Extension, which proposes strong recreational corridors between conurbations: "An extension to Moors Valley has the potential to link areas together to make a north-south recreational area with Moors Valley as a regional recreational hub. There is also potential to link Moors Valley to Avon Heath Country Park, together with the Forestry Commission land around West Moors and Hurn Forest and then onto St Catherine's Hill. Linking the area more closely to the Castleman Trailway would give good access to the New Forest in the east and to Ferndown and Poole in the west. It may also provide an offroad route from Bournemouth Airport, Throop and St Catherine's Hill to link with the Trailway."

Inevitably, documents such as the SEDGIS provide the strategic, broad direction. Individual locations or areas (such as Hurn Forest) can then be reviewed in the context of this and the full range of competing priorities at the appropriate time (such as at the next Forest Design Plan review).

Public interest in their local 'Forests'

In recent years there have been several examples where the local community has expressed a keen interest in the present or future management of their local landscape, and in particular the publicly accessible land.

The management proposals for Town Common brought about a significant and protracted local debate, involving many of the statutory bodies, conservation organisations and the local community groups.

At the East Dorset Forest Design Plan review (organised by the FC) the local community has sent representatives to express their views about the management and future direction of the Forest at Hurn and Ramsdown.

The recent review of the Public Forest Estate (land managed by FC) also galvanized not just support from the local community at Hurn, but also an interest from local residents as to how it would be managed in to the future.

Most recently, the survey work and publicity associated with this project has generated interest from the local community, with surveyors being asked questions whilst out in the Forest, and good attendance at local meetings and a guided walk about this project.

9) Collation of existing records and surveys

Sources

In 2007 the Forestry Commission commissioned Neil Sanderson to undertake an ecological assessment of Hurn Forest. The associated report provides an excellent assessment of the botanical interests, as well as clear understanding of the historic land management activities that took place in this area, which of course make Hurn Forest what it is today.

The vast majority of species records for the area have been provided by the Dorset Environmental Records Centre (DERC). The County facility provides a repository for all data from historic surveys and reports, as well as recent sightings. Through data exchange agreements, the Centre also holds the data of the numerous wildlife recording organisations and voluntary groups across the County.

DERC has a data exchange agreement with the Forestry Commission, and so almost all FC records rest with DERC. However, several records and interesting anecdotal wildlife information were available through conversations with FC staff.

Following publicity by Hurn Parish Council, a number of records from the public were emailed through to the Secretary during the survey period.

Finally, www.magic.gov.uk was used to access the most recent survey assessments by Natural England staff for the relevant SSSI units within the study area.

Overview of DERC data

DERC has provided the project with all of the known, existing wildlife data for the site. This provides a baseline to which the 2013 surveys could then embeliish upon with new records and information.

DERC provided data both for the study area and for a 1km buffer beyond the perimeter of the site. The latter is to demonstrate the breadth of wildlife in proximity to the study area, which may either be using the Forest for part of the life-cycle, or that could potentially have inhabited the Forest in the past or could potentially do so in the future.

The records span a wide range of taxa, from lower plants through to mammals. The earliest records in the DERC data are from the 1960's, with steadily more recording activity through the 1980-90's and early 2000's.

The records were originally generated from a wide range of sources and for varied purposes.

There are 4882 separate records for the study area, though some of these are of the same species at different locations within the Forest. From this, there are 1655 different species that have been recorded from the site over the last 40-50 years.

The DERC data holds 4,882 individual wildlife records from across the study area of Hurn Forest. From analysis of the data this results in 1,655 species found on site.

The DERC data holds 21,170 individual wildlife records from the 1 kilometre buffer area immediately around the edge of the Hurn Forest study area. From analysis of the data this results in 2,347 species found in the buffer.

The DERC data breaks down as follows (to be clear, this is prior to 2013 surveys, or Sanderson's botanical survey of 2007):

	Number of species in Hurn Forest study area	**Number of species in 1km buffer around Hurn Forest**
Lower plants (lichens, liverworts, mosses, horsetails and ferns)	134	115
Fungi	14	31
Plants	326	625
Moths	484	426 / 838*
Butterflies	32	35
Other Insects (plus millipedes, centipedes, spiders, harvestman)	518	898
Molluscs	3	21
Birds	111	141
Reptiles and amphibia	7	9
Fish	10	10
Mammals	11	29
Other	5	7
Total	**1655**	**2347 / 2759***

* Includes records from Moors Close **2007 survey

Table 9.1: DERC data for various taxa

The collation and evaluation of this information has confirmed there are significant gaps in the knowledge and understanding of the wildlife of Hurn Forest. For example, it is highly unlikely that Hurn Forest really does only support 14 species of fungi, or 3 species of snail(!), but this is all that had been recorded from the Forest over the last 40+ years.

Please refer to Appendix 2 holds all of the records analysis.

10) Botanical assessment

In 2007 Neil Sanderson conducted a thorough botanical assessment of Hurn Forest on behalf of the Forestry Commission and much the resulting report is repeated in this document (and the full report can be found in Appendix 4).

Field Survey

Field visits were made on 6th June, 28th June, 4th July, 6th July, 10th July, 11th July, 21st July and 3rd August 2007. During the survey a vegetation map was made (**Maps 19 – 22**). Reference was made to the National Vegetation Classification (NVC) (Rodwell, 1991a, 1991b, 1992 & 1995), especially in field notes, but a simplified a map of actual and potential vegetation was produced.

In open areas and semi-natural woodland the vegetation was mapped in broad categories related to the NVC (Rodwell 1991a, 1991b, 1992, 1995 and 2000). These are listed below with the map symbol given first.

H Open Dry Heath (NVC: H2, H3 & H1); dry heath in the broad sense, including both humid heath and strongly dry heath.

SH Open Inland Dune Heath of Sand Sedge *Carex arenaria* – Heather communities (NVC: H1d/H11) on ancient blown sand deposits.

WH Open Undisturbed Wet heath (NVC: M16a & M25a); typical wet heath and related Molinia dominated communities.

OW Open Disturbed Wet Heath (NVC: M16c); areas of disturbed wet heath with a distinctive flora.

PG Open Parched Acid Grassland (NVC: U1b, U1f & U3); generally species rich grasslands on summer parched soils.

DPG Developing Parched Acid Grassland (NVC: U1f); less rich parched Acid Grassland developing on reverting agricultural land.

SG Open Inland Dune Grasslands with Sand Sedge *Carex arenaria* or a high cover of lichens (NVC: U1a, U1a/2, SD11, SD12); distinctive grasslands found on ancient blown sand or in recently disturbed sand.

G Rides with heathy grasslands predominant (NVC: M25b & U3): rides with mown Molinia or *Molinia* – Bristle Bent *Agrostis curtisii* mixtures predominant. Not normally herb rich.

H/Pt Open heath with subsidiary Bracken (NVC: H2c).

Pt Open heath with dominant Bracken (NVC: U20, W25).

U Gorse present.

WS Mature dry semi-natural woodland of Oak, Birch and Holly (NVC: W10a, W4a, W16); large areas seriously invaded by Rhododendron.

WL *Molinia* and Acid Fen Meadows on shallow peats or wet soils (NVC: M25b, M23); *Molinia* communities with little heather and with wet grassland herbs and rush dominated communities.

WL Birch – Sallow scrub on shallow peats derived from *Molinia* or Acid Fen Meadows (NVC: W4b); typically with more Sallow than W4b on deep peat, *Agrostis canina* often dominant over *Molinia* and wet grassland herbs more frequent.

M Open communities of deep acid peat or very (NVC: M25a, M6); mainly overgrown *Molinia* – *Myrica* communities but also some Mesotrophic Bog (M6c) where trees have been recently cleared.

M Bog Woodland: Birch – Sallow scrub on deep or very wet acid peat (NVC: W4b); characterised by Birch more frequent than Birch and with *Molinia* and Bog Mosses *Sphagnum* prominent.

T Open *Molinia* mire with fen tall herbs (NVC: M25c): an unusual type of herb rich *Molinia* fen, mainly only seen where trees have been recently cleared

T Birch – Sallow on less acid peat transitional between Bog Wood & Carr (NVC: W4/W5, W4/W7); also some time with some Alder, with scattered *Molinia* in the ground vegetation with a rich flora with fen herbs.

C Fen on neutral peat with *Carex elongata* and *Carex vesicaria* prominent (NVC: S11 & *Carex elongata* swamps); small area open areas in the Carr.

C Carr: Alder wood on neutral peat with tall sedges (NVC: W5b); an unusual form, with *Carex elongata* locally dominant.

AF Flushed Alder wood or Sallow scrub without tall sedges (NVC: W7c); on firm but wet peats with herb rich floras lacking tall sedges.

N Nettle Woodland on alluvium or dry peat (W6); usually species poor stands on firm dry peat.

EF Eutrophic fen, mainly on alluvium (NVC: S4, S25, S26, S5, OV24)

OP Oligotrophic ponds (M2, A24): acidic standing open water.

Rh Rhododendron cover high.

PP Permanent Pasture (NVC: MG6); herb poor agricultural grasslands.

Within the woodlands, presence or absence of bracken on drier soils was mapped, with an estimate of the vigour of the Bracken in two classes. The presence of Bramble, Ivy and abundant Honeysuckle and (NVC W10) within the bracken was mapped as a proxy for soil fertility. The resulting categories are listed below:

H Bracken free plantation, wood & scrub on former heath (NVC: W4a, W16); areas that can be readily restored to Heather dominated heath.

SH Plantation on former Inland Dune Heath Sand Sedge – Heather communities (NVC: H1d/H11); areas where a rare heathland community could be restored.

H/Pt Plantation or scrub with weaker bracken with frequent heath species (NVC: W4a); restored heathland may require Bracken treatment to produce high quality habitat.

Pt/H Plantation or scrub with stronger bracken but with heath species still present (W4a); areas which may have originally been Bracken dominated in original open heathland.

WH Detectable area of wooded former wet heath (NVC: W4a); difficult to detect but some stands identified.

W Plantation or scrub with Bramble, Honeysuckle or Ivy prominent (NVC: W10a).

The mires and peaty soils proved to be very complex. The current vegetation was mapped on **Maps 19 - 22**, with the hydro-ecology mapped separately (**Map 23**). Unlike Ringwood Forest (Sanderson, 2007), most peat soils were still wet although one strongly drained peat was detected and this was mapped separately in the latter map. The wet peat soils were separated by depth and nutrient status as inferred from the vegetation. Deep peats were defined as deeper than 30cm and shallow peats as having very wet humic upper horizons between 30 and 10cm deep.

- Strongly acidic shallow wet peats, mainly occupied by Bog Woodland (W4b), likely to support wet heath (M16a) if open and grazed.
- Less acidic shallow wet peats, mainly occupied by Bog Woodland (W4b), support *Molinia* Grasslands (M25b or M24c) where open.
- Less acidic shallow drier peats, mainly occupied by Nettle Woodland (W6), support Acid Fen Meadows (M23) where open.
- Strongly acidic wet deep peat, mainly occupied by Bog Woodland (W4b) with Myrica – Molinia Mire where open, likely to support Mesotrophic Bog (M6) or even Oligotrophic Bog (M21) if open and grazed.
- Less acidic deep wet peat, mainly occupied by Carr and Bog Woodland/Carr transitions (W5b, W4/W5 & W4/W7) open areas support Molinia Fen (M25c) and fenny swamps (S11, Carex elongata swamps).
- Dry deep peat with Nettle Woodlands or Flushed Alder Woodland (W6, W7c), likely to support Acid Fen Meadows (M23) if open and grazed.
- Drained deep peat, supporting plantation with Bramble Woodland (W10).
- Slight acidic seepages, feeding wet heaths (W16a, W16c).
- Likely nutrient inputs into mires.

The presence of vascular plant, bryophyte and lichen species of conservation interest was actively searched for (**Map 24**). Other dominant and prominent species were noted in Notes on Compartments and Target Notes (**Appendix 4**).

Nomenclature & Rare Species

Nomenclature

The nomenclature follows Stace (1997) for vascular plants, Hill et al (2006) for mosses, Blockeel & Long (1998) for liverworts and Coppins (2002) for lichens.

National Rarity

For vascular plants, definitions of rarity have been in flux, due to the recently completed national resurvey of the vascular plant flora of Britain (Preston et al, 2002). The new list of Nationally Rare (NR) and Nationally Scarce (NS) derived from (Preston et al, 2002) is published on JNCCs web site. The new data has also has allowed declines in distribution to be assessed and thus allocate Red Data Book threat categories (Endangered EN, Vulnerable VU & Near Threatened NT) to declining species, including species that are not Nationally Rare or Scarce in a new Data Book (Cheffings & Farrell, 2005). Nationally Rare and Scarce plants not included within the Red Data Book presumably still have the same national significance that Nationally Scarce species had before the new Red Data Book.

For bryophytes the definitions of Nationally Rare and Nationally Scarce species follows the data in Hill et al (1991, 1992 & 1994) as recommended on JNCC web site. This differs slightly from the lists in Hodgetts (1992) as the draft of Hill et al (1994) used by Hodgetts (1992) differed from the published version. Red Data Book status is as listed in Church et al (2001)

For lichens the definitions of Red Data Book status, Nationally Rare and Nationally Scarce and International Responsibility Species (IR) follows Woods & Coppins, (2003). International Responsibility Species are defined as follows:

International Responsibility Species: this is a new category that recognises that some species are commoner in Britain than elsewhere. They are absent, rare or threatened in the rest of Europe and are thought, on existing data, to have 10% or more of their European or World population in Britain. These could be considered as more important than some Red Data Book species, which are common elsewhere in the world. The significance of these species depends on their actual British and local rarity but special attention needs to be paid to them in management.

Local Rarity

Somewhat confusingly local rarity for plants is now being defined on the basis of botanical vice-counties. This has the advantage of unchanging boundaries but the disadvantage that assessments will not match local government boundaries. In the case of the study area this is all in the botanical vice-county South Hampshire. A local Red Data Book is being compiled for Hampshire at present and the list of Hampshire Notable (HN) species (county rare and

county scarce plants) is taken from the Hants Plants web site <http://www.hantsplants.org.uk/>.

Biodiversity Action Plan

The habitats and species covered by the Biodiversity Action Plan had just been reviewed, with new habitats and species added during writing this report (Biodiversity Reporting and Information Group, 2007). Under the CROW Act bodies such as the Forestry Commission are required to have a regard to the conservation of BAP habitats and species.

Indicator Species Lists

Indicator lists are list of species indicative of habitat quality that can be used to assess conservation importance of sites. Five lists indicative of habitat quality were regarded of relevance to this site:

- **Ancient Woodland Vascular Plants** (AWVP) (Rose, 1999): a list of 100 species characteristic of botanically rich woodland in southern England. Species rich woodlands would normally be expected to have over 20 species with only exceptional woods or large complexes with over 40. Full surveys are only possible with spring surveys.
- **Southern Region Unimproved Grassland Indicators** (Wet to Mesic Grassland Indicator Species): an unpublished list devised by Dr F. Rose & Dr R. Hornby but given in Brough & Gibbons (1986). It includes 68 species characteristic of wet to mesic grassland, including all acid or base rich fen meadows, neutral grassland into moister acid dry acid grassland. It does not cover dry calcareous or dry acid grassland. Unimproved grassland would be expected to have at least 5 or more than of these species with the most exceptional sites having 20 or more.
- **Lowland Dry Acid Grassland Indicator Species** (DAG) (Sanderson, 1998): a list of species associated with parched acid grasslands (NVC, U1) of nature conservation interest nationally. Ten or more species are regarded as indicating sites of high nature conservation interest while sites with more than 20 are exceptional. Full surveys require visits in both spring and early summer. This list proved especially useful within the study area to pick out areas of importance for Parched Acid Grasslands. Sites with 5 of more indicators were mapped on **Map 24**.

- **Ancient Woodland Indicator Lichens (NIEC)**: indicator list can be used to assess the diversity and conservation value of woodland epiphytic lichen floras (Rose, 1992 & Coppins & Coppins, 2002). It replaces an earlier more general indicator list the 'Relative Index of Ecological Continuity' (RIEC) Rose (1976). This list indicates habitat quality; the total number of species found is the important parameter. The indicator species are associated with late succession stands with veteran trees (old growth stands i.e. stands more than 200 years old) (Alexander et al, 2002), especially those stands with a past continuity of old trees. Woods that have been clear felled, but regenerated, within the last 200 years (young growth stands) are therefore likely to be poorer in lichen indicator species than less disturbed stands. The lichen ancient woodland indicator lists are different from similar ancient woodland indicator lists composed of vascular plants or bryophytes. The latter reflect ancient sites rather than stands and are much less effected by the management of the trees. The NIEC ancient woodland indicator list consists of 70 species with Hodgetts (1992) regarding sites with 20 or more Ancient Woodland Indicators species as being of SSSI quality for their lichen flora. Sites with more than 30 such are likely to be of international significance. Such woods are likely to old growth stands with a strong continuity of veteran trees. Below this, as a rough guide, woods with 10 to 19 could be regarded as of county importance and those with 5 to 9 are of high local significance for their woodland lichen flora.

- **Dorset Notable Species**: unlike the above list this indicator list is intended to cover all habitats in the modern county of Dorset (Walls, 1996). As such is rather less discriminating than the habitat specific lists and includes some species of low indicative value such as *Deschampsia flexuosa*. In Dorset SNCI assessments judge that a site with 5 of more Dorset Notable species is taken to be of county interest.

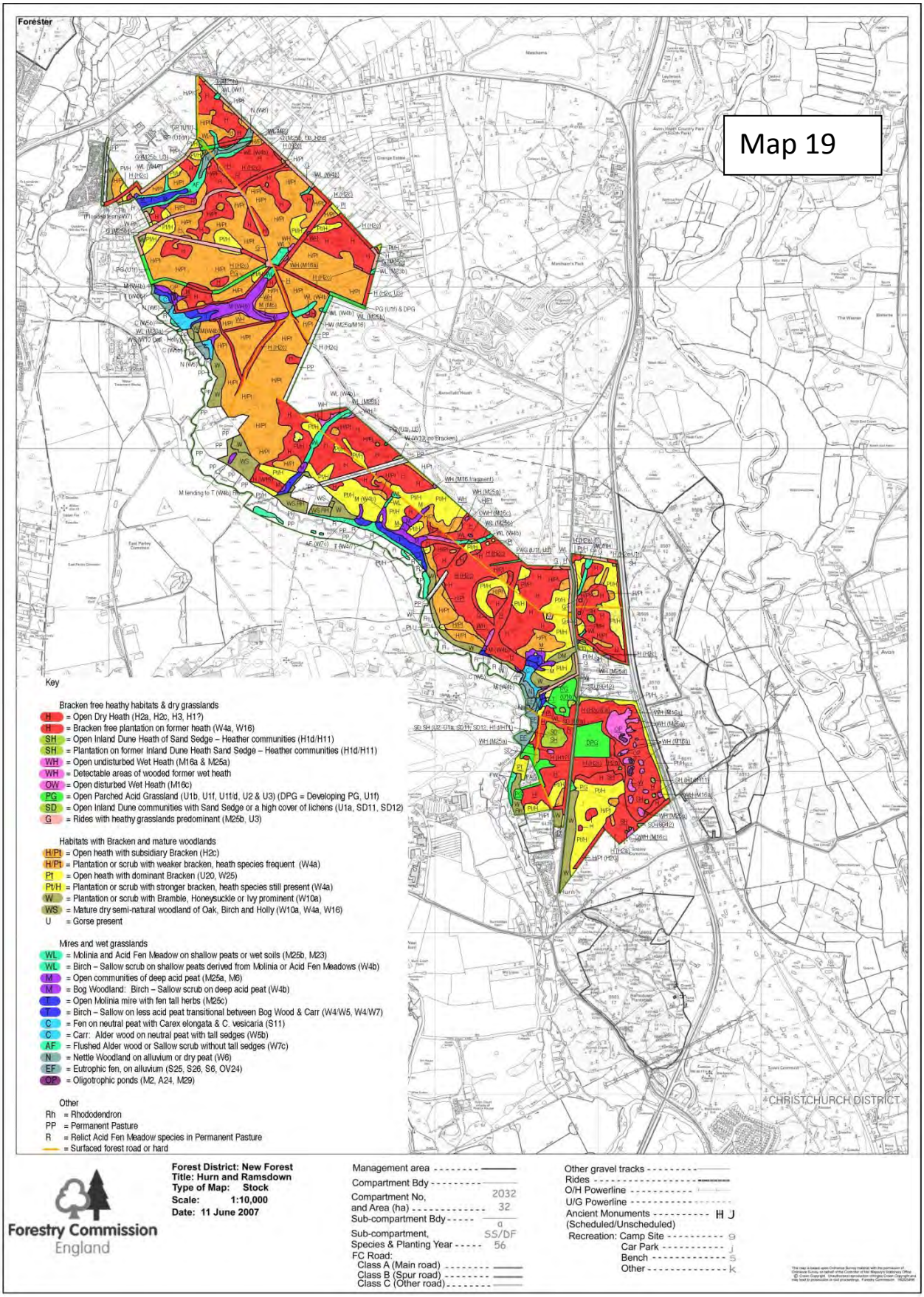
Botanical Survey Introduction

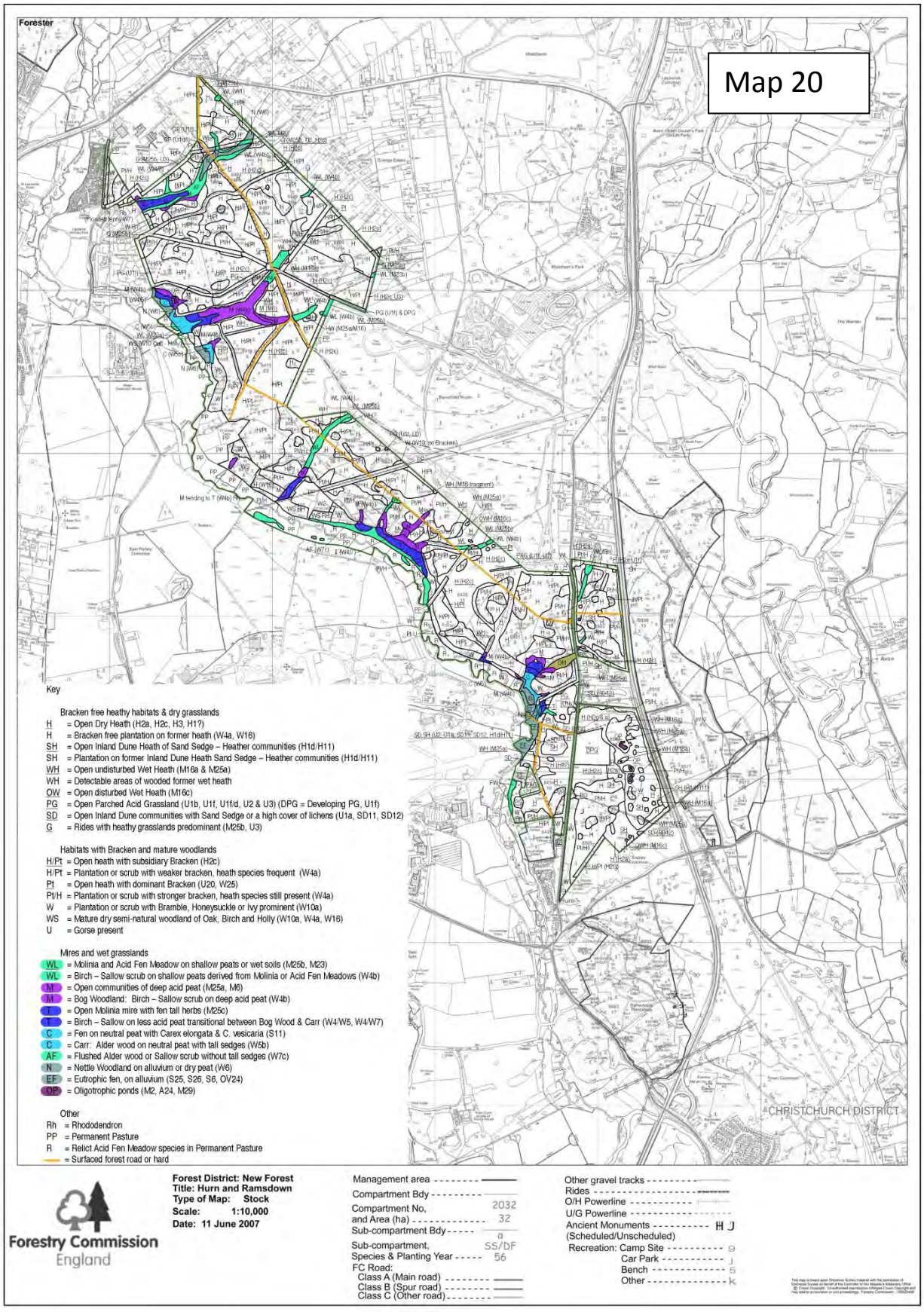
The results of the field survey are presented visually on **Maps 19 – 24**. More detailed compartment descriptions and target notes are given in **Appendix 4**. **Map 19** shows the overall result of the vegetation mapping of Hurn Forest. This data is also broken down into individual habitat types (**Maps 20 – 22**). A map of the reconstructed hydro-ecology is also provided (**Map 23**). Rather than conventional vegetation mapping, the mapping is intended to allow the reconstruction of the original heathland vegetation of the area and to determine the potential for restoration. The distributions of plant species of interest recorded in 2007 and from old data are present on **Map 24**. Capitalised English names have been invented for NVC communities in the descriptions below.

Mires, *Molinia* Pastures and Acid Fen Meadows

Introduction

Unlike Ringwood Forest, the Forestry Commission property to the north (Sanderson, 2007), there was no deep drainage during the planting of Hurn Forest. Some deep drainage had already occurred in the 19th century, particularly at Fillybrook, and shallow drainage and ploughing occurred in the upper section of several valleys during planting. The main mires, however were left undrained or planted. As a result the hydro-ecology of Hurn Forest was much less difficult to determine than at Ringwood Forest, although the Moors River needs to be viewed in full flood to fully understand the system. Fortunately unseasonable floods in June provided an ample illustration of what happens. The term hydro-ecology is used rather than hydrology, to reflect the author's expertise. As well as the overall picture given by **Map 19**, **Map 20** shows the wet non-heath habitats and **Map 23** the hydro-ecology.


Forester
Map 19
Key
Bracken free heathy habitats & dry grasslands
H = Open Dry Heath (H2a, H2c, H3, H1?)
H = Bracken free plantation on former heath (W4a, W16)
SH = Open Inland Dune Heath of Sand Sedge – Heather communities (H1d/H11)
SH = Plantation on former Inland Dune Heath Sand Sedge – Heather communities (H1d/H11)
WH = Open undisturbed Wet Heath (M16a & M25a)
WH = Detectable areas of wooded former wet heath
OW = Open disturbed Wet Heath (M16c)
PG = Open Parched Acid Grassland (U1b, U1f, U1f/d, U2 & U3) (DPG = Developing PG, U1f)
SD = Open Inland Dune communities with Sand Sedge or a high cover of lichens (U1a, SD11, SD12)
G = Rides with heathy grasslands predominant (M25b, U3)
Habitats with Bracken and mature woodlands
H/Pt = Open heath with subsidiary Bracken (H2c)
H/Pt = Plantation or scrub with weaker bracken, heath species frequent (W4a)
Pt = Open heath with dominant Bracken (U20, W25)
Pt/H = Plantation or scrub with stronger bracken, heath species still present (W4a)
W = Plantation or scrub with Bramble, Honeysuckle or Ivy prominent (W10a)
WS = Mature dry semi-natural woodland of Oak, Birch and Holly (W10a, W4a, W16)
U = Gorse present
Mires and wet grasslands
WL = Molinia and Acid Fen Meadow on shallow peats or wet soils (M25b, M23)
WL = Birch – Sallow scrub on shallow peats derived from Molinia or Acid Fen Meadows (W4b)
M = Open communities of deep acid peat (M25a, M6)
M = Bog Woodland: Birch – Sallow scrub on deep acid peat (W4b)
T = Open Molinia mire with fen tall herbs (M25c)
T = Birch – Sallow on less acid peat transitional between Bog Wood & Carr (W4/W5, W4/W7)
C = Fen on neutral peat with Carex elongata & C. vesicaria (S11)
C = Carr: Alder wood on neutral peat with tall sedges (W5b)
AF = Flushed Alder wood or Sallow scrub without tall sedges (W7c)
N = Nettle Woodland on alluvium or dry peat (W6)
EF = Eutrophic fen, on alluvium (S25, S26, S6, OV24)
OP = Oligotrophic ponds (M2, A24, M29)
Other
Rh = Rhododendron
PP = Permanent Pasture
R = Relict Acid Fen Meadow species in Permanent Pasture
= Surfaced forest road or hard
CHRISTCHURCH DISTRICT
Forestry Commission England
Forest District: New Forest
Title: Hurn and Ramsdown
Type of Map: Stock
Scale: 1:10,000
Date: 11 June 2007
Management area
Compartment Bdy
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
FC Road:
Class A (Main road)
Class B (Spur road)
Class C (Other road)
Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments (Scheduled/Unscheduled)
Recreation: Camp Site g
Car Park j
Bench 5
Other k


Forester
Map 20
Key
Bracken free heathy habitats & dry grasslands
H = Open Dry Heath (H2a, H2c, H3, H17)
H = Bracken free plantation on former heath (W4a, W16)
SH = Open Inland Dune Heath of Sand Sedge – Heather communities (H1d/H11)
SH = Plantation on former Inland Dune Heath Sand Sedge – Heather communities (H1d/H11)
WH = Open undisturbed Wet Heath (M16a & M25a)
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SD = Open Inland Dune communities with Sand Sedge or a high cover of lichens (U1a, SD11, SD12)
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W = Plantation or scrub with Bramble, Honeysuckle or Ivy prominent (W10a)
WS = Mature dry semi-natural woodland of Oak, Birch and Holly (W10a, W4a, W16)
U = Gorse present
Mires and wet grasslands
WL = Molinia and Acid Fen Meadow on shallow peats or wet soils (M25b, M23)
WL = Birch – Sallow scrub on shallow peats derived from Molinia or Acid Fen Meadows (W4b)
M = Open communities of deep acid peat (M25a, M6)
M = Bog Woodland: Birch – Sallow scrub on deep acid peat (W4b)
T = Open Molinia mire with fen tall herbs (M25c)
T = Birch – Sallow on less acid peat transitional between Bog Wood & Carr (W4/W5, W4/W7)
C = Fen on neutral peat with Carex elongata & C. vesicaria (S11)
C = Carr: Alder wood on neutral peat with tall sedges (W5b)
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N = Nettle Woodland on alluvium or dry peat (W6)
EF = Eutrophic fen, on alluvium (S25, S26, S6, OV24)
OP = Oligotrophic ponds (M2, A24, M29)
Other
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PP = Permanent Pasture
R = Relict Acid Fen Meadow species in Permanent Pasture
= Surfaced forest road or hard
CHRISTCHURCH DISTRICT
Forestry Commission England
Forest District: New Forest
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Type of Map: Stock
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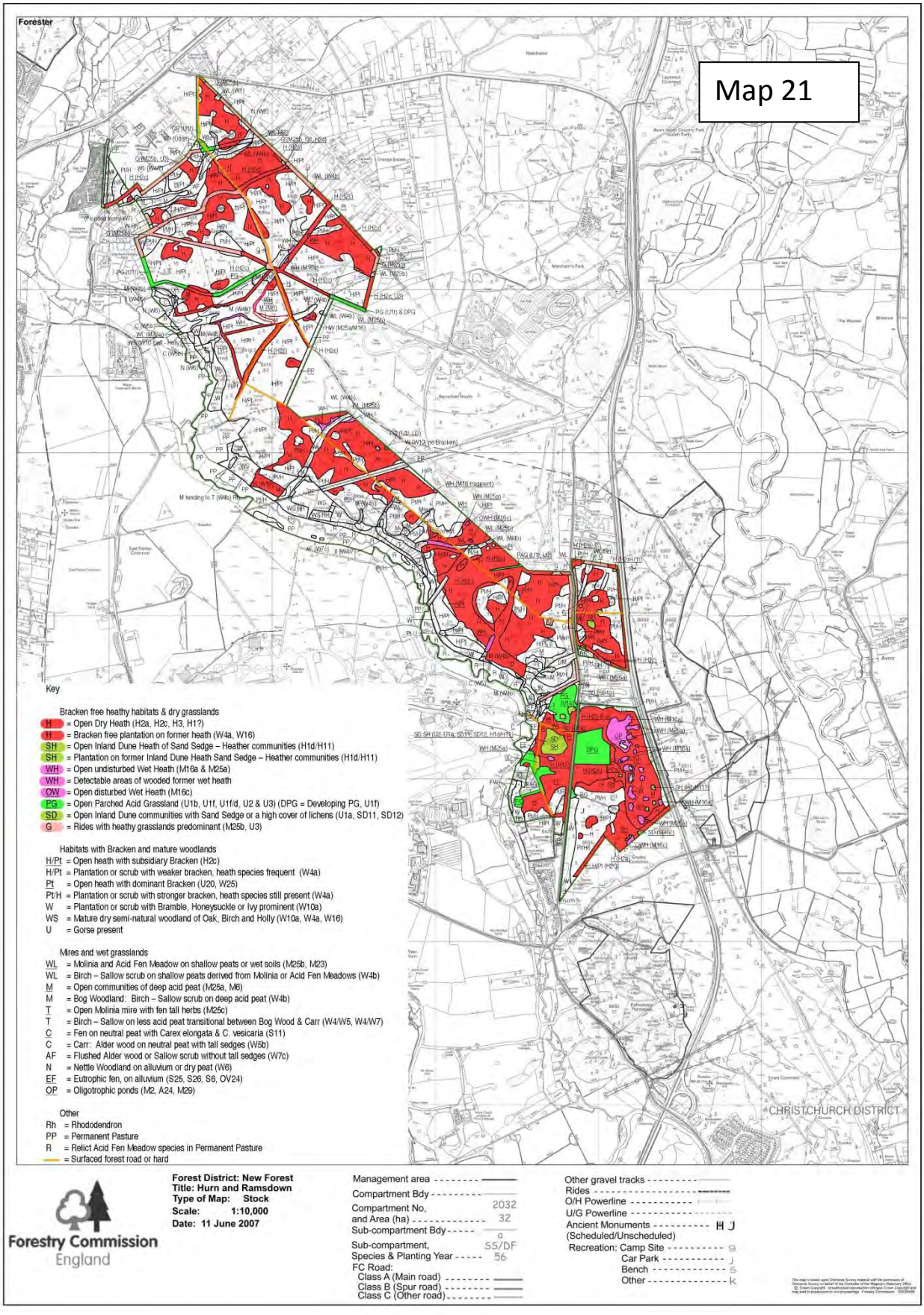
Date: 11 June 2007
Management area
Compartment Bdy
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
FC Road:
Class A (Main road)
Class B (Spur road)
Class C (Other road)
Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments H J
(Scheduled/Unscheduled)
Recreation: Camp Site g
Car Park j
Bench b
Other k


Forester
Map 21
Key
Bracken free heathy habitats & dry grasslands
H = Open Dry Heath (H2a, H2c, H3, H12)
H = Bracken free plantation on former heath (W4a, W16)
SH = Open Inland Dune Heath of Sand Sedge – Heather communities (H1d/H11)
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U = Gorse present
Mires and wet grasslands
WL = Molinia and Acid Fen Meadow on shallow peats or wet soils (M25b, M23)
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M = Bog Woodland: Birch – Sallow scrub on deep acid peat (W4b)
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T = Birch – Sallow on less acid peat transitional between Bog Wood & Carr (W4/W5, W4/W7)
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Forestry Commission England
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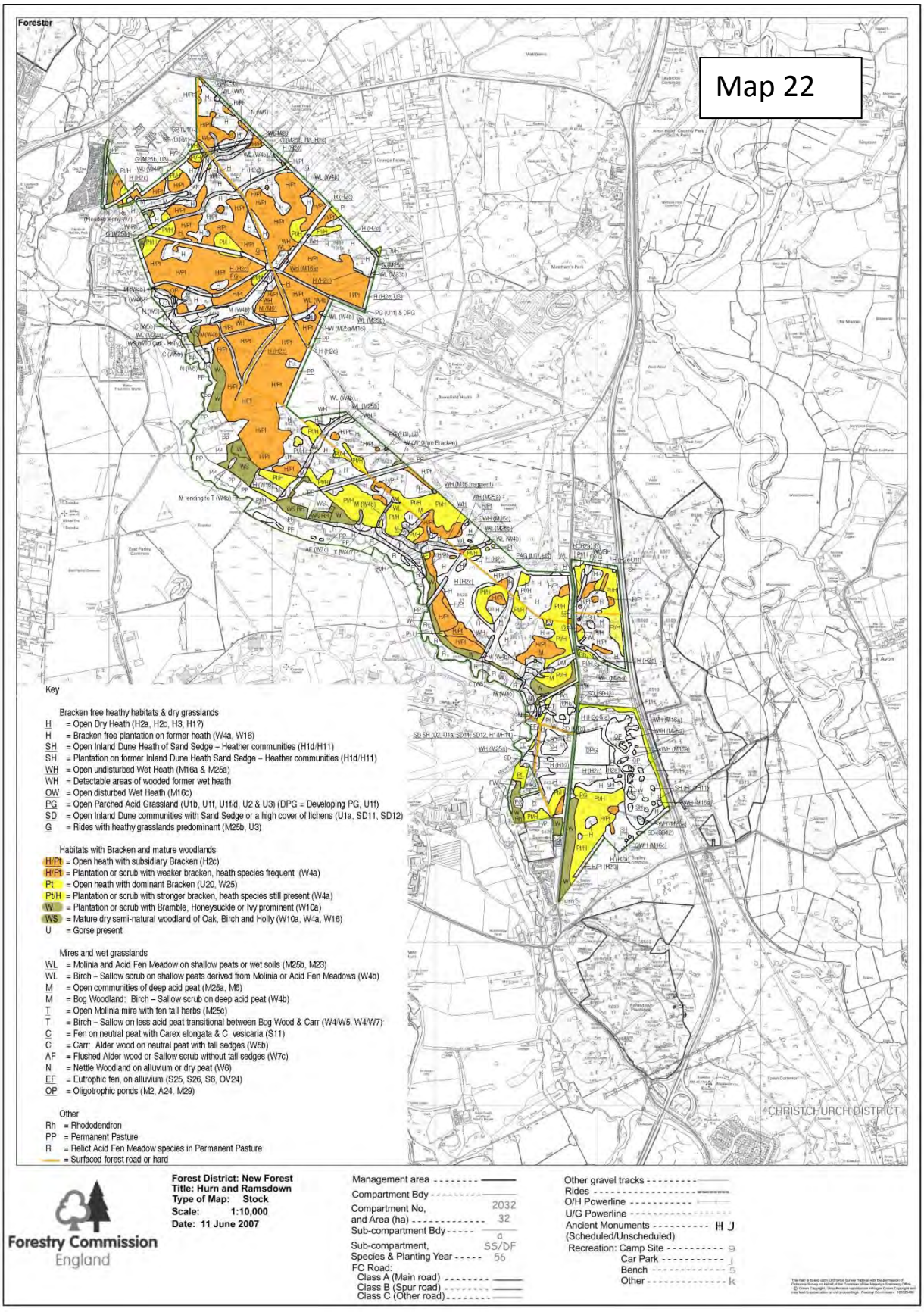
Date: 11 June 2007
Management area
Compartment Bdy
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
FC Road:
Class A (Main road)
Class B (Spur road)
Class C (Other road)
Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments (Scheduled/Unscheduled) H J
Recreation: Camp Site g
Car Park j
Bench b
Other k


Forester
Map 22
Key
Bracken free heathy habitats & dry grasslands
H = Open Dry Heath (H2a, H2c, H3, H17)
H = Bracken free plantation on former heath (W4a, W16)
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C = Fen on neutral peat with Carex elongata & C. vesicaria (S11)
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Management area
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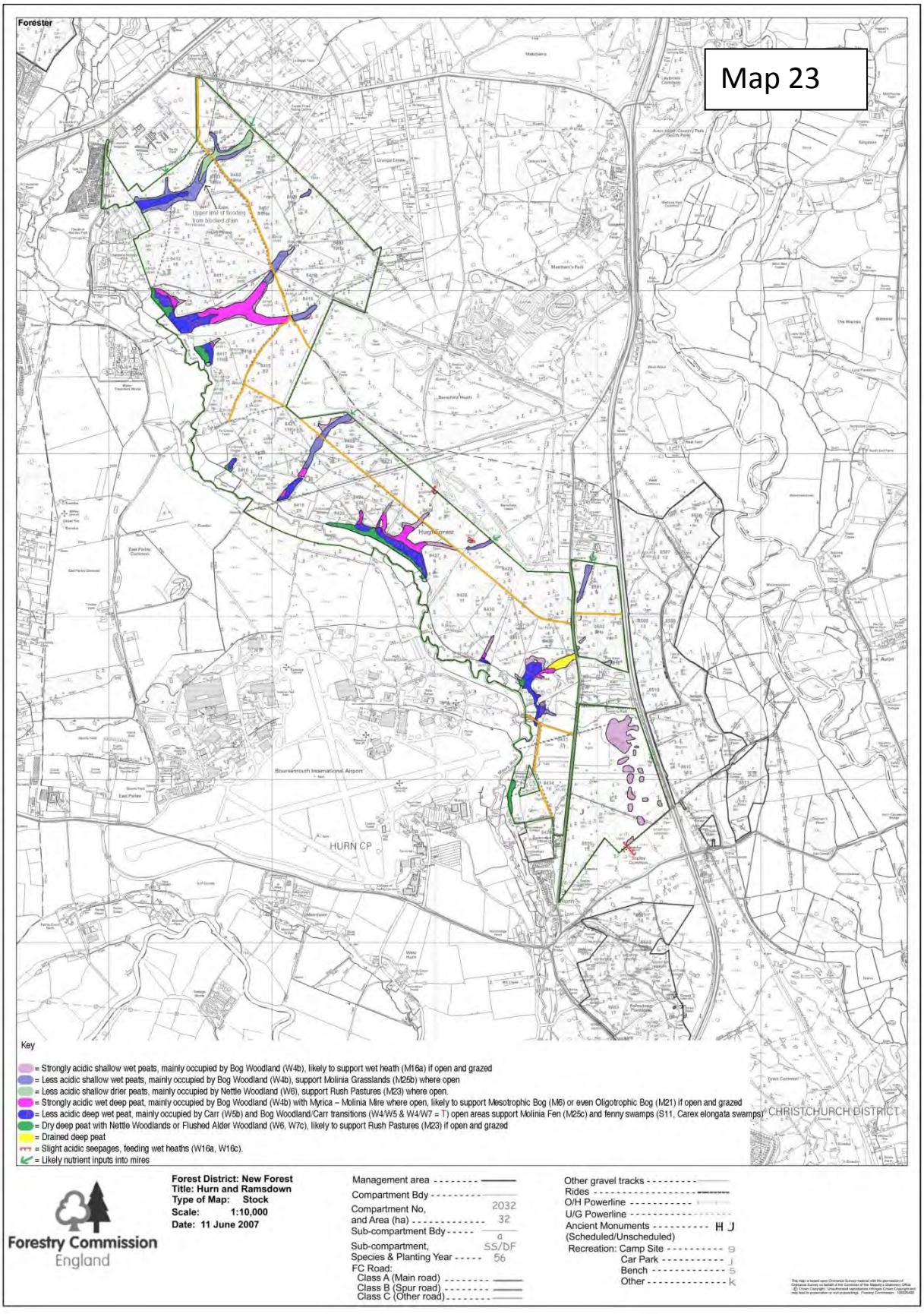
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
FC Road:
Class A (Main road)
Class B (Spur road)
Class C (Other road)
Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments H J
(Scheduled/Unscheduled)
Recreation: Camp Site 9
Car Park J
Bench 5
Other K


Forester
Map 23
Hurn Forest
Bournemouth International Airport
HURN CP
CHRISTCHURCH DISTRICT
Key
= Strongly acidic shallow wet peats, mainly occupied by Bog Woodland (W4b), likely to support wet heath (M16a) if open and grazed
= Less acidic shallow wet peats, mainly occupied by Bog Woodland (W4b), support Molinia Grasslands (M25b) where open
= Less acidic shallow drier peats, mainly occupied by Nettle Woodland (W6), support Rush Pastures (M23) where open.
= Strongly acidic wet deep peat, mainly occupied by Bog Woodland (W4b) with Myrica – Molinia Mire where open, likely to support Mesotrophic Bog (M6) or even Oligotrophic Bog (M21) if open and grazed
= Less acidic deep wet peat, mainly occupied by Carr (W5b) and Bog Woodland/Carr transitions (W4/W5 & W4/W7 = T) open areas support Molinia Fen (M25c) and fenny swamps (S11, Carex elongata swamps)
= Dry deep peat with Nettle Woodlands or Flushed Alder Woodland (W6, W7c), likely to support Rush Pastures (M23) if open and grazed
= Drained deep peat
= Slight acidic seepages, feeding wet heaths (W16a, W16c).
= Likely nutrient inputs into mires
Forestry Commission England
Forest District: New Forest
Title: Hurn and Ramsdown
Type of Map: Stock
Scale: 1:10,000
Date: 11 June 2007
Management area
Compartment Bdy
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
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Class C (Other road)
Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments H J
(Scheduled/Unscheduled)
Recreation: Camp Site 9
Car Park J
Bench 5
Other K

Hydro-ecology and Historic Vegetation

The complex seepage mires, originating from hill slope springlines that are characteristic of many heathlands in the Poole and Hampshire Basins are absent from the study area. Only two slight seepage lines were detected. In the far south on Avon Common in Cmpt 8505 the northern end of a seepage feed from a reservoir in the Branksome Sand brought and to the surface by the Parkstone Clay. This extends south off Forestry Commission land into Sopley Common. A second very slight seepage was detected in Cmpt. 2927 within the Branksome Sand. The latter probably brought to the surface by an unmapped thin clay layer. Both seepages are week and only support Wet Heath (M16a & M16c). Off FC land on Sopley Common, however, there is a tiny patch of Oligotrophic Bog (Narthecium ossifragum – Sphagnum papillosum Mire, Rhynchospora alba – Sphagnum denticulatum sub-community, M21a), where a natural sump has collected a pool of water. The water from these seepages is clearly highly acidic and nutrient poor.

The now largely drained upper Fillybrook mire supported deep peat to as far as Cmpt. 2937 on Avon Common. This may have been fed by a high level spring as the deep peat rises quite high above the floodplain, and proved easy to drain in the 19th century. The other mires do not appear to rise very much above the floodplain and are fed by a regional aquifer within the Branksome Sand that is brought to the surface by encountering the Moors River. The three large mires (Lower Fillybrook, East of Keys Copse and St Leonard's Peat South) that have intact lower sections along the Moors River are quite unusual in that acidic ground water fed valley mires flow directly into floodplain mires within the back swamp of the floodplain. This produces a graduation from highly acidic mires with abundant Bog Mosses *Sphagnum* to non acidic, but not very calcium rich mires on the floodplain lacking *Sphagnum*. When viewed during full flood, three vegetation zones can be seen and related to the flood regime:

- Above the level of the floods are highly acidic mire communities with Bog Mosses *Sphagnum* dominant.
- This is followed by a transition zone where acidic water flowing down through the mire is held up by, and partly mixed with, the river flood water. The vegetation is very mixed, with bog and fen species both present.
- Deep peat on the floodplain, completely flooded by river water during floods but probably with more influence from valley mire water during low water periods. No bog species present in the vegetation.

St Leonard's Peat North was probably once similar but has been much altered by development off Forestry Commission land, both upstream and downstream. From upstream there is a high input of nutrients and downstream the lower section of the mire

has been infilled, and the drainage capacity reduced, resulting in unnaturally frequent flooding by backing up.

The overwhelming majority of the mires appear to have been treeless for centuries but are now largely wooded, a change that occurred in about 50 years. The historic vegetation therefore must have been much different. It was also richer in species that are now rare and declining across the south. In reconstructing the vegetation it is also important to consider that there may also have been changes in the chemical nature of the mire water due to land use changes. There has certainly been enrichment upstream from improved grassland in pony paddocks in the Grange Estate. This has had a dramatic effect on the upper section of St Leonard's Peat North, where Nettle Woodland (W6) has replaced less nutrient demanding vegetation. To the south large quantities of fine heathland soil washed in from vehicle testing tacks on Barnsfield MOD land appears to have also raised nutrient levels but not to such an extreme degree.

The shallow peat at the upper ends of the valley mires in their current condition are likely to support *Molinia* Grassland (M25b or M24c) or, where significantly polluted, Acid Fen Meadow (M23). The latter is only in evidence in upper St Leonard's Peat North. Traces of *Molinia* Grassland occur in valleys not affected by silt washed in from Barnsfield Heath so this type of community was probably typical but could have included the closely related Species Rich Wet Heath (M16b).

The water seeping from Branksome Sand in small seepages locally is strongly acid and species poor and supports oligotrophic communities (M16c & M21a). It is likely that parts of the deep acid peats within the mires supported Oligotrophic Bog (M21a). This is most likely to have occurred towards the margins of the valley mires, less affected by water flowing through. Nothing of this community remains, acid bog is now either Bog Woodland (W4b) or dense overgrown *Molinia* – *Myrica* Mire (M25a). In their current condition, cleared areas of mire support Mesotrophic Bog (M6), this may have originally occurred in sections of the mires with through flowing water and closer to the floodplain. More nutrient rich acidic peat, however has probably spread through the enriching affects of tree leaf litter and silt washed in from Barnsfield. Old peat cuttings will have produced frequent open water in pools. These are likely to have supported Oligotrophic Bog Pools (M1 or M2) in low flow areas and Soakways (M29) where water movement was stronger. This vegetation has largely disappeared as well, but traces remain in the excavated pools in St Leonard's Peat South.

The transition between the valley mires and floodplain mires is marked by unusual mixtures of bog and fen species. Currently most of this mire is invaded by trees and consists of transitions between Bog Woodland (W4b) and Carr (W5b). In a few places clearance has resulted in the temporary appearance of fenny species rich *Molinia* communities that are rapidly re-invaded by trees. This suggests some sort of very species rich *Molinia* Fen (M24 or M25c) was the original vegetation of this zone.

Within fully developed floodplain mires there are currently few open areas on deep peat. Wet Peat supports Carr (W5b), often with the Nationally Scarce Gingerbread Sedge *Carex elongata* prominent, while drier peats support Nettle Woodland (W6) or Flushed Alder Woodland (W7c). The drier peats certainly originally supported Acid Fen Meadow (M23a). The original vegetation of the wetter floodplain mires is not at all clear. Small glades at Fillybrook support an undescribed *Carex elongata* swamp and Carex vesicaria Swamp (S11). The likely open vegetation were mixtures of sedge swamps and Tall Herb Fen (Phragmites australis – Eupatorium cannabinum Tall Herb Fen Carex paniculata sub-community, S25b).

The floodplain beyond the mires is dominated by clay rich alluvium in which gley soils are developed. In normal years these will have been frequently flooded in winter and dried out in summer. As the summer of 2007 demonstrated, summer floods are also an occasional possibility. The river currently supports mesotrophic to eutrophic vegetation but may have been less nutrient enriched in the past. The floodplain was long managed as hay meadows. Currently most are managed as pastures, although some hay is cut from the floodplain, with most hay now grown on the higher former arable fields on the slopes above. The floodplain grasslands are currently mainly species poor due to fertiliser applications, although some areas of Acid Fen Meadow (M23a) survive in lower lying areas. In the far south the floodplain has been abandoned and the wet grassland replaced by Nettle Fen (S26), Nettle Woodland (W6) and some better quality areas of Tall Herb Fen (S26a). In the past Acid Fen Meadow (M23a) probably dominated the wetter hay meadows and drier areas supported Herb Rich Meadow (MG5).

Beyond the mire systems, in the eastern section of the Height Restriction Zone, there are complexes of Wet Heath (M16a) and Oligotrophic Bog Pools (M2) were ancient windblown hollows meet the ground water in Avon Common. These are low productivity wetlands and are still mainly in good condition even in the absence of grazing, although, there are local areas of *Molinia* overgrowth. Further examples of flooded windblow hollows were drained and planted with conifers within in Avon Common beyond the study area (east of main A338).

Current vegetation of Mires and Wet Grasslands

Mires and wet grasslands are localised and have been much altered by natural tree colonisation or agricultural improvement. Silviculture has had much less impact than on other habitats.

Molinia *and Acid Fen Meadow on Shallow peats or Wet Soils* (WL): equivalent to the Wet Lawns vegetation of the New Forest. *Molina* Grassland occupies less nutrient rich wet soils than Acid Fen Meadow. The latter appears to be confined to the floodplain of the Moors River as a native community. It only occurs away from the Moors River where nutrient enriched run off from the Grange Estate is affecting upper St Leonard's Peat North. *Molinia* Grassland is replaced by drier stands of Bog Woodland (W4b) on tree colonisation and Acid Fen Meadow by Nettle Woodland (W6)

Off the Moors River floodplain most examples are unmanaged and in poor condition. The one exception is the northern end of the agricultural grassland on the pipeline ride west of Bransfield (Compt. 2914), where the *Molinia* Grassland is occasionally grazed and is species

rich. This is a good example of what must have once been a significant community in the study area. This grassland has *Molinia caerulea* tussocks associated with species such as with *Achillea ptarmica*, *Anthoxanthum odoratum*, *Carex panicea*, *Carex vesicaria* (HN), *Cirsium palustre*, *Dactylorhiza praetermissa*, *Euphrasia nemorosa*, *Galium palustre*, *Galium uliginosum*, *Juncus acutiflorus*, *Lotus pedunculatus*, *Lychnis flos-cuculi*, *Parentucellia viscosa* (HN), *Senecio aquaticus* and *Succisa pratensis*. The latter locally abundant. Unmanaged stands tend to be dominated by dense *Molinia* or rushes (*Juncus effusus* or *Juncus acutiformis*) and is easily invaded by trees. Recently cleared areas are richest in associated species, which included frequent *Galium palustre*, *Lotus pedunculatus*, *Lycopus europaeus* and *Mentha arvensis* with occasional *Cirsium palustre*, *Scutellaria minor*, *Carex panicea*, *Hypericum tetrapterum* and *Ranunculus flammula*. Rarely occurring species include Heath Spotted Orchid *Dactylorhiza maculata*, Heath Lousewort *Pedicularis sylvatica* and *Potentilla anglica* (HN). These stands are probably best classified as Molinia – Potentilla erecta Mire Anthoxanthum odoratum sub-community (M25b). Old records of *Cirsium dissectum* suggest that the somewhat richer Molinia – Cirsium dissectum Fen Meadow, Juncus acutiflorus - Erica tetralix sub-community (M24c) may have also been present.

Away from the floodplain Acid Fen Meadow consists of unmanaged and degenerate, mainly rather species poor dense stands of rushes (*Juncus effusus* or *Juncus acutiformis*) with species such as *Lotus pedunculatus*, *Galium palustre*, *Agrostis canina* and *Holcus lanatus*. Within the floodplain there are some surviving well developed richer stands characterised by abundant *Juncus acutiflorus* along with *Ranunculus flammula*, *Achillea ptarmica*, *Anthoxanthum odoratum*, *Deschampsia cespitosa*, *Agrostis stolonifera*, *Centaurea nigra*, *Alopecurus pratensis*, *Filipendula ulmaria*, *Ranunculus acris*, *Carex nigra*, *Carex acutiformis*, *Galium palustre*, *Lysimachia vulgaris* and *Lotus pedunculatus* (Juncus effusus/acutiflorus – Galium palustre Rush Pasture Juncus acutiflorus sub-community, M23a).

Relict Acid Fen Meadow species in Permanent Pasture (R): the wetter floodplain grassland within the farmed fields is mainly improved and is regularly fertilised, even within the SSSI on the floodplain (D. Kite, pers com.). The sward ranges from *Agrostis stolonifera* – *Ranunculus repens* swards with *Glyceria fluitans* patches, in the wettest areas through to drier pasture with *Agrostis capillaris* or *Lolium perenne* dominant. Much of this has a scatter of *Juncus acutiflorus*, *Carex acutiformis*, *Galium palustre*, *Ranunculus flammula* and *Caltha palustris*. These and the surviving patches of unimproved grassland suggests an origin from Acid Fen Meadow managed as hay meadow Juncus effusus/acutiflorus – Galium palustre Rush Pasture Juncus acutiflorus sub-community (M23a).

Birch – Sallow Scrub on Shallow Peats derived from Molinia or Acid Fen Meadows (WL): most former *Molinia* Grassland communities within the former heathland have been invaded by Sallow stands with Down Birch. These tend to have more *Agrostis canina* than *Molinia* and little Bog Moss *Sphagnum*. Associated species include *Juncus effusus*, *Juncus acutiflorus*, *Galium palustre* and *Lotus pedunculatus*. There are rare occurrence of the Hampshire Notable species *Potentilla anglica*, *Carex curta* and *Calliergon cordifolium*. These are drier stands of Betula pubescence – Molinia caerulea Woodland, Juncus effusus sub-community (W4b). Some stands of Bog Woodland on shallow peats differ in having more *Molinia* and an abundance of the moss *Polytrichum commune*. These are probably the remains of Wet Heath (M16a) that has been invaded by trees, probably after an intense wild fire. They are seen on the upper margins of St Leonard's Peat South. The latter are probably best referred to Betula pubescence – Molinia caerulea Woodland, Sphagnum sub-community (W4c).

Open Communities of Deep Acid Peat (M): open acid mire communities are now very rare and, as stable communities, are confined to dense Bog Myrtle stands which trees are unable to invade. These are very degraded and species poor even for Molinia caerulea – Potentilla erecta Mire, Erica tetralix sub-community (M25a). At the eastern end of St Leonard's Peat South, recent clearance of Bog Woodland has produced a probably brief appearance of Mesotrophic Bog with a *Juncus effusus – Agrostis canina – Polytrichum commune – Sphagnum auriculatum* community along with *Hydrocotyle vulgaris*, *Epilobium palustre*, *Phragmites australis*, *Galium palustre*, *Lycopus europaeus* and *Sphagnum cuspidatum* (Carex echinata – Sphagnum fallax/ denticulatum Mire, Juncus effusus sub-community, M6c). The cleared area is being invaded by Birch and Sallow and will be lost again to Bog Woodland.

Birch – Sallow Scrub on Deep Acid Peat (M): Birch dominated Bog Woodland, locally with Sallow, now dominates virtually all the deep acid peats within the valley mires. Most stands are young with very dense tree cover, with few other associated trees species and a rather thin ground flora. Two older stands in Fir Grove Copse (Cmpt. 8419) have lower tree density and have species such as Oak colonising, the appearance of large diameter dead wood and lusher ground floras. The latter stands are developing features of old long established Bog Woodland, a habitat of conservation interest in its own right. This type of Bog Woodland has higher *Molinia* cover than the Bog Woodland on former *Molinia* Grasslands and a much higher Bog Moss Cover. Typical stands have *Agrostis canina – Molinia* communities with frequent *Sphagnum auriculatum* and some *Juncus effusus*. Other species present include *Juncus acutiflorus*, *Polytrichum commune*, *Carex echinata*, *Carex nigra*, *Carex curta* (HN), *Sphagnum cuspidatum, Sphagnum fallax*, *Sphagnum fimbriatum*, *Sphagnum palustre and Eriophorum angustifolium* (Betula pubescence – Molinia caerulea Woodland, Juncus effusus sub-community, W4b).

Open Molinia Mire with Fen Tall Herbs (T): few areas of open mire now occur in the once treeless transition zone between Bog Woodland (W4b) and Carr (W5b). Those that do exist in the Fillybrook mire system (Cmpt. 2932 & 2933) have recently been cleared of trees. These, however, are being actively reinvaded by trees and are not likely to survive long as open communities. Both are very odd in species composition and point to the original transition communities within the open mires as having been very unusual at a national level. *Molinia* is dominant with acid loving species such as *Myrica* gale the mosses *Sphagnum fimbriatum* and *Polytrichum commune* present, along with fen species such as *Lysimachia vulgaris*, *Eupatorium cannabinum*, *Lycopus europaeus*, *Thalictrum flavum* (HN), *Valeriana officinalis*, *Osmunda regalis* and *Carex elongatum* (NS) along with typical *Molina* mire species such as *Galium palustre*, *Hydrocotyle vulgaris* and *Juncus effusus*. This is a very odd assemblage of species; occurrences of *Thalictrum flavum* and *Carex elongatum* within *Molinia* Fen are likely to be very rare if not unique in Britain. The NVC community this would stabilise into if grazed is not at all clear. Currently the rather fenny Molinia caerulea – Potentilla erecta Mire, Angelica sylvestris sub-community (M25c) appears closest but equally the original community may have been a form of Molinia – Cirsium dissectum Fen Meadow (M24).

Birch – Sallow on Less Acid Peat, Bog Wood & Carr Transition (T): transitions between Bog Woodland and Carr are prominent features in the lower sections the mire systems. These typically have Birch and Sallow still dominant but with some Alder present. All are relatively young dense stands but some are more open, possibly due to thinning, as in the south west of Cmpt. 2925. The most impressive stands area at St Leonard's Peat South, the mire east of Keys Copse and at Fillybrook. The ground flora is very variable, but all stands are defined as have at least a scatter of *Molinia*. Compared to Bog Woodland there is decrease in Bog Moss cover and an increase or appearance of species such as *Carex remota*, *Athyrium filix-femina*, *Holcus lanatus*, *Juncus effusus* and *Dryopteris* species. Densely shaded stands can have little else, but in better lit stands are species rich with associated species including *Deschampsia caespitosa*, *Carex echinata*, *Mentha aquatica*, *Juncus effusus*, *Iris pseudacorus*, *Eupatorium cannabinum*, *Lysimachia vulgaris*, *Lythrum salicaria*, *Galium palustre*, *Cirsium palustre Agrostis canina* and *Agrostis stolonifera*. Rarer species include *Carex elongata* (NS), *Carex flacca*, *Carex echinata*, *Carex pseudocyperus*, *Carex viridula* spp *oedocarpa*, *Carex vesicaria* (HN), *Elymus caninus*, *Osmunda regalis*, *Thalictrum flavum* (HN) and *Valeriana officinalis*. These stands have no NVC equivalent and are transitional between Bog Wood (W4b) and Carr (W5b). They mark former stands of species rich *Molinia* Fen.

Fen on Neutral Peat with Carex elongata & Carex vesicaria (C): currently open fen on floodplain mire within the study area is confined to some glades in Carr within the HRZ, where topping Alders has fortuitously killed the trees. These glades have swampy fens

dominated by *Carex elongata* (NS) and *Carex vesicaria*, associated with *Lysimachia vulgaris* and *Iris pseudacorus*. *Carex elongata* dominated fen is not described from Britain but a reference to such communities being a major peat forming vegetation in Poland was found on the Internet. The *Carex viscaria* dominated patches can be accommodated with the NVC community Carex vesicaria Swamp (S11). It is notable that the *Carex elongata* (NS) in glades is abundantly fertile, while it is largely sterile in the shade.

Carr, Alder Wood on Neutral Peat with Tall Sedges (C): woodland on deep peat within the floodplain where the influence of acid water from the valley mires is limited. Alder is more prominent but in some area Sallow is dominant. The shrub layer is sparse but includes *Ribes rubrum*, *Ribes nigra*, *Rhamnus cathartica* and *Viburnum opulus*. All stands are younger than 60 years old, and have invaded open fen, but some stands incorporate scattered older coppice Alder stools. Characterised by an abundance of sedges, with or *Carex elongata* (NS), *Carex riparia*, *Carex paniculata* or *Carex remota* predominate with smaller amounts of *Carex vesicaria* (HN) and *Carex pseudocyperus*. Associated frequent species include *Deschampsia cespitosa*, *Phalaris arundinacea*, *Athyrium filix-femina*, *Galium palustre*, *Mentha aquatica*, *Lysimachia vulgaris*, *Lycopus europaeus* and *Iris pseudacorus*. Occasional species include *Angelica sylvestris*, *Eupatorium cannabinum*, *Filipendula vulgaris*, *Juncus inflexus*, *Lysimachia vulgaris*, *Lythrum salicaria*, *Myosotis scorpioides*, *Valeriana dioica*, *Scutellaria galericulata*, *Thalictrum flavum* and *Osmunda regalis*. In spite of the young age of these stands they are interesting examples of NVC community Alnus glutinosa – Carex paniculata Woodland, Lysimachia vulgaris sub-community (W5b). This probably reflects the close relationship between W5b Carr and the likely original fen community Phragmites australis – Eupatorium cannabinum Tall Herb Fen, Carex paniculata sub-community (S25b).

Flushed Alder Wood or Sallow scrub Without Tall Sedges (AF): this covers Alder or Sallow stands on damp peat, which lacks tall sedges. Young Ash can be present. They represent recent woodland developed on what was probably originally Acid Fen Meadow (M23). The best stands are found along the floodplain edge of the mire east of Keys Copse. Much more impoverished stand exist at St Leonard's Peat North. *Carex remota* can be prominent along with a mixed of species such as *Deschampsia caespitosa*, *Ribes rubrum*, *Ajuga repens*, *Viola riviniana*, *Juncus effusus*, *Scrophularia auriculata*, *Scutellaria galericulata* and *Stachys palustris*. The vegetations NVC affiliations are obscure, the ground flora is closest to Alnus glutinosa – Fraxinus excelsior – Lysimachia nemorosa Woodland, Deschampsia caespitosa sub-community (W7c) but the match is not perfect. They may develop further into drier woodlands such as Bramble Woodland (W10) or Nettle Woodland (W6).

Nettle Woodland on Alluvium or Dry Peat (N): species poor nutrient enriched wet woodland occurs on alluvium and dry peat in the Moors River floodplain and in the polluted upper section of St Leonard's Peat North. All stands are recent woodland, although a few stands were present in 1946. Many stands are very species poor combinations of Sallow and Nettle. Probably older stands have Alder dominant over a Nettle *Urtica dioica* – Red Current *Ribes rubrum* community with Hop *Humulus lupulus* tangles locally. These are referable to NVC community Alder – Urtica Woodland (W6). The stands on peat are markedly species poor compared to adjacent Carr (W5b). Within the lower sections of the mires, the changed to Nettle Woodland (W6) from Carr is clearly related to the presence of dry surface peat. This is presumably allowing peat oxidation and nutrient enrichment. These drier peats may be naturally dry; if cleared and grazed such soils support much more species rich rush dominated Fen Meadow communities (M23). The poverty of W6 is related to the lack of grazing allowing Nettle dominance. The switch from Carr to Nettle Woodland, may also be exacerbated by artificial drainage and by natural drying out caused by the trees themselves.

Oligotrophic Ponds: nutrient poor pools were probably frequent in the larger valley mires, but have been lost to tree colonisation. The maintained ponds within St Leonard's Peat South, however, support something of these communities. Such pools are now a rare habitat and several species are confined to these pools on Hurn Forest: *Utricularia australis* (NS), *Hypericum elodes*, *Eleogiton fluitans*, *Carex rostrata* (HN) and *Potentilla palustre* (HN). The communities present include a floating Carex rostrata Swamp (S9) with *Potentilla palustre* (HN) and mixtures of the Juncus bulbosus Community Utricularia vulgaris agg. sub-community (A24a) and Hypericum elodes – Potamogeton polygonifolius Soakway (M29).

More strongly acid nutrient poor pools are found in the ancient windblown hollows in the west of the Height Restriction Zone. Where not disturbed these have floating Bog Moss lawns dominated by *Sphagnum cuspidatum* with *Eriophorum angustifolium* (Sphagnum cuspidatum/fallax Bog Pools M2). Some ponds have unfortunately been dug out in the past. This could have destroyed millennia of basal deposits with a pollen record and has caused enrichment, with Reed Mace Swamp (Typha latifolia Swamp, S12) present in a dug out pond.

Marsh clubmoss

Heaths & Drier Grasslands

Introduction

The bulk of the drier heathland habitats are easy to recognise and map, even when under conifer crops. They also rapidly reappear after crops are felled. The most problematic situation was found in dense thicket crops, where the ground vegetation was shaded out, but these are currently rare in the study area. As well as the overall picture given by **Map 19**, **Map 21** shows the Bracken free habitats and **Map 22** those with Bracken.

Original Heathland Vegetation

The heathland vegetation within the study area appears to have included two distinct landscapes. The demarcation line was along the south eastern side of the former Fillybrook mire from the north east corner of Cmpt. 2936 to the south west corner of Cmpt. 2932.

To the north west the heathland was dominated by vast expanses of damper Dry Heath (H2c) over gentle slopes. Strongly Dry Heath (H2a) appears to have been rare or absent. The 1946 air photographs show that patches of bracken were present, but these appeared significantly smaller than the Bracken patches within the current plantations. The amount of Wet Heath (M16a) appears to have been very limited, with narrow strips along mire edges and small patches on slight seepages or small patches of surface water gleys. The original extent of Wet Heath is difficult to map within the current plantation areas. Acid grasslands were probably limited in extent and associated with disturbed areas. Damper areas supported either dry heathy Molinia Grasslands (M25b) or Bristle Bent Grasslands (U3). Drier areas supported Parched Acid Grasslands characteristic of soils that are strongly parched in summer but rather wet in winter (U1f). The general pattern would have been very similar to large parts of the New Forest or east Dorset.

To the south and east the heathland was much more mixed with damper Dry Heath (H2c) on plateaus but strongly Dry Heath (H2a) on slopes. Some areas of ancient blown sand are extremely dry and the heath here and lacks Dwarf Gorse *Ulex minor* (H2/H1) or even supports Sand Sedge producing Inland Dune Heath (H1d/H11). As far as can be seen from the 1946 air photographs Bracken appears to have been quite limited in extent and has spread considerably within the plantations. To the east Wet Heath (M16a) was extensive in complex hollows formed by ancient blowouts. Again the extent of acid grassland will reflect the degree of disturbance but the current acid grasslands are very different to those to the north west. The Parched Acid Grasslands are of types typical of soils that are dry in winter as well as summer (U1b). Also present are Lichen Grassheath (U1a) and inland examples of Dune Lichen Grassheath (SD11) and Acid Dune Grasslands (SD12). This combination of heathland communities is quite unlike any other area in the Poole or Hampshire Basins and

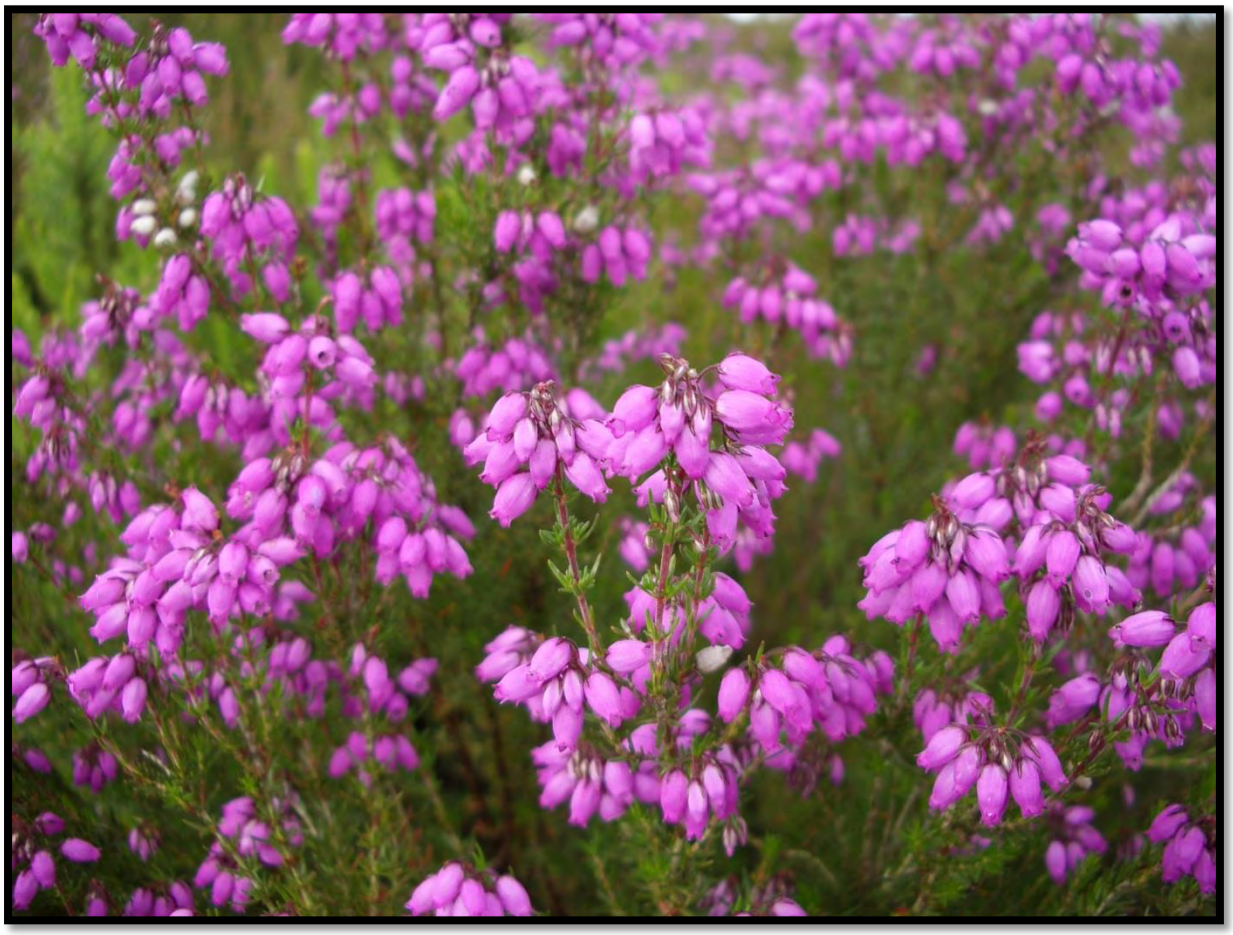
is more like those found in Woolmer Forest in the Hampshire Weald. The south east of the study area is part of the highly distinctive complex of heathland found along the margin of the River Avon south of Ringwood. This also included the section of Forestry Commission managed land in Avon Common east of the A338 and outside of the study area.

Current vegetation of Heaths & Drier Grasslands

The current vegetation of the heaths and drier grasslands are described below along with the plantations that replaced them and associated broadleaved woodland.

Open Dry Heath (H): dry heath is defined broadly as heather dominated heath lacking Bog Mosses or characteristic Wet Heath vascular plants. This includes damper heath, with Moorgrass *Molinia caerulea* present, which is often called humid heath. Damper Dry Heath is predominant over most of the site and totally dominates most of the open heath north west of the Height Restriction Zone, where it forms extensive stands of seasonally ill drained plateaux and shallow slopes. This is dominated by Heather *Calluna vulgaris*, especially in mature or senescent stands and is defined by the presence of Moorgrass *Molinia caerulea*, which can be abundant in young stands but becomes thin in older stands. At the drier end

both Bell Heather *Erica cinerea* and Crossleaved Heath *Erica tetralix* are present, again more frequent in younger stands, but in the dampest stands only Crossleaved Heath *Erica tetralix* occurs. Dwarf Gorse *Ulex minor* is locally frequent, especially in younger and drier stands but is rare in the dampest stands lacking Bell Heather *Erica cinerea*. These damper Dry Heaths are best accommodated within NVC community Calluna vulgaris – Ulex minor Heath, Molinia sub-community (H2c), although the wetter stands without Bell Heather *Erica cinerea* and with Dwarf Gorse *Ulex minor* (which is rare) do not fit well.



Strongly Dry Heath is found on better drained slopes and plateau edges and lack both Moorgrass *Molinia caerulea* and Crossleaved Heath *Erica tetralix* occurs but are otherwise similar to the damper Dry Heaths. These are confined to the Height Restriction Zone and the area to the south of this. The Strongly Dry Heath is included within Calluna vulgaris – Ulex minor Heath, typical sub-community (H2a).

Both H2c and H2a support moss dominated mats under the heather canopy, consisting of common species. Open patches and exposed soil also have lichen dominated patches. In recently restored heaths these are quite species poor but in the ancient heaths within the

Height Restriction Zone are richer and include some uncommon species including the declining *Cladonia arbuscula* (HN) and *Cladonia incrassata* (NS).

Strips of heath with Bristle bent *Agrostis curtisii* occur on disturbed ground along tracks producing NVC community Ulex minor – Agrostis curtisii Heath (H3). This community is completely absent from undisturbed soils within the study area. On undisturbed soils its occurrence marks areas of finer soil developed in head deposits. These are clearly rare in the study area. Similarly Gorse is very rare within the study area.

Very Dry Heaths occur in the west of the Height Restriction Zone around the apparent ancient sand blowout. These mature to senescent *Calluna* – *Erica cinerea* heaths appear to totally lack *Ulex minor*, have a rich lichen flora and patches of Wavy Hairgrass *Deschampsia flexuosa*. If *Ulex minor* is really absent, then these are not H2a heaths. Possible alternatives are unlikely on geographic grounds: Calluna – Erica cinerea Heath (H10) is a north western grouse moor grouse and Calluna – Deschampsia flexuosa Heath (H9) is an lower plant impoverished community of polluted heaths in the midlands. The close association with Sand Sedge communities suggests that they are best regarded as transitional between H2 Heaths and the south eastern Calluna – Festuca ovina agg Heath (H1).

The dry heaths are even aged; the current stands originating from after 1976 fires or from latter clearance of plantation. In 2006 two small burns were carried out in the large area of restored heathland (Cmpt. 2928 & 2930) to start diversifying the sheath structure. These were looking very successful in June 2007, with good *Calluna* regeneration and *Molina* growth not too strong.

Bracken Free Plantation, Wood & Scrub on Former Heath (H): plantation on former Dry Heath lacking bracken is widespread. Where younger or unthinned the ground flora on former damper Dry Heath (H2c) tends to be dominated by Moorgrass *Molinia* with few other species. On former strongly Dry Heath (H2a) stands are bare, or have thin relic Heather; Wavy Hairgrass *Deschampsia flexuosa* is rare. With thinning, Heathers regenerate producing shaded versions of Dry Heath. Woodland species such as Buckler Fern *Dryopteris dilatata*, Honeysuckle, Hard Fern *Blechnum spicant* and Bramble are thinly scattered. These are early stages in the development of the NVC woodland communities Betula pubescence – Molinia caerulea Woodland, Dryopteris dilatata – Rubus fruticosus sub-community (W4a) and Quercus spp – Betula spp – Deschampsia flexuosa Woodland (W16).

In clear felled plantation, Heather regeneration is high resulting in the re-establishment of H2 heath with the next crop or successful heathland restoration. In some areas felled and ploughed stands have high cover of acid grassland species such as *Rumex acetosella* and *Aira praecox* along with Climbing Corydalis *Ceratocapnos claviculata* and Heath Groundsel

Senecio sylvaticus along with *Calluna* seedlings. These are displaced by the maturing Heather but suggest a higher fertility than is seen in many heathland soils, especially further west in the Poole Basin. The sparse occurrence of Bramble, however, indicates that these were not as fertile as the most fertile New Forest heath soils (Chapman et al, 1989).

Open heath with subsidiary Bracken (H/Pt): small areas of damper Dry Heath (H2c) with thin bracken cover occur locally on the edges of restored areas of heathland.

Plantation or Scrub with Weaker Bracken, Heath Species Frequent (H/Pt): considerable areas of plantation on former heath, and the few areas of broadleaved scrub on ex-heath have Bracken abundant. This type of vegetation was split into stands with weaker Bracken and stands with strong Bracken. The former is characterised by either thin canopies of Bracken or the cover being patchy. This allows the survival of heath species, especially *Molinia*, but also occasional heather plants. Again these are early stages in the development of the NVC woodland community Betula pubescence – Molinia caerulea Woodland, Dryopteris dilatata – Rubus fruticosus sub-community (W4a).

In clear felled areas regeneration of Heather is strong resulting in H2 communities with open Bracken cover. Again species such as species such as *Rumex acetosella* and *Aira praecox* along with Climbing Corydalis *Ceratocapnos claviculata* and Heath Groundsel *Senecio sylvaticus* can be abundant along with *Calluna* seedlings in recently felled stands.

This type of plantation dominates the north central section of the study area. Some areas of the community can be related to pre-planting Bracken stands on the 1946 air photographs, but much of the huge stand in the north appears to have been Heather dominated pre planting. It is possible that the shade of the planted trees may have encouraged an increase in vigour of pre-exiting thin Bracken stands. On restoration, *Calluna* dose appear to regain a high cover even without much Bracken treatment.

Plantation with heather

Open heath With Dominant Bracken (Pt): communities within open heaths with dense Bracken with little or no associated heather. Only limited areas of dense Bracken were found within existing open heathlands, mainly in the west of the Height Restriction Zone. This is partly because plantations over dense Bracken have not been choice for restoration to open heath in the past. The areas noted were associated with Parched Acid Grasslands. Those in Cmpt. 2934 are derived from felling broadleaved scrub (W10). Referable to Pteridium aquilinum – Rubus fruticosus Underscrub (W25) or Pteridium aquilinum – Galium saxatile (U20).

Plantation or Scrub with Stronger Bracken, Heath Species Still Present (Pt/H): considerable areas of plantation on former heath, and the few areas of broadleaved scrub on ex-heath have Bracken abundant. This type of vegetation was split into stands with weaker bracken and stands with strong bracken. The latter is characterised fully closed canopies of Bracken, with even Molinia sparse. The bracken is usually tall, but some short but dense stands were included. Associated species are very limited. These stands are either the early stages in the development of the NVC woodland community Betula pubescence – Molinia caerulea Woodland, Dryopteris dilatata – Rubus fruticosus sub-community (W4a) or of Quercus robur – Pteridium aquilinum – Rubus fruticosus Woodland (W10).

Open Inland Dune Heath Sand Sedge – Heather Communities (SH) & ***Plantation on Former Sand Sedge – Heather Communities*** (SH): a regionally very rare combination of Sand Sedge *Carex arenaria* and Heather *Calluna* was spotted in a few places in the south east of the study area. This heath was found as small patches on freely draining pure sand, mostly probably ancient windblown sand deposits. These were so unexpected three quadrats were recorded to help characterise these stands. They consist of *Calluna* dominated heaths with *Carex arenaria* growing between the bushes. *Erica cinerea* is often present, with moss mats dominated by *Dicranum scoparium* and lichens frequently prominent along with *Hypnum jutlandicum*, *Pleurozium schreberi* and *Polytrichum juniperinum*. *Festuca filiformis* (a member of the *Festuca ovina* aggregate) is locally prominent. *Ulex minor* is never present.

This Inland Dune Heath appears closest to either the Calluna – Festuca ovina Heath Carex arenaria sub-community (H1d), although this lacks *Erica cinerea*, or Calluna – Carex arenaria Heath Erica cinerea sub-community (H11a), although this usually has some Marram Grass *Ammophila arenaria*. Quadrat Q2 matches H1d well (Appendix 4).

Within plantations Sand Sedge *Carex arenaria* survives quite well in the shaded and planted stands of *Calluna – Carex arenaria* Inland Dune Heath can be picked up as patches of surviving Sand Sedge. Planted Inland Dune Heath was recoded within the study area within Cmpt. 2936 and 2937. They are also thought to be widespread within Avon Common, outside of the study area. The author has also seen a few stands on ancient sand dunes in Town Common to the south but is not aware of any other stand of this community within the Poole or Hampshire Basins.

Open Parched Acid Grassland (PG): disturbed areas of dry acid soils throughout the site support patches of species rich Parched Acid Grassland. In the north west these are found along ride and track verges, where there open condition is supported by a combination of mowing, trampling and rabbit grazing. It the south east of the study area there is also a large area of heavily rabbit grazed grassland on former farmland at Crabs Field in the Height Restriction Zone (Cmpt. 2933). Other sown grasslands within the plantations and in the east of the Height Restriction Zone are showing signs of reverting to Parched Acid Grassland. Grasslands in the north west and recently reverted grasslands have Parched Acid Grasslands associated with winter damp summer patched soils (Festuca ovina – Agrostis capillaris – Rumex acetosella Grassland Hypochaeris radicata sub-community, U1f), locally grading to Festuca ovina – Agrostis capillaris – Rumex acetosella Grassland Anthoxanthum odoratum – Lotus corniculatus sub-community (U1d) on less acidic soils. In the south east the mature grasslands are referable to Festuca ovina – Agrostis capillaris – Rumex acetosella Grassland

typical sub-community (U1b), a community of drier soils. Fragmentary Parched Acid Grasslands are widespread along rides and are not especially species rich but locally larger stands can be very rich in local or rare species. Species of interest found in U1f or U1f/d and U1b grassland are *Crassula tillaea* (NS) and *Filago minima*. In the U1f and U1f/d grassland species of interest include *Jasione montana* (HN), *Orchis morio* (NT), *Parentucellia viscosa* (HN), *Sagina subulata* (HN), *Fossombronia incurva* (NS), *Porpidia crustulata* (HN) and *Porpidia soredizodes* (HN). The U1f grasslands can occasionally grade into Agrostis curtisii Grassland (U3) on tracks where they support Devils Bit Scabious *Succisa pratensis*, Heath Grass *Danthonia decumbens* and Heath Milkwort *Polygala serpyllifolia*.

The richest grasslands are the U1b grasslands in the south, which include *Carex arenaria* (HN), *Cerastium diffusum*, *Cerastium semidecandrum*, *Erigeron acer*, *Erodium cicutarium*, *Filago vulgaris* (NT), *Illecebrum verticillatum* (VU NR), *Sedum acre*, *Stellaria pallida* (HN), *Peltigera canina* (HN), *Peltigera neckeri* (NS) and *Peltigera rufescens*.

In the south, where rabbit grazing is locally not maintaining the quality of the sward, the Parched Acid Grassland has been invaded by *Deschampsia flexuosa* producing de graded stands of Deschampsia flexuosa Grassland Festuca ovina – Agrostis capillaris sub community (U2a). In the north the sward at the Green Winged Orchid *Orchis morio* (NT) site is probably not maintained in short enough condition for the orchid to flourish; numbers have declined in recent years. Other areas of acid grasslands are in good condition, mainly due to trampling or rabbit grazing.

Some cleared areas of plantation with bracken free Bramble Woodland type flora (W10) in the south west (Cmpt. 8434d) are regenerating as rudimentary Parched Acid Grasslands, with abundant *Aira praecox* and *Rumex acetosella*, but are also rapidly being invaded by Bramble and Birch.

Within acid grasslands there are interesting assemblages in microhabitats such as ephemeral puddles and areas freshly disturbed by timber stacking and track grading. The former habitat is found on unsurfaced tracks and includes *Illecebrum verticillatum* (VU NR) and *Crassula tillaea* (NS) and the liverworts *Fossombronia incurva* (NS) and *Riccia sorocarpa*. The latter is particularly unusual in that it supports several declining arable weeds of acid soils: *Misopates orontium* (VU), *Scleranthus annuus* ssp *annuus* (EN) and *Spergula arvensis* (VU). This assemblage appears to be particularly associated with imported plateau gravel used to repair to forest roads and areas recently used for timer stacking.

Developing Acid Grasslands (DPG): running down former agricultural sown sward, marked by *Agrostis capillaris – Anthoxanthum odoratum* or *Agrostis capillaris – Vulpia bromoides* swards (the latter probably more advanced), with few specialist species other than Sheep's Sorrel *Rumex acetosella* present. *Hypochaeris radicata* is usually frequent (U1f). With heavy grazing these stands are like to develop into species rich Parched Acid Grasslands.

Open grasslands with Sand Sedge or a high cover of lichens (SD): in the south east of the study area there are small patches, and one substantial block, of distinctive Sand Sedge *Carex arenaria* (HN) and or lichen rich acid grasslands. The largest block is a very mixed stand of Inland Dune Acid Grasslands and Lichen Grassheath in the west of the Height Restriction Zone, south of the airport access road in an ancient blowout. There are also small patches of similar grasslands scattered across the Height Restriction Zone and adjacent heathland on disturbed ground. These are on both ancient periglacial blown sand features and on nearby recent disturbed sandy ground.

Communities with Sand sedge abundant include stands that are essentially U1 Parched Acid Grasslands with *Carex arenaria* (Q3) and lichen rich lichen grassheaths with *Carex arenaria* (Q4). (Appendix 4)

Dune Lichen Grassheath (SD11) The Sand Sedge grasslands with low lichen cover match the NVC community Carex arenaria – Festuca ovina – Agrostis capillaris Dune Grassland (SD12). The lichen heaths can be best placed in Carex arenaria – Cetrelia aculeata Dune Community Festuca ovina sub-community (SD11a), but the examples seen are rather under grazed, with too much *Deschampsia flexuosa*. Dune Lichen Grass Heath SD11 is confined to the large blowout in the west of the Height Restriction Zone, while the Acid Dune Grassland (SD12) is more widespread in the south east.

In addition to the Sand Sedge communities the west of the Height Restriction Zone there are also lichen dominated grasslands lacking Sand Sedge. Where heavily rabbit grazed these have thin cover of grass of *Agrostis capillaris* and *Aira praecox* with a high cover of moss, *Dicranum scoparium* and *Hypnum jutlandicum* and lichens including *Cetraria aculeata*, *Cladonia ciliata* var *ciliata*, *Cladonia ciliata* var *tenuis* and *Cladonia uncialis* ssp *biuncialis*. These are referable to Festuca ovina - Agrostis capillaris – Rumex acetosella Grassland Cetraria aculeata – Cladonia arbuscula sub-community (U1a). Where rabbit grazing is lower this community has a high cover of *Deschampsia flexuosa* and the community is transitional to U2a.

These inland dune communities (SD11 & SD12) and Lichen Grassheaths (U1a) are very rare in the Hampshire and Poole Basins and are possibly confined to sandy terraces on earth side of the River Avon south of Ringwood in this region.

Rides with Heathy Grasslands Predominant (G): while some rides within the plantations have Dry Heath (H2c) dominant, others are dominated by rather species poor damp acid grasslands. These have *Molinia caerulea* dominant, some time with abundant *Agrostis curtisii*. Associated species are rather sparse due to the vigorous growth of the grass. They are mown as part of ride management but this is insufficient to fully control grass growth and species that would expected to be abundant in this sort of grassland such as Heath Grass *Danthonia decumbens* and Heath Milkwort *Polygala serpyllifolia* are generally absent. These grasslands are species poor versions of the heathier end of *Molinia* Grassland (Molinia – Potentilla erecta Grassland Anthoxanthum sub-community, M25b) and Bristle Bent Grassland (Agrostis curtisii Grassland, U3)

Open Undisturbed Wet Heath (WH): classic *Calluna* dominated Wet Heath with *Erica tetralix*, subsidiary *Molinia*, mats of Bog Moss *Sphagnum compactum* and tufts of Deer Grass *Trichoporum cespitosum* (Erica tetralix - Sphagnum compactum Wet Heath, typical sub-community, M16a) is well developed in the east of the HRZ. Here it occupies large areas in ancient hollows in the river terrace. These are low productivity Wet Heaths and are still in reasonable condition but even here flow lines with more productive heath are over grown with *Molinia* producing species poor *Molina* Wet Heath (Molinia – Potentilla erecta Grassland Erica tetralix sub-community, M25a). In the rest of the site wet heath is rare, with a few fragments surviving in rides. In recently restored heathland only overgrown *Molina* Wet Heath (M25a) has appeared.

Detectable Areas of Wooded Former Wet Heath (WH): former Wet Heath is difficult to detect within the plantations; the trees dry the ground out and the diagnostic Wet Heath species do not survive with plantations. A few areas of potential planted Wet Heath were detected, mainly adjacent to mires.

Open disturbed Wet Heath (OW): in a couple of places, where paths cut through seepage lines open disturbed wet heath with characteristic species such as *Rhynchospora alba*, *Drosera rotundifolia* and *Drosera intermedia* (Erica tetralix – Sphagnum compactum Wet Heath, Rhynchospora alba Drosera intermedia sub-community, M16c). The Endangered Marsh Clubmoss *Lycopodiella inundata* has occurred in this community in the past within the study area but has not been seen recently.

Sundew

Permanent Pasture (PP): within the farmland the drier areas of the floodplain and the land above the floodplain are dominated by herb poor permanent pasture. These range from old *Lolium perenne* leys (Lolium perenne Leys, MG7) through to *Agrostis capillaris* dominated swords (a low productivity version of Lolium perenne – Cynosurus cristatus Grassland, MG6). Within the floodplain scattered plants of *Centaurea nigra* survive, suggesting the species poor grasslands here were derived from Centaurea nigra – Cynosurus cristatus Grassland (MG5) hay meadow. Above the floodplain the dry grassland fields were arable in the 19th century, while the grasslands along the pipeline rides were sown on improved heathland soils. The latter show signs of readily reverting to Parched Acid Grasslands (U1)

Dry Woodland

Introduction

There are small areas of 19th century Oak, with Holly and Hazel at Firgrove Copse and Keys Copse. These were a bit more extensive in 1946, with a part of Keys Copse (Cmpt. 2925c) and all of the Oak woodland at Trouble Field (Cmpt. 2934d) felled and replanted with conifers. In other areas heathland on more fertile soils are beginning to develop a recognisable woodland flora.

Current vegetation of Dry Woodland

Mature dry semi-natural woodland of Oak, Birch and Holly (WS): mature broadleaved woodland dominated by Oak and locally Birch survives in Cmpts. 2919a, part of 2918, 2925d and part of 2917b. All but the last site have been overrun but Rhododendron but this is being cleared within Fir Grove Copse. The soils within the woods are very acid, and where examined were podzols, indicating an origin from heathland. The Rhododendron has suppressed the woodland flora but relics indicate that there is a mix of Betula pubescence – Molinia caerulea Woodland, Dryopteris dilatata – Rubus fruticosus sub-community (W4a), with *Molinia* present, Quercus spp – Betula spp – Deschampsia flexuosa Woodland (W16) with *Deschampsia flexuosa* present and Quercus robur – Pteridium aquilinum – Rubus fruticosus Woodland typical sub-community (W10a) with Bramble present and the above species absent. There are few uncommon specialist woodland species present but the acid woodland specialist *Leucobryum juniperoideum* (HN) was recorded on the ground, along with a few old woodland epiphyte lichens on the trees.

Plantation or Scrub with Bramble, Honeysuckle or Ivy Prominent (W): locally, where plantations have been planted on more fertile soils. These include former Oak woods, but also on ex-heaths near the site edges or on deep drained peat. Such stands are developing more recognisable woodland floras. They usually have abundant Bracken, but some areas are Bracken free, but all have variable amounts of Bramble, Honeysuckle or Ivy. These are plantation variants of Quercus robur – Pteridium aquilinum – Rubus fruticosus Woodland typical sub-community (W10a).

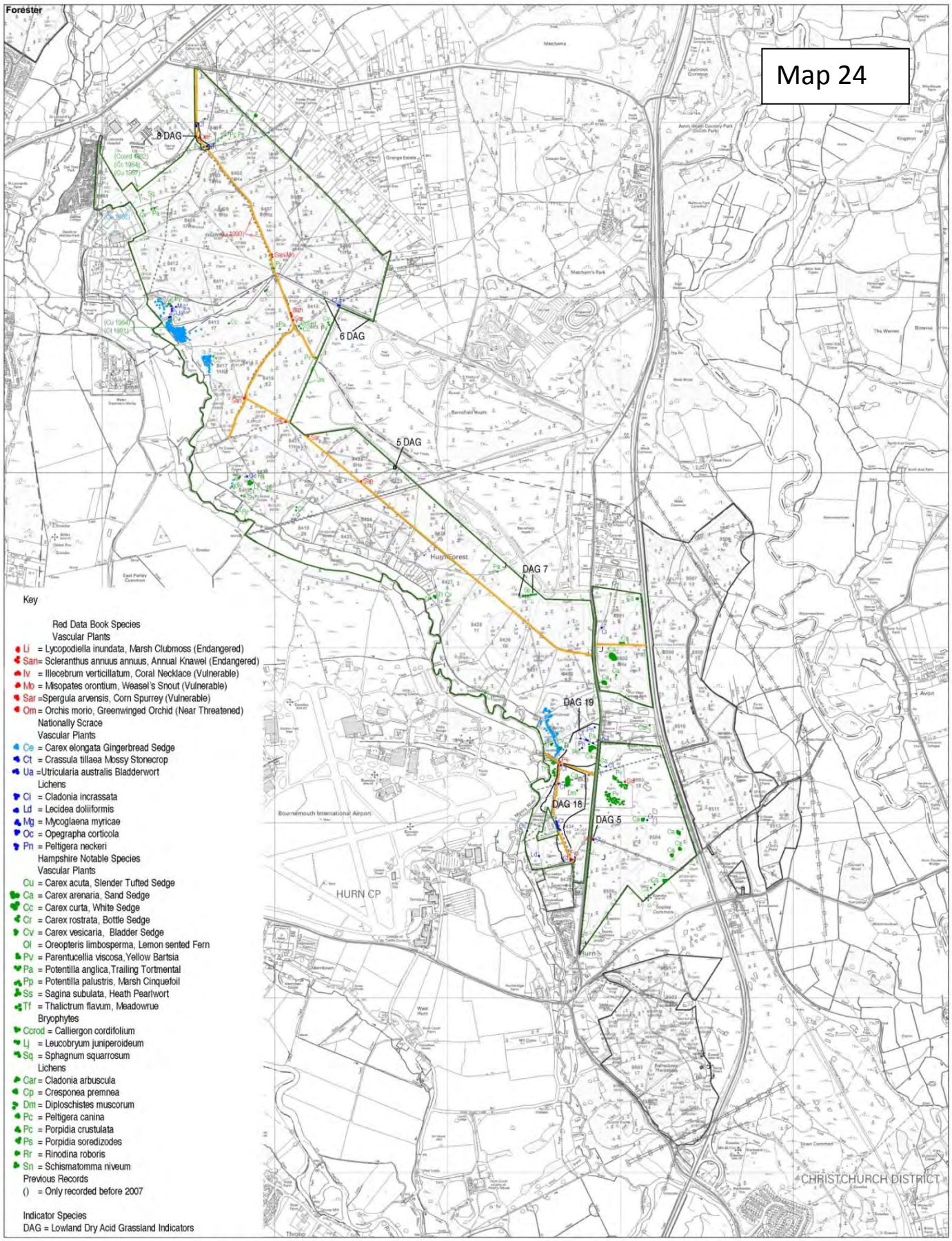
Botanical Species

Introduction

The vascular plant flora was resurveyed during the current survey and the species list is given in **Appendix 4**. Lower plants of interest were noted during the survey and these and old records of interest are given in **Appendix 4**. The distribution of most species of conservation interest seen in 2007 are mapped (**Map 24**), except for Dodder *Cuscuta epithymum* (VU), whose status was forgotten during the field survey. Detailed records of other groups was received DERC and the species of interest recorded are discussed below.

Plants

In 2007 a total of 269 vascular plants were recorded, while an additional 28 species have definitely been recorded within the study area since the 1970s. This high total reflects the wide range of habitats within the study area. The species not seen in 2007 included spring ephemerals, species of enriched soils or river species. The 2007 survey will have missed the early spring ephemerals and the river was not looked at closely. Species of nutrient rich or disturbed soils will include species that were only ever ephemeral in occurrence. Species of significant habitats not recorded in 2007 were:



Key

Red Data Book Species
Vascular Plants
Li = Lycopodiella inundata, Marsh Clubmoss (Endangered)
San= Scleranthus annuus annuus, Annual Knawel (Endangered)
Iv = Illecebrum verticillatum, Coral Necklace (Vulnerable)
Mo = Misopates orontium, Weasel's Snout (Vulnerable)
Sar =Spergula arvensis, Corn Spurrey (Vulnerable)
Om = Orchis morio, Greenwinged Orchid (Near Threatened)
Nationally Scrace
Vascular Plants
Ce = Carex elongata Gingerbread Sedge
Ct = Crassula tillaea Mossy Stonecrop
Ua =Utricularia australis Bladderwort
Lichens
Ci = Cladonia incrassata
Ld = Lecidea doliiformis
Mg = Mycoglaena myricae
Oc = Opegrapha corticola
Pn = Peltigera neckeri
Hampshire Notable Species
Vascular Plants
Cu = Carex acuta, Slender Tufted Sedge
Ca = Carex arenaria, Sand Sedge
Cc = Carex curta, White Sedge
Cr = Carex rostrata, Bottle Sedge
Cv = Carex vesicaria, Bladder Sedge
Ol = Oreopteris limbosperma, Lemon sented Fern
Pv = Parentucellia viscosa,Yellow Bartsia
Pa = Potentilla anglica,Trailing Tormental
Pp = Potentilla palustris, Marsh Cinquefoil
Ss = Sagina subulata, Heath Pearlwort
Tf = Thalictrum flavum, Meadowrue
Bryophytes
Ccrod = Calliergon cordifolium
Lj = Leucobryum juniperoideum
Sq = Sphagnum squarrosum
Lichens
Car = Cladonia arbuscula
Cp = Cresponea premnea
Dm = Diploschistes muscorum
Pc = Peltigera canina
Pc = Porpidia crustulata
Ps = Porpidia soredizodes
Rr = Rinodina roboris
Sn = Schismatomma niveum
Previous Records
() = Only recorded before 2007

Indicator Species
DAG = Lowland Dry Acid Grassland Indicators

Forestry Commission England

Forest District: New Forest
Title: Hurn and Ramsdown
Type of Map: Stock
Scale: 1:10,000
Date: 11 June 2007

Management area
Compartment Bdy
Compartment No, and Area (ha) 2032 32
Sub-compartment Bdy a
Sub-compartment, Species & Planting Year SS/DF 56
FC Road:
Class A (Main road)
Class B (Spur road)
Class C (Other road)

Other gravel tracks
Rides
O/H Powerline
U/G Powerline
Ancient Monuments (Scheduled/Unscheduled) H J
Recreation: Camp Site 9
Car Park J
Bench 5
Other k

Species	Records
Salix repens	1983 – 87 St Leonard's Peat North
Carex acuta (HN)	1984 – 87 St Leonard's Peat South & North
Carex disticha	1982 – 89 Floodplain Height Restriction Zone
Cirsium dissectum	1982 – 92 St Leonard's Peat South & North
Dactylorhiza fuchsii	1984 St Leonard's Peat North (Green Wing Orchid site?)
Lycopodiella inundata (EN NS)	1990 on main ride Cmpt. 8406
Oreopteris limbosperma (HN)	1981 St Leonard's Peat South
Ranunculus omiophyllus	1983 – 87 St Leonard's Peat South
Rhynchospora fusca (NS)	1978 Eastern Height Restriction Zone
Silaum silaus	1985Floodplain grassland
Viola palustris	1983 St Leonard's Peat North

Several of these may still be present, the flooding of St Leonard's Peat North prevented a search of *Viola palustre* for example, but it is very unlikely that *Salix repens*, *Carex disticha*, *Cirsium dissectum*, *Lycopodiella inundata* (EN NS), *Ranunculus omiophyllus* and *Rhynchospora fusca* (NS) are still present. The lost species are all species of wetter habitats, where the lack of grazing by cattle or ponies is likely to be the primarily cause of loss.

A partial list of bryophytes and lichens are also included in **Appendix 4**. The only 3 species of significance which were not refound in 2007 are:

Warnstorfia exannulata	1982 St Leonard's Peat North
Usnea ceratina	1992 Oaks Fir Grove Copse Cmpt. 2920
Usnea rubicunda	1992 Oaks Fir Grove Copse Cmpt. 2921

The moss *Warnstorfia exannulata* was recorded from St Leonard's Peat North, where survey was not possible in 2007 due to flooding.

Threatened, Rare and Scarce Species: Nationally and locally uncommon and declining species of vascular plants, bryophytes and lichens recorded from the study area are listed in **Table 10.1** where they are analysed by broad habitat categories. Total of 8 Red Data Book Species have been recorded (two Endangered, four Vulnerable, two Near Threatened species, all but one Endangered species seen in 2007). In addition one Nationally Rare and 10 Nationally Scarce have been recorded, two of the latter were not seen in 2007. Finally 26 Hampshire Notable species have been recorded, five of which were not seen in 2007.

The numbers are summarised by broad habitat below:

Habitats	All Species	RDB	NR	NS	HN
All Habitats	43	8	1	10	26
Parched Acid Grassland	19	6	1	3	10
Mire	11			2	9
Veteran Trees	6			2	4
Heath	5	2		3	1
Grassland	2				2
Acid Woodland	1				1

(RDB = Red Data Book species, NR = Nationally Rare, NS = Nationally Scarce & HN = Hampshire Notable)

- ***Parched Acid Grassland and Related Dry Grasslands and Disturbed Ground***: this is by far the richest habitat within the study area, with 19 species of conservation interest, including 6 Red Data Book species. The latter include 3 species *Misopates orontium* (VU), *Scleranthus annuus* spp *annuus* (EN) and *Spergula arvensis* (VU), which are primarily declining arable weeds, which were associated

with forestry disturbance along the main access ride. The other RDB species were *Filago vulgaris* (NT), found in disturbed ground in Parched Acid Grasslands, *Illecebrum verticillatum* (VU) recorded from an ephemeral puddle in a track and *Orchis morio* (NT) a few plants in acid grassland in the north of the forest. The only species not seen in 2007, *Stellaria pallida* (HN), is an early spring ephemeral which will not have been visible by late June.

- **Mires, Wooded and Open Habitats on Deep Peat** (Mire): this habitat is also rich in uncommon species with 11 species of conservation interest. This habitat lacks the seriously declining RDB species found in the Parched Acid Grasslands. Some species, however, are very rare regionally, including *Utricularia australis* (NS) and *Carex elongata* (NS). The latter has a large population covering over 3.0ha of Carr (W5b), and is the only population in southern central England and probably one of the largest populations in Britain.

- ***Veteran Trees***: there is a scatter of veteran Oak, mainly on boundary banks, within the older enclosures along the Moors River, supporting six species of conservation interest. This is quite a low total for a veteran tree site.

- ***Dry and Wet Heath*** (Heath): Dry Heath supports 2 species of conservation interest, including the Vulnerable species Dodder *Cuscuta epithymum* (VU), while three have been recorded from Wet Heath, including the Endangered *Lycopodiella inundata* (EN NS). Two species recorded from wet heath, *Lycopodiella inundata* (EN NS) and *Rhynchospora fusca* (NS) have not been recorded from the study area for years. The former has not been recorded from the heaths east of the Moors River south of Ringwood since 1990. *Rhynchospora fusca* (NS), however, has been recorded more recently from Forestry Commission land just outside of the study area.

- ***Moist and Wet Grassland*** (Grassland): only three Hampshire Notable species were recorded in moist and wet grasslands. Although wet grassland has seriously declined, it is still a widespread habitat, so the habitat is not as rich in uncommon species as habitats such as Parched Acid Grassland or Mire. Also the habitat is in poor condition within the study area.

- ***Acid Woodland***: the small area of dry acidic woodland at Fir Grove Copse supports a population of local moss *Leucobryum juniperoideum* (HN)

- ***Wet Woodland***: non-mire species confined to wet woodland include a single record of Lemon Scented Fern *Oreopteris limbosperma* (HN) in 1981 from St Leonard's Peat South. It may still be present.

Map 24 shows the highest high concentration of species of conservation interest is to the south within the Height Restriction Zone and Fillybrook areas. To the north smaller concentrations are found in three situations:

- Ride side grasslands and disturbed areas
- The large mires of St Leonard's Peats North and South
- The older broadleaved woodland and small mires of Fir Grove Copse.

Table 10.1

Threatened, Rare & Scarce Plant Species

Species	2007	RDB	NR	NS	HN	Habitat
VASCULAR PLANTS						
Carex acuta	—				0	Mire
Carex arenaria	O				1	PAG
Carex curta	R				1	Mire
Carex elongata	F			1		Mire
Carex rostrata	R				1	Mire
Carex vesicaria	O				1	Mire
Crassula tillaea	O			1		PAG
Cuscuta epithymum	R	VU				Heath
Filago vulgaris	R	NT				PAG
Illecebrum verticillatum	R	VU	1			PAG
Jasione montana	R				1	PAG
Lycopodiella inundata	—	EN		1		Heath (Wet)
Misopates orontium	R	VU				PAG (Disturbed)
Orchis morio	R	NT				PAG
Oreopteris limbosperma	—				1	Wet Woodland
Parentucellia viscosa	O				1	PAG
Potentilla anglica	R				1	Grassland PAG
Potentilla palustris	R				1	Mire
Rhynchospora fusca	—			1		Heath (Wet)
Sagina subulata	R				1	PAG

Scleranthus annuus annuus	R	EN				PAG (Disturbed)
Spergula arvensis	R	VU				PAG (Disturbed)
Stellaria pallida	—				1	PAG
Thalictrum flavum	O				1	Mire, Grassland
Utricularia australis	R			1		Mire
BOG MOSSES						
Sphagnum squarrosum	R				1	Mire
OTHER MOSSES						
Calliergon cordifolium	R				1	Mire
Warnstorfia exannulata	—				1	Mire
Leucobryum juniperoideum	R				1	Acid Woodland
LIVERWORT						
Fossombronia incurva	R			1		PAG
LICHENS						
Cladonia arbuscula	R				1	Heath (Wet)
Cladonia incrassata	R			1		Heath
Cresponea premnea	R				1	Veteran Trees
Diploschistes muscorum	R				1	PAG
Lecidea doliiformis	R			1		Veteran Trees
Opegrapha corticola	R			1		Veteran Trees
Peltigera canina	R				1	PAG
Peltigera neckeri	R			1		PAG
Porpidia crustulata	R				1	PAG

Porpidia soredizodes	R				1	PAG
Rinodina roboris	R				1	Veteran Trees
Schismatomma niveum	R				1	Veteran Trees
Usnea rubicunda	—				1	Veteran Trees

F = Frequent in 2007, O = Occasional in 2007, R = Rare in 2007, — = Not seen 2007, RDB = Red Data Book species, EN = Endangered, VU = Vulnerable = VU, NT = Near Threatened, NR = Nationally Rare, NS = Nationally Scarce & HN = Hampshire Notable. (PAG = Parched Acid Grassland).

BAP Species: one species, Marsh Club Moss *Lycopodiella inundata* (EN), was listed as a priority Biodiversity Action Plan species in the original Biodiversity Action Plan. In addition Coral Necklace *Illecebrum verticillatum* (VU) and Annual Knawel *Scleranthus annuus* (EN) have been added as priority Biodiversity Action Plan species in the latest list (Biodiversity Reporting and Information Group, 2007).

Habitat Quality Indicator Species: several habitat quality indicator lists are analysed below. These lists include more widespread species than those discussed above.

Ancient Woodland Vascular Plants: these are listed in **Table 10.2**. As there is little obvious ancient woodland within the study area the species recorded represent species with dual habitats or colonists. They are most prominent in wet woodlands (W5, W6, & W7), with a much thinner scatter with the drier woodlands and plantations. A total of 17 species were seen in 2007, with a further three recorded previously. The total is not high; rich ancient woodlands would be expected to have 30 to 40 AWVP indicators. The overall total of 20 does, however, indicate that woodland, in spite of its recent arrival here, has contributed considerably to the overall diversity of the study area. Concentrations were not surveyed in detail, but the woods at the lower ends of the main mire systems were the richest.

Table 10.2

Ancient Woodland Vascular Plants

Species	2007	Habitat
Frangula alnus	O	Wet Woodland
Ilex aquifolium	O	Acid Woodland
Viburnum opulus	O	Wet Woodland
Ribes nigrum	R	Wet Woodland
Ribes rubrum	F	Wet Woodland
Rosa arvensis	R	Wet Woodland
Vaccinium myrtillus	R	Acid Woodland
Elymus caninus	R	Wet Woodland
Holcus mollis	O	PAG, Acid Woodland
Blechnum spicant	R	Acid Woodland
Carex pendula	—	Acid Woodland
Carex remota	A	Wet Woodland
Ceratocapnos claviculata	F	Acid Woodland
Dryopteris carthusiana	O	Wet Woodland
Hypericum pulchrum	O	Acid Woodland
Moehringia trinervia	R	Wet Woodland
Oreopteris limbosperma	—	Wet Woodland
Polypodium vulgare	R	Acid Woodland
Ruscus aculeatus	—	Acid Woodland
Veronica montana	R	Wet Woodland

A = Abundant in 2007, F = Frequent in 2007, O = Occasional in 2007, R = Rare in 2007, — = Not seen 2007.

Ancient Woodland Lichens: these are listed in **Table 10.3**. These were associated with old Oak trees and Hollies associated with the old enclosures along the Moor River. The richest area was at Fir Grove Copse. A total of six Ancient Woodland Lichens were recorded in 2007, and one old record was made from Fir Grove Copse. The total is not high; a site of county significance would be expected to have more than 10 indicators and a nationally impotent site 20 or more. The presence of some indicators, however, especially the species *Cresponea premnea* (IR) and *Opegrapha corticola* (NS/IR), does suggest a long continuity of old trees along the river valley. The concentration in Fir Grove Copse is due to a combination of old boundary trees and colonisation of 19th century Oak by species such as *Schismatomma niveum* (IR) and *Usnea ceratina*.

Table 10.3

Ancient Woodland Lichen Indicators

Species	2007	Habitat
Anisomeridium ranunculosporum	R	Veteran Trees
Cresponea premnea	R	Veteran Trees
Opegrapha corticola	R	Veteran Trees
Pachyphiale carneola	R	Veteran Trees
Schismatomma niveum	R	Veteran Trees
Usnea ceratina	—	Veteran Trees
Stenocybe septata	R	Veteran Trees

R = Rare in 2007, — = Not seen 2007.

Wet to Mesic Grassland Indicators: these are listed in **Table 10.4**. Wet and moist grasslands are much reduced within the study area, and some species survive mainly as relic species in recent wet woodlands, for example: *Carex echinata*, *Carex viridula* spp *oedocarpa*, *Carex vesicaria*, *Thalictrum flavum* and *Valeriana dioica*. Reasonable quality grasslands would be expected to have 5 or more indicators species and high quality sites over 10. Within the study area the richest concentration found in 2007 was in the *Molinia* Grassland (M25b), on the pipeline ride in Cmpt. 2914d, with seven indicators. The impoverishment of the floodplain grasslands by past improvement can be seen in the highest concentration seen being three indicators, with six seen in total scattered through out the floodplain. In total 19 Wet to Mesic Grassland Indicators were seen in 2007 with three others recorded previously.

Table 10.4

Wet to Mesic Grassland Indicators

Species	2007	Habitat
Danthonia decumbens	O	PAG, Grassland
Molinia caerulea	A to D	Heath, Grassland, Mire
Achillea ptarmica	R	Grassland
Carex disticha	—	Grassland
Carex echinata	O	Mire, Grassland
Carex nigra	R	Mire
Carex panicea	R	Mire, Grassland
Carex pilulifera	F	PAG
Carex vesicaria	O	Mire, Grassland
Carex viridula oedocarpa	R	Mire
Cirsium dissectum	—	Mire, Grassland
Dactylorhiza praetermissa	R	Grassland
Euphrasia nemorosa	R	PAG
Hydrocotyle vulgaris	R	Mire, Grassland
Oenanthe pimpinelloides	R	Grassland
Orchis morio	R	PAG
Polygala serpyllifolia	R	PAG, Grassland
Potentilla palustris	R	Mire
Silaum silaus	—	Grassland
Succisa pratensis	O	Grassland

Thalictrum flavum	O	Mire, Grassland
Valeriana dioica	R	Mire

D = Dominant in 2007, A = Abundant in 2007, O = Occasional in 2007, R = Rare in 2007, — = Not seen 2007.

Lowland Dry Acid Grassland: these are listed in **Table 10.5**. The study area proved to be very rich in Dry Acid Grassland Indicators with 33 recorded from the study area. Of these three were not found in acid grassland and one was not recorded in 2007. The latter, *Stellaria pallida*, is a very early flowering species and is probably still present. A few Dry Acid Grassland Indicators are widely distributed in fragmentary disturbed grasslands along rides and track edges but concentrations of more than 5 indicator species were much more localised and are mapped on **Map 24**. In the north west, where, the winter damp U1f Parched Acid Grassland dominates, four concentrations of Dry Acid Grassland Indicators with 5 to 8 indicator species were located. These are all strips of grassland along rides and forest roads. To the south east drier Parched Acid Grasslands (U1b & U1a) are dominant and inland dune communities are present (SD11 & SD12). Here there is a large complex of acid grasslands within the west of the Height Restriction Zone. This is exceptionally rich, with 24 indicators found overall and 19 north of the airport access road and 18 to the south seen in 2007. In addition a ride junction in the south east (Cmpt. 2940) supported 5 indicator species, along with the RDB Coral Necklace *Illecebrum verticillatum* (VU).

Totals of over 10 Dry Acid Grassland Indicators are regarded as of high conservation interest and those with more than 20 exceptional (Sanderson, 1998). The dry grassland complex in the south of the Forest is an exceptionally rich site.

Photographs showing parched acid grassland in the Height Restriction Zone:

Table 10.5

Lowland Dry Acid Grassland Indicators

Species	2007	Habitat
Ulex minor	O	Heath, PAG
Aira caryophyllea	R	PAG
Aira praecox	O	PAG
Aphanes australis	F	PAG
Carex arenaria	O	PAG
Cerastium diffusum	R	PAG
Cerastium semidecandrum	O	PAG
Crassula tillaea	O	PAG
Cuscuta epithymum	R	Heath
Erigeron acer	R	PAG
Erodium cicutarium	O	PAG
Filago minima	O	PAG
Filago vulgaris	R	PAG
Jasione montana	R	PAG
Ornithopus perpusillus	O	PAG
Parentucellia viscosa	O	PAG
Plantago coronopus	O	PAG
Sagina subulata	R	PAG
Sedum acre	R	PAG
Scleranthus annuus annuus	R	PAG (Disturbed)
Sherardia arvensis	R	PAG

Spergularia rubra	R	PAG
Stellaria pallida	—	PAG
Trifolium arvense	O	PAG
Hypnum lacunosum lacunosum	O	PAG
Syntrichia ruralis var. ruraliformis	R	PAG
Cetraria aculeata	R	PAG
Cladonia arbuscula	R	Heath
Cladonia ciliata var tenuis	F	Heath PAG
Cladonia crispata	R	Heath
Cladonia uncialis ssp biuncialis	R	Heath PAG
Peltigera canina	R	PAG
Peltigera rufescens	R	PAG

F = Frequent in 2007, O = Occasional in 2007, R = Rare in 2007, — = Not seen 2007.

Dorset Notable Indicators: these are listed in **Table 10.6**. This indicator list is not targeted at a particular habitat, but is a general list used to assess conservation interest, particularly of SNCIs. It also includes species that are rather more mobile and of lower indicative value than species on other lists such as Wavy Hairgrass *Deschampsia flexuosa*. Sites with 5 or more Dorset Notable Indicator species are regarded as being of SNCI quality. A total of 73 species were recorded in 2007, with an additional 10 recorded previously. In **Table 12** the Dorset Notable Indicators are broken down by broad habitat categories, which are also compared to the numbers of national and county rare or scarce species recorded.

Habitat	**DN**	**National & County Rare or Scarce**	
Mire	28	11	
PAG	24	19	
Grassland	22	2	
Heath	21(Wet Heath 12)	5	(Wet Heath 3)
Veteran Trees	5	6	
Wet Woodland	5	0	
Acid Woodland	3	1	
River	1	0	

The above comparison shows mire as the richest in habitat quality indicators, but with Parched Acid Grassland (PAG), wet and moist grassland (Grassland) and heath also important habitats for plant biodiversity of conservation significance. Less rich, but with interest, are veteran trees, wet woodland, acid woodland and river. The pattern differs from that seen with the numbers of national and county rare or scarce species, with wet and moist grassland (Grassland) and heath much less significant for the latter species. This probably reflects the degree of overall decline and threat to the respective habitats nationally and locally. Mire and Parched Acid Grassland have suffered greater declines in both area and quality than heath or wet and moist grassland so harbour more rare and declining species.

Table 10.6

Dorset Notable Indicators

Species	2007	Habitat
Frangula alnus	O	Wet Woodland
Myrica gale	F	Heath (Wet)
Salix repens	—	Heath (Wet)
Ulex minor	O	Heath, PAG
Vaccinium myrtillus	R	Acid Woodland
Agrostis curtisii	O	Heath, PAG
Danthonia decumbens	O	PAG, Grassland
Deschampsia flexuosa	O	Heath Acid Woodland
Festuca filiformis	O	Heath, PAG
Achillea ptarmica	R	Grassland
Carex acuta	—	Mire
Carex curta	R	Mire
Carex disticha	—	Grassland
Carex echinata	O	Mire, Grassland
Carex panicea	R	Mire, Grassland
Carex paniculata	F	Mire
Carex pseudocyperus	O	Mire
Carex rostrata	R	Mire
Carex vesicaria	O	Mire, Grassland
Cerastium diffusum	R	PAG
Cerastium semidecandrum	O	PAG

Species	2007	Habitat
Ceratocapnos claviculata	F	Acid Woodland
Cirsium dissectum	—	Mire, Grassland
Dactylorhiza maculata	R	Heath (Wet), Grassland
Dactylorhiza praetermissa	R	Grassland
Drosera intermedia	R	Heath (Wet)
Drosera rotundifolia	R	Heath (Wet)
Dryopteris carthusiana	O	Wet Woodland
Eriophorum angustifolium	R	Mire, Heath (Wet)
Filago vulgaris	R	PAG
Hydrocotyle vulgaris	R	Mire, Grassland
Hypericum elodes	R	Mire
Hypericum humifusum	O	PAG
Jasione montana	R	PAG
Lotus corniculatus	R	PAG, Grassland
Lotus pedunculatus	F	Mire, Grassland
Lychnis flos-cuculi	R	Mire, Grassland
Lysimachia nummularia	O	Wet Woodland
Lysimachia vulgaris	F	Mire, Grassland
Narthecium ossifragum	R	Mire, Heath (Wet)
Oenanthe pimpinelloides	+	Grassland
Orchis morio	R	PAG
Osmunda regalis	O	Mire
Parentucellia viscosa	O	PAG

Species	2007	Habitat
Pilosella officinarum	O	PAG
Plantago media	—	PAG
Polygala serpyllifolia	R	PAG, Grassland
Potamogeton lucens	+	River
Potentilla anglica	R	Mire, Grassland
Potentilla erecta	F	PAG, Grassland
Potentilla palustris	R	Mire
Rhynchospora alba	R	Mire, Heath (Wet)
Sagina subulata	R	PAG
Scutellaria galericulata	O	Mire
Scutellaria minor	O	Grassland
Silaum silaus	—	Grassland
Stellaria pallida	—	PAG
Succisa pratensis	O	Grassland
Thalictrum flavum	O	Mire, Grassland
Trichoporum cespitosum	O	Heath (Wet)
Trifolium arvense	O	PAG
Trifolium micranthum	R	PAG
Utricularia australis	R	Mire
Valeriana dioica	R	Mire
Veronica montana	R	Wet Woodland
Viola palustris	—	Mire
Viola riviniana	O	Wet Woodland
Sphagnum cuspidatum	O	Mire, Heath (Wet)

Species	2007	Habitat
Sphagnum papillosum	(?)	Mire
Sphagnum rubellum	R	Mire, Heath (Wet)
Aulacomnium palustre	O	Heath (Wet)
Anisomeridium ranunculosporum	R	Veteran Trees
Cetraria aculeata	R	PAG
Cladonia arbuscula	R	Heath
Cladonia cervicornis ssp verticillata	R	Heath
Cladonia crispata	R	Heath
Cladonia subulata	R	Heath
Cladonia uncialis ssp biuncialis	R	Heath, PAG
Cresponea premnea	R	Veteran Trees
Diploschistes muscorum	R	PAG
Pachyphiale carneola	R	Veteran Trees
Peltigera rufescens	R	PAG
Usnea ceratina	—	Veteran Trees
Usnea rubicunda	—	Veteran Trees

D = Dominant, A = Abundant, F = Frequent in 2007, O = Occasional in 2007, R = Rare in 2007, — = Not seen 2007, (?) = Record in need of conformation, not seen in 2007.

Invasive Exotics

The most prominent invasive exotic species are Rhododendron and Gaultheria. The former is found as both colonies on the edges of the site invading in from neighbouring properties, and as a large scale and serious problem on the west of Keys Copse and in Fir Grove Copse. The latter site is well on the way to being cleared, the former has not yet been tackled. Gaultheria exists as small patches here and there on the site. It does not appear to be rapidly invading or well established.

In addition to these obvious threats, there are two potential problems within the wet woodlands. A small amount of Himalayan Balsam *Impatiens glandulifera* was spotted in the west of St Leonard's Peat South (SU1032 0093) and about 20m^2 of Australia Swamp Weed *Crassula helmsii* was noted in St Leonard's Peat North (SU1055 0172).

The Himalayan Balsam *Impatiens glandulifera* is a grazing sensitive species that tends to replace Nettle in nutrient rich habitat. It is easier to remove (by grazing or cutting) that the native invasive Nettle.

The *Crassula* is a much more serious problem and can rapidly choke less acid and productive shallow water habitats. Grazing reduces its dominance but does not eliminate it, and may help spread it further to other catchments. Elimination is very difficult and only likely to succeed early into an invasion.

Planted trees include some trees of Red Alder in the two heads of St Leonard's Peat South. These are suckering and actively invading and ideally should be removed.

Gaultheria on ride-side

11) Fungi

"Fungi are tremendously important to human society and the planet we live on. Yet, despite their extraordinary impacts on our lives, both directly and indirectly, relatively little is known about them.

Fungi provide fundamental products including foods, medicines, and enzymes important to industry. They are also the unsung heroes of nearly all terrestrial ecosystems, hidden from view but inseparable from the processes that sustain life on the planet.

Fungi are also the humble accomplices in the domination of the planet's soils by plants: most plants rely on fungi in or on their roots to facilitate water and nutrient uptake – in fact, it is thought that root-associated fungi enabled the initial colonisation of land by plants nearly 600 million years ago. They are also the main decomposers of organic material, providing an essential service to life on the planet by recycling nutrients."

The above introduction is from the Kew Royal Botanical Gardens website (www.kew.org.uk). Scientists at Kew are at the centre of international research to further our collective understanding of fungi. It is believed that the planet might support around 1.5 million species of fungi, but to date only around 100,000 species have actually been identified. There is so much still to discover; understanding the relationships within and between species of fungi, relationships between fungi and surrounding life, the role of fungi in nutrient cycling, and at a fundamental level finding out which species of fungi live where as well as the discovery of new species to science.

Survey methodology for Hurn Forest

Because very little was known about the fungi of Hurn Forest prior to this project, it was decided to visit as many habitats as possible within the time and survey season available. A walkover visit was made in March to assess which areas looked best to survey, below are the habitats that were chosen.

The main areas surveyed were the wet willow and alder carrs, damp birch woods, small areas of mixed broadleaves, and the conifer plantations.

All areas were visited at least twice and the more productive sites where searched several times.

The visit dates during 2013 were 27th May, 27th June, 6th August, 4th September, 16th September, 24th September, 15th October, 23rd October and 7th November.

Specimens that could not be conclusively identified in the field were taken and examined using microscopy.

All records were checked against the FRDBI. (Fungal Records Database of Britain and Ireland) and CATE 2 (Association of British Fungus Groups).

Survey results:

- 268 species of fungi were recorded over the survey period
- 33 species are new to Dorset (see Table 11.1 below).
- No BAP or Red list species were found, but a number of notable fungi were (again see table below).
- 1 species is awaiting DNA sequencing to determine if it is a new species in the Genus Resinicium.
- As you would expect, fungi were found in all habitats and on a range of host species.

The full list can be found in Appendix 4.

Walkover surveys can only observe (and so identify) the fruiting bodies of fungi. However, different species of fungi produces fruiting bodies at different times of the year and many species do not produce fruiting bodies every year. As such this survey is only a snapshot of the total number and range of species present in Hurn Forest. Continued survey over several years would continue to yield significant numbers of new species for the site and perhaps Dorset.

Future management for fungi

The most important management prescription is to retain deadwood in the various scrub and woodland habitats, both stood and fallen. The fen and mire communities that have become covered in secondary woodland provide excellent habitats for a wide range of fungi – and so from the perspective of fungi, it would be beneficial to allow these areas to continue to develop in to mature bog woodlands.

Table 11.1: Notable fungi recorded

Hurn Forest Fungi Survey 2013					
SCI_NAME	COM_NAME	ASSOCIATION	SUBSTRATE	Comments	Comments
Aleurodiscus botryosus		Lornicera	Stem		Notable
Antrodia ramentacea		Pinus	Branch attached		Notable
Athelia bombacina		Culluna	Debris	New to Dorset	
Athelia decipiens		Pinus	Branch fallen	New to Dorset	
Brevicellicium olivascens		Salix	Branch fallen	New to Dorset	
Camarops microspora		Alnus	Standing dead	New to Dorset	Notable
Chromocypella muscicola		Salix	Moss on Trunk		Notable
Crepidotus lundellii		Salix	Branch fallen	New to Dorset	
Cudoniella clavus	Spring pin	Alnus	Wet wood	New to Dorset	
Cyphella feruginea		Salix	Trunk		Notable
Dendrothele commixta		Ulex	Stem attached	New to Dorset	Notable
Exidia saccharina		Pinus	Branch fallen		Notable
Hohenbuehelia cyphelliformis		Salix	Branch attached	New to Dorset	
Hyphoderma cryptocallymon		Alnus	Log		Notable
Hyphodermopsis polonensis		Alnus	Log	New to Dorset	
Hyphodontia alutaria		Quercus	Branch fallen		
Hyphodontia crustosa		Salix	Log	New to Dorset	
Hyphodontia pallidula		Pinus	Log		
Hyphodontia quercinus		Salix	Branch attached	New to Dorset	Notable
Inocybe whitei		Pinus	Soil	New to Dorset	Notable
Lachnellula occidentalis	Larch Disco	Larix	twig fallen	New to Dorset	
Lactarius semisanguifluus		Pinus	Soil	New to Dorset	
Lepiota echinella var echinella		Quercus	Soil		Notable
Macrotyphula fistulosa var contorta	Contorted Pipe Club	Alnus	Branch attached	New to Dorset	
Megalocystidiellum luridum		Salix	Branch attached	New to Dorset	
Merismodes fasiculata		Salix	Branch attached	New to Dorset	

Mycena alnetorum		Alnus	Soil	New to Dorset	
Nidularia deformis		Pteridium	Stem	New to Dorset	Notable
Oxyporus latemarginata		Salix	Log	New to Dorset	Notable
Pachyella babingtonii		Salix	Branch fallen	New to Dorset	
Peniophora pini		Pinus	Branch attached	New to Dorset	Notable
Peniophorella pubera		Salix	Log	New to Dorset	
Pirottaea nigrostriata		Heracleum	Stem	New to Dorset	
Pseudovalsa lanciformis		Betula	Branch attached	New to Dorset	Notable
Pterula gracilis		Grass	Dead stem	New to Dorset	Notable
Resinicium sp		Ulex	Dead stem	Sent for DNA sequencing	
Russula sanguinea		Pinus	Soil	New to Dorset	
Scytinostroma ochroleucum		Pinus	Log	New to Dorset	Notable
Tapesia strobilicola		Pinus	Bark	New to Dorset	
Trechispora alnicola		Alnus	Log		Notable
Tubulicium vermiferum		Rhododendron	Branch fallen	New to Dorset	Noteable
Typhula erumpens		Viburnum opulus	Branch attached	New to Dorset	Noteable
Typhula setipes		Alnus	Rotten leaves	New to Dorset	
Vuilleminia alni		Alnus	Branch fallen	New to Dorset	

12) Butterflies and Day-flying Moths

Hurn Forest lies within one of the richest areas for Lepidoptera in the UK. A list from DERC (Dorset Environmental Records Centre) for Hurn Forest, including an additional 1 km buffer around the site, suggests that nearly 800 species of Lepidoptera have been recorded from the immediate vicinity. This is a remarkable total and includes a number of UK Biodiversity Action Plan, Red Data Book and Nationally Notable species. While not all these species will be using Hurn Forest itself, the Forest will be a dominating factor within this landscape and is likely to support many of these species.

A useful general guide to Lepidoptera of the New Forest and East Dorset heaths area, which includes Hurn Forest, is Brock (2012). Also of relevance will be a more detailed examination of the Lepidoptera of the New Forest, including management recommendations for the key Lepidoptera habitats, in Green (2000), Green (2005) and Green *et al*. (2008).

Definitions

The species names, code numbers and systematic order used in this report conform to the usage in *Checklist of Lepidoptera recorded from the British Isles* (Bradley, 2000) as updated by Langmaid & Agassiz (2005) and Fox *et al* (2006).

The key species of Lepidoptera are those identified in the UK Biodiversity Action Plan (UK Biodiversity Group, 1995, 1999a & 1999b, Biodiversity Reporting & Information Group, 2007), the UK Red Data Book (Shirt, 1987) also Davis (2012) and Waring (unpublished).

Method

The assessment method was similar to that used for Chiddingfold Forest, Surrey (Clarke and Green, 2012a) and for Whiteley Pastures, Hampshire (Clarke and Green, 2012b). This method can provide a general assessment of woodland sites using field surveys of Lepidoptera together with estimates of breeding habitat and nectar resources.

Key Lepidoptera

Using records for the area around Hurn Forest and local knowledge of the region a target list of butterflies of conservation status (Red Data Book, Nationally Notable or UK BAP priority species) was compiled (Table 12.1). Species last recorded before 1990 were not included.

This is may not be a complete list and obviously the field survey was comprehensive in that it did not just search for these key species. The purpose of the list was to enable targeting of resources at this large site. In particular to focus the timing of visits and to accurately focus the assessment of habitat during fieldwork. For example; Silver-studded Blue does not just need the presence of heather and ants, Grayling does not only need grassland, both require

very particular habitat and micro-habitat structures which must be considered during any assessment.

Table 12.1 Key butterflies

Species	Status*	Last record in area
Dingy Skipper *Erynnis tages*	UK BAP priority species	1996
Grizzled Skipper *Pyrgus malvae*	UK BAP priority species	2008
Silver-studded Blue *Plebejus argus*	UK BAP priority species	2011
White Admiral *Limenitis camilla*	UK BAP priority species	2007
Grayling *Hipparchia semele*	UK BAP priority species	2010

*UK BAP (Biodiversity Action Plan) priority species, see Section 3

A similar list of key moths was also gathered (Appendix 4) and while the primary focus was on the butterfly species above, the key moths also helped to indicate the type of flora and habitat structure that needed to be assessed during the fieldwork.

Lepidoptera survey

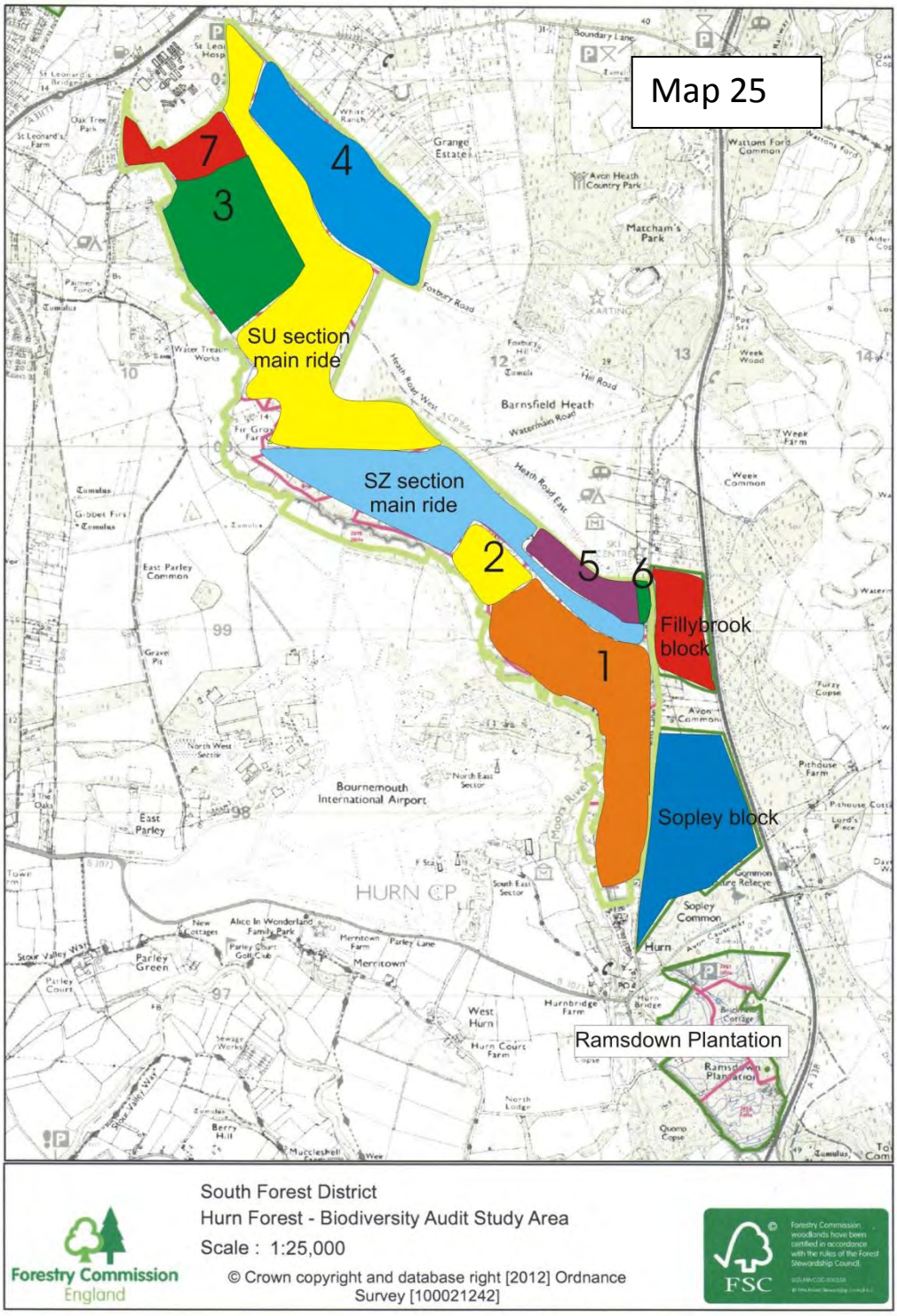
The survey was primarily for adult butterflies and day-flying moths, but also included some larval searches including for leaf-mining Lepidoptera. In addition, artificial pheromone lures were unsuccessfully used to try and attract Large Red-belted Clearwing. The night-time survey of moths at Hurn Forest was carried out by another team and is presented in their report.

Surveys were, as far as possible, only undertaken in suitable weather conditions as judged according to standard guidance from the UK Butterfly Monitoring Scheme (www.ukbms.org). It had been intended to carry out the first visits in May, but low temperatures and wet conditions not only made survey extremely difficult, but also considerably delayed the flight periods of most spring species. The first visits were therefore

delayed until mid-June to accommodate this change in emergence. Seven survey visits were made on 19 and 27 June, 18 and 25 July, 7 and 20 August, 3 September 2013.

All Lepidoptera seen (of any life stage) were noted with location, abundance and with the search time taken within that location. If a species was particularly numerous and a count would have disrupted the survey or become time-consuming, then the species is recorded simply as "present". For key butterfly species a hand-held GPS was used to give a 10 figure grid reference of most of the sightings and this is recorded with the species records (Appendix 4).

Map 25 shows the areas covered in the 2013 survey. Hurn Forest is fairly large and falls within both the SU and SZ Ordnance Survey grid squares, so survey was divided into rough habitat/area units to allow sightings to be more accurately recorded. The grid references given in the species records reflect this rough division. The surveyors walked as much of the site as possible, carrying out timed counts within each area. Usually identification could be made without capture, but when necessary specimens were photographed and/or netted and released.



Map 25 Survey units

(Areas were used to aid recording and are only roughly defined)

Assessment of Lepidoptera habitat

Nectar

For each area (Map 24) and each visit, an estimate of overall nectar resource was assessed using the following abundance score (DAFOR)

D - dominant

A - abundant

F - frequent

O - occasional

R – rare

Only plants actually in flower were scored so giving a measure of nectar source at the time of each survey visit.

While the DAFOR scale is sometimes defined in the literature as directly equivalent to a range of percentage cover (i.e. D = >75% cover) it is not usually intended to be used with this level of accuracy. It is used in this method as a rough description of abundance, which can be refined by giving both an overall estimation for an area together with an indication of any patchiness. For example; nectar may be overall "rare" yet there may be one or two large clumps of flowers and this can be indicated as "rare + locally occasional" or R(LO).

Breeding habitat

For each area (Map 24) an assessment was made of the extent of suitable breeding habitat for the identified key Lepidoptera. For each key species the amount of suitable breeding habitat (that is suitable food plant in suitable condition) within each survey unit was scored 0 to 2.

0 = no habitat

1 = suitable breeding habitat was present

2 = habitat was present over most of survey unit

For butterfly species the breeding habitat requirements are generally known, at least in some detail and recording the simple presence of the larval food plant is usually not an indication of breeding habitat. For example; White Admiral caterpillars feed on Honeysuckle, but only when it grows in certain semi-shaded conditions. For moths, the specifics of breeding habitat requirements are generally less well known and much of the assessment has to be based on the simple presence of food plant.

Results and discussion

All Lepidoptera sightings are listed in Appendix II and all records have been supplied to Dorset Environmental Records Centre (DERC).

Species recorded:

Table 12.2 Summary of species sightings, Hurn Forest, 2013

No. Lepidoptera species recorded during survey	83 (25 butterflies, 58 moths)	
No. Key species recorded during survey	2 (butterfly) 1 (moth)	Silver-studded Blue & Grayling (UK BAP priority)* *Crambus hamella* (Nationally Scarce B)
Other Lepidoptera of note	11 moths (Local distribution) 1 moth (Adventive)**	

* Also recorded during the survey was Small Heath *Coenonympha pamphilus* which is listed on the UK BAP as a priority species for research only and is not currently considered a conservation priority.

**Not native to Britain, not fully naturalised

During the 2013 survey, 25 species of butterfly and 58 species of moth were recorded, including two UK BAP priority species, one Nationally Notable B status and 11 species of Local distribution. There was also one adventive species, this term is used for a foreign species (usually accidentally introduced) which is not considered to be naturalised.

Table 12.3 Noteworthy species recorded at Hurn Forest, 2013

Code	Taxon	Vernacular	Authority	Status	No. seen
25	*Ectoedemia intimella*		(Zeller, 1848)	Local	present
64	*Stigmella continuella*		(Stainton, 1856)	Local	present
128	*Phylloporia bistrigella*		(Haworth, 1828)	Local	present
129	*Incurvaria pectinea*		Haworth, 1828	Local	present
157	*Heliozela hammoniella*		(Sorhagen, 1885)	Local	present
281	*Caloptilia populetorum*		(Zeller, 1839)	Local	present
351	*Phyllonorycter lautella*		(Zeller, 1846)	Local	present
768	*Carpatolechia notatella*		(Hübner, 1813)	Local	1
1299	*Crambus hamella*		(Thunberg, 1788)	Nb (Nationally Scarce B)	6
1571	*Plebejus argus*	Silver-studded Blue	(Linnaeus, 1758)	Nb + UK BAP priority	40
1621	*Hipparchia semele*	Grayling	(Linnaeus, 1758)	UK BAP priority	28
1970	*Perconia strigillaria*	Grass Wave	(Hübner, 1787)	Local	many
2040	*Cybosia mesomella*	Four-dotted Footman	(Linnaeus, 1758)	Local	1

2059	*Diacrisia sannio*	Clouded Buff	(Linnaeus, 1758)	Local	1
1355 a	*Musotima nitidalis*		(Walker, [1866])	Adventive	1

The full Butterfly list for the survey in 2013 is given below;-

Small Skipper	*Thymelicus sylvestris*
Large Skipper	*Ochlodes venata*
Clouded Yellow	*Colias croceus*
Brimstone	*Gonepteryx rhamni*
Large White	*Pieris brassicae*
Small White	*Pieris rapae*
Green-veined White	*Pieris napi*
Green Hairstreak	*Callophrys rubi*
Small Copper	*Lycaena phlaeas*
Silver-studded Blue	*Plebejus argus*
Brown Argus	*Aricia agestis*
Common Blue	*Polyommatus icarus*
Holly Blue	*Celastrina argiolus*
Red Admiral	*Vanessa atalanta*
Painted Lady	*Vanessa cardui*
Small Tortoiseshell	*Aglais urticae*
Peacock	*Inachis io*
Comma	*Polygonia c-album*

Speckled Wood	*Pararge aegeria*
Marbled White	*Melanargia galathea*
Grayling	*Hipparchia semele*
Gatekeeper	*Pyronia tithonus*
Meadow Brown	*Maniola jurtina*
Small Heath	*Coenonympha pamphilus*
Ringlet	*Aphantopus hyperantus*

The butterflies included the heathland species Silver-studded Blue, Grayling and Green Hairstreak. The usual grass-feeding species such as Gatekeeper were abundant, but also a single Marbled White was seen, a species which prefers medium to long sward grassland and a few Small Heath which likes finer, shorter grassland. Small Skipper was recorded and some individuals were netted so identification could be checked to distinguish from the Essex Skipper *Thymelicus lineola*. None were found to be Essex Skipper, but it is quite likely to occur at Hurn Forest.

Small Copper was found in the Sopley block where erosion of the sandy soil had encouraged plenty of its food plant, Sheep's Sorrel *Rumex acetosella*. Interestingly, Brown Argus was seen near the same area.

Common Blue was found mainly to the north of the main block were there were some large areas of its food plant Bird's-foot-trefoil *(Lotus spp*.). Holly Blue was recorded along the site boundary in the north of the main Forest and along the roadside at Sopley block. A search was made for Purple Hairstreak *Favonius*

(Neozephyrus) quercus, this is a canopy-living species so often missed on general butterfly surveys. There was some suitable looking habitat mainly along the Forest boundary, a few areas along the northern section of the main Forest ride and near the car park at Ramsdown Plantation, but no Purple Hairstreak were seen.

Overall, Hurn Forest has developed a good assemblage of typical heathland moths. As well as the rare or uncommon species which are detailed above in Table 12.3, other heathland species of interest included Beautiful Yellow Underwing *Anarta myrtilli,* Oak Eggar *Lasiocampa quercus* and Emperor Moth *Saturnia pavonia.*

Sightings of UK BAP priority species

Two UK BAP priority species were recorded at Hurn Forest in 2013, Silver-studded Blue and Grayling. These are both heathland specialists and although not uncommon on the New Forest and Dorset heaths, they both have an extremely restricted distribution and declining populations.

Silver-studded Blue

This is one of Britain's scarcest butterflies although it was formerly widespread. It has been lost from around four fifths of its former range and is now virtually confined to remaining heathlands, with the New Forest and Dorset heaths probably accounting for over 40% of the UK numbers (Barker, Fuller & Shreeves, 2000). Where it does occur it can be quite numerous, existing often in fairly discrete groups in small areas. It is quite sedentary, most

adults generally do not move far, but the species seems to act as a metapopulation across a landscape. That is a few individuals do move between the discrete colonies and so the actual population consists of small groups scattered in small habitat patches over a landscape-scale area.

This butterfly was found in patches all over the main Forest block, from north to south. It was also found in the Sopley block and at Ramsdown Plantation. If was not recorded at the Fillybrook block, but almost certainly is present considering it was found immediately the other side of the road near the Matchams Lane car park.

The wide distribution of this species across the whole site and the numbers seen (40 in all) mean this is a strong population at present and that Hurn Forest (including Ramsdown Plantation) is an important site for Silver-studded Blue.

Grayling

While this can still be a fairly common butterfly along coast habitat and the southern heathlands, this species has seen a huge decline in its distribution and numbers in recent decades (Fox *et al*., 2006). The remaining populations are now of great importance.

At Hurn Forest, this butterfly was quite patchy in its distribution, but was recorded both in the north and south of the main block and also at Ramsdown Plantation. It was not seen in either of the two eastern blocks (Fillybrook or Sopley, but this is a fast flying butterfly and the males may fly quite long distances, so it is quite likely to be using these areas. There is certainly some suitable habitat in the Sopley block, but almost none in Fillybrook.

Considering the size of the site, the Grayling numbers recorded during the survey were fairly small (28 in total).

Sightings of other Notable or noteworthy species

Crambus hamella (Nationally Notable B)

Very local and possibly declining. Primarily found in southern England and East Anglia. The moth occurs on dry heathland, particularly the more open parts of heaths. The early stages of this species are unknown, although the moth appears to be associated with grasses of dry heathland such as Wavy Hair-grass *Deschampsia flexuosa*. Six individuals were recorded on the heathland in the south of the main block, but this is a very small rather unobtrusive moth, and if a full search was made for this species then it is likely more would have been found.

Grass Wave (Local)

Not uncommon on heathland, damp grassland and open heathy woodland in south-east Dorset and the New Forest. Where it does occur it can be in quite high numbers and this was the case at Hurn Forest. It was common over the whole of the main Forest block so individual numbers were not counted during the survey. It was not found in either of the eastern blocks and it was not found at Ramsdown Plantation.

Four-dotted Footman (Local)

Fairly common in the Dorset and Hampshire region on heathland, damp grassland and open woodlands. This is not a day-flying species, but a single individual was found resting in verge vegetation in the middle of the main Hurn Forest block.

Clouded Buff (Local)

Fairly common on Dorset and Hampshire heathlands. The males in particular, often fly during the day. One was seen in the middle of the main Hurn Forest block.

Carpatolechia notatella (Local)

Not common, but found in woodland and heathland habitat throughout the British Isles. One full-grown larva was found on sallow in the middle section of the main Forest block.

Leaf-miners (Local)

The following leaf-mining Lepidoptera of Local status were recorded; *Ectoedemia intimella, Stigmella continuella, Phylloporia bistrigella, Incurvaria pectinea, Heliozela hammoniella, Caloptilia populetorum* and *Phyllonorycter lautella*.

Musotima nitidalis (Adventive)

One adult of this micro-moth was found in the south of the main Forest block on vegetation under open conifer woodland. The moth was recognised as something unusual and subsequent investigation found it to be a non-European species, probably south-east Asian or Australasian. Final identification was made by Tony Davis (National Pyralidae Scheme Organiser).

This is not a British species. According to the FERA (Food and Environment Research Agency) rapid assessment sheet (Anderson & Cannon, 2011), it is widespread in Australia and common in New Zealand forests where it feeds on ferns. It may have been accidentally imported on tree ferns from Australasia. The FERA rapid assessment sheet states "*The first UK finding of this pest occurred in November 2009, when a specimen was captured on a*

moth trap at a nature reserve near Bournemouth Airport. Subsequently a second specimen was trapped on 26th October 2011 in Crawley Down, West Sussex. Both specimens found were adults, and both were trapped on light traps set up by amateur moth recorders. Although these may be transient, it is also possible that this moth has naturalised in small numbers."

As for the risks this moth may present within Britain (or within Hurn Forest) FERA concludes *"It is unknown what effect this pest may have on native Pteridaceae as it has not previously been recorded on the native species in the UK. However, impact is thought to be small based on the paucity of records in its native Australasia. If the pest has entered the UK on tree ferns it may spread to other ferns at specialist growers, but again impact under protection is likely to be limited."*

Details of the original find in 2009 were published on the Dorset Moth Group web site and in *Atropos* No 39: 21-25, *Entomologist's Gazette* 63: 43-47 and again in *Atropos* No 49: 59-62. (Anon, 2009, Clancy, 2010, Sterling, Evans & Jeffes, 2012 and Young, 2012). A summary of *M. nitidalis* in Hurn Forest has also been recently published (Evans, 2013) and Pratt (in prep) gives details of this species in Sussex.

As with any adventive species, there is always the need for low-level monitoring to record any changes in distribution and to watch for any impacts on native species. At present, there do not seem to be any major concerns about this moth, but it does appear to be surviving and breeding.

Other species

Although not Lepidoptera, it is worth noting that a Wasp Spider *Argiope bruennichi* (Nationally Notable A) was seen and photographed on 3 September 2013 in the Sopley block of Hurn Forest.

Habitat assessment

Nectar resource for Lepidoptera

In June, early July and September, over all the survey areas (including Ramsdown Plantation) the nectar plant abundance was assessed as overall "rare" but in some patches "locally occasional". In late July and August most of the open heathland areas were then assessed as

"frequent" or "locally abundant" but the majority of the nectar resource was provided only by the various heather species.

The poor nectar availability in spring and early summer is fairly typical of heathland habitat, but the wide ride verges down the centre of Hurn Forest could be expected to provide a better resource than presently exists. The best of the ride-side nectar in 2013 was towards the north of the main Forest block.

Breeding habitat for key butterflies

Habitat assessment was carried out for the five key butterfly species which were known to either occur or have recently occurred in the area around Hurn Forest. Of these, two were found during the survey, both UK BAP priority species.

Silver-studded Blue (40 adults recorded during survey)

This butterfly has very specific habitat requirements needing patches of warm, fairly short, open heathland vegetation with some patchy bare ground and they must have the presence of particular species of ants. The females will only lay eggs where they detect suitable ant pheromones and the caterpillar will spend much of their time within the ant nests. On a site such as Hurn Forest the caterpillars will be feeding on various species of heather and young gorse. A Butterfly Conservation Factsheet for this species is available at butterfly-conservation.org.

The assessment at Hurn Forest was not able to search for the presence of ants, but examined the overall habitat structure for its ability to support both the butterfly and the ants. Suitable habitat is currently found in large patches over the whole survey area, including Fillybrook block, Sopley block and a small area at Ramsdown Plantation.

The Silver-studded Blue will not use the woodland blocks, but these do act to provide shelter and so additional warmth to the adjacent heathland habitat. The heathland at Hurn Forest is providing a most important and extensive network of breeding habitat for this rare species.

Grayling (28 adults recorded during survey)

At Hurn Forest, Grayling are using the open heathland and require areas of warm habitat and short vegetation. The caterpillar feeds on small tussocks of fine grasses, usually wherever there is plenty of bare ground. A Butterfly Conservation Factsheet for this species is available at butterfly-conservation.org.

Suitable habitat was found in many small and large patches over the main Forest, Sopley block and a small area at Ramsdown Plantation, but the habitat at Fillybrook block appeared less suitable. Quite a few sections of the main ride verge had good breeding habitat and one female was seen in egg-laying behaviour on this verge.

It was slightly surprising that only 28 adults were seen over the site, it is possible that better breeding habitat was on offer on the open heathlands alongside Hurn Forest and that these hold the main population.

However, Grayling need a range of micro-habitats if they are to cope with variability in summer conditions, in very dry summers their usual very open habitat with short vegetation may become totally parched and longer sward grassland may be needed. Hurn Forest not only provides suitable breeding habitat in most years, but with its shadier woodland edge habitat it could also maintain suitable grassland in hot, dry seasons. So like the Silver-studded Blue, the Grayling will not use the woodland blocks, but their breeding habitat will be enhance by the shelter provided.

Dingy Skipper (not recorded on survey)

None were seen during the survey, but to the north in the main Forest block (within the SU grid square) there are areas with the right type of habitat structure and plenty of the caterpillar food plant, Bird's-foot-trefoil, especially along the ride and path edges. However, almost no potential habitat of any size was seen in other areas of the site.

During 2013, there were unconfirmed reports of Dingy Skipper outside of the northern boundary of Hurn Forest, and this is close to the potentially suitable breeding habitat found along the Forest verges. This is a small, often overlooked butterfly and it might well be somewhere in the north of Hurn Forest.

A Butterfly Conservation Factsheet for this species is available at butterfly-conservation.org

Grizzled Skipper (not recorded on survey)

Although the occasional tiny patch of potential breeding habitat was seen, none was considered large enough to score on the assessment.

The best of these areas were along the main track and some ride verges in the north of Hurn Forest. The habitat for this species is often fairly short-lived. Forestry operations and other ground disturbance can produce required short flowery sward with bare ground, but then this is lost in a few years as the vegetation develops. Management work or new clearances might well create some potential habitat in the future which could be colonised by this species.

A Butterfly Conservation Factsheet for this species is available at butterfly-conservation.org

White Admiral (not recorded on survey)

Typical breeding habitat was fairly rare over the site. This is a woodland species that requires shaded to well-shaded Honeysuckle *Lonicera periclymenum* and uses "strands" hanging from trees and shrubs usually a few metres under canopy cover, often along a verge boundary. It will not use Honeysuckle growing in sunny, open locations. What was noticeably rare at Hurn Forest was the sort of tall-growing nectar sources (such as bramble bushes) that usually attracts the adult White Admiral.

Some suitable breeding habitat was seen mainly in the north of Hurn Forest, also in one of the eastern blocks (Fillybrook) and along the wooded road verges around Hurn Forest. Over the rest of the site only occasional small patches were noted. Overall, there is probably not enough breeding habitat at Hurn Forest alone to support a population.

The White Admiral is a strong flying butterfly with populations that probably cover wide areas, so occasional sightings at Hurn Forest are very possible. It may be breeding in nearby deciduous woodland and if suitable verge-side management could be established (especially developing a strong scrub-zone between the verge and woodland edge) then it is very likely to use Hurn Forest.

A Butterfly Conservation Factsheet for this species is available at butterfly-conservation.org

Table 12.4: Summary of breeding habitat for key butterflies, Hurn Forest, 2013

	Species	**Estimated extent of breeding habitat**
Key butterflies *(Includes species not seen during the survey)*	Dingy Skipper	Some habitat
	Grizzled Skipper	Very little habitat present, not sufficient
	Silver-studded Blue	Habitat over much of site

	Grayling	Habitat over much of site
	White Admiral	Some habitat, but probably not sufficient

Breeding habitat for local and rare moths found during survey

Of the native moth species given in Table 16, five are strongly heathland or heathy open woodland species and seven are leaf-miners on deciduous trees and shrubs.

Larval food plants include Wavy Hair-grass *Deschampsia flexuosa* for *Crambus hamella,* lichen on plants such as heathers and sallow for Four-dotted Footman, various grassland and heathland plants for Clouded Buff and Grass Wave, and Goat Willow *Salix caprea* for *Carpatolechia notatella*. These food plants were well distributed over most of the site, with Ramsdown Plantation the poorest area for these species. The heathland lichens, suitable for Four-dotted Footman, are particularly good in patches in the south of the main Forest block.

For the leaf-mining Lepidoptera, the food plant for *Ectoedemia intimella* is sallow *Salix spp*, *Stigmella continuella*, *Phylloporia bistrigella, Incurvaria pectinea, Heliozela hammoniella* and *Caloptilia populetorum* use birch *Betula spp* and *Phyllonorycter lautella* uses oak *Quercus spp*.

Breeding habitat for key moths

None of the key moths listed in Appendix 4 were found during the survey and many of these could not be covered adequately by this day-time only survey. The majority are either heathland specialists or moths associated with deciduous woodland or scrub. Of these species the heathland moths, Goat Moth *Cossus cossus* (UK BAP), *Scythris empetrella* (pRDB2), Small Grass Emerald *Chlorissa viridata* (Na), Dingy Mocha *Cyclophora pendularia* (UK BAP) and Southern Chestnut *Agrochola haematidea* (RDB2) should be considered to be of particular importance.

Goat Moth (not recorded on day-time survey, but recorded in moth traps at night)

The larvae of Goat Moth feed on living wood within the trunks of a wide range of deciduous trees. The distinctive larval feeding damage of this species was searched for during the survey but was not found although tenanted trees are likely to be present but overlooked.

Trees used can range from mature veteran oaks in closed canopy woodland to young birch saplings growing on heathland. The presence of this species should be investigated before any deciduous fellings are contemplated.

Scythris empetrella (not covered by survey)

Associated with unshaded sandy areas with early-succession Heather *Calluna vulgaris* or heaths *Erica* spp. Likely to be extremely local as colonies can be restricted to a few square metres of suitable habitat.

Small Grass Emerald (not covered by survey)

A species of damp open heathland and mosses. The larvae feed from late July and August on Heather and heaths, birch and Creeping Willow *Salix repens*. This is a nocturnal species and it is unsafe to assess potential breeding areas without light trapping.

Dingy Mocha (not covered by survey)

The larvae of Dingy Mocha typically feed on small, isolated bushes of small-leaved *Salix* species growing on open heathland. Small patches of potentially suitable Dingy Mocha habitat were found over much of the site (except Ramsdown Plantation) and was particularly noted in the Sopley block.

It should be noted that there can be a conflict between the requirements of this species and typical heathland restoration and management techniques. Dingy Mocha needs sallow scrub but much of heathland management is focused on scrub removal. Potentially suitable sallows should be identified and retained during management.

Southern Chestnut (not covered by survey)

The larvae of Southern Chestnut feed on the flowers of Bell Heather *Erica cinerea* and Cross-leaved Heath *Erica tetralix*. This is a nocturnal species and it is unsafe to assess potential breeding areas without light trapping. However extensive areas of potentially suitable early

successional heathland habitat occur over the whole survey area, including Fillybrook block, Sopley block and a small area at Ramsdown Plantation.

Further species

In addition, extensive areas of potentially suitable early successional heathland habitat for a further UK BAP priority moth, the Shoulder-striped Clover *Heliothis maritima*, were noted during the survey. This moth may well also be present and, even if not, it is strongly recommended that future heathland management fully accommodated the requirements of this species. This moth is entirely restricted to New Forest and East Dorset heaths and colonisation is probable.

Potential for habitat enhancement aimed at Lepidoptera

Heathland

The structure of habitat at Hurn Forest currently provides a very suitable mix of open heathland and woodland blocks for Silver-studded Blue and Grayling. At present, there are many patches of quite early successional heath alongside older habitat. This mix of heathland successional stages needs to be maintained as taller, older heather areas are not suitable for the Silver-studded Blue in particular. This means active management is essential as the heathland restoration areas age. Scrub encroachment is a developing problem and is likely to be a big management issue in the near future. Silver-studded Blue will not cope well with a shaded shrubby heathland.

Various management options for Silver-studded Blue are given in a Butterfly Conservation Factsheet (available at butterfly-conservation.org), but the ideal at Hurn Forest would be low density grazing using perhaps New Forest ponies or native breed cattle. This may not be sufficient to maintain the heathland in ideal condition and some cutting / mowing is likely to be a most useful additional management. Similarly forage harvesting of mature heather could be a good option at this site. Cutting / mowing does have an advantage in that it can be carefully targeted at older habitat or areas developing scrub. It can also be targeted close to areas with good numbers of the butterfly to provide new habitat patches close to existing populations.

Carefully planned, periodic small-scale burning of the heather could also be used as a management to maintain the necessary varied-aged heathland. This would need to be considered with great caution considering the reptile interest of the site, in particular. Any burning must follow the practices in "*The heather and grass burning code. Natural England 2007*". Hurn Forest is well used by walkers and cyclists, so the public perception of such a management should also be assessed. Would the deliberate burning of such a public area undermine the general message about protecting heathland from accidental /arson burning? It is also regrettable, but very likely that the heathland at Hurn Forest will be subject to some accidental and/or unplanned fires and that management will need to be adjusted to compensate.

A mosaic of varied-aged heathland with woodland blocks providing shelter will also provide good habitat for Grayling and for many of the notable moths found during the survey. Active management of the heathland with grazing animals or by cutting will provide the patches of bare ground required by Grayling. Even some small areas of erosion caused by people or animals can be most useful in creating Grayling breeding habitat. As with Silver-studded Blue the encroachment of scrub into the heathland areas will reduce the breeding habitat available.

These recommendations should be considered in conjunction with the requirements of the key heathland moths (and other plants and animals dependant on this habitat). As noted in Section 5.2.4, the habitat requirements for some of the key species of moth noted for Hurn Forest will not be entirely fulfilled by management for Silver-studded Blue and Grayling. For example; Dingy Mocha does require sallow scrub within heathland habitat. However, Hurn Forest is a large site and careful management planning can accommodate such conflicts.

Verge and ride-side habitat

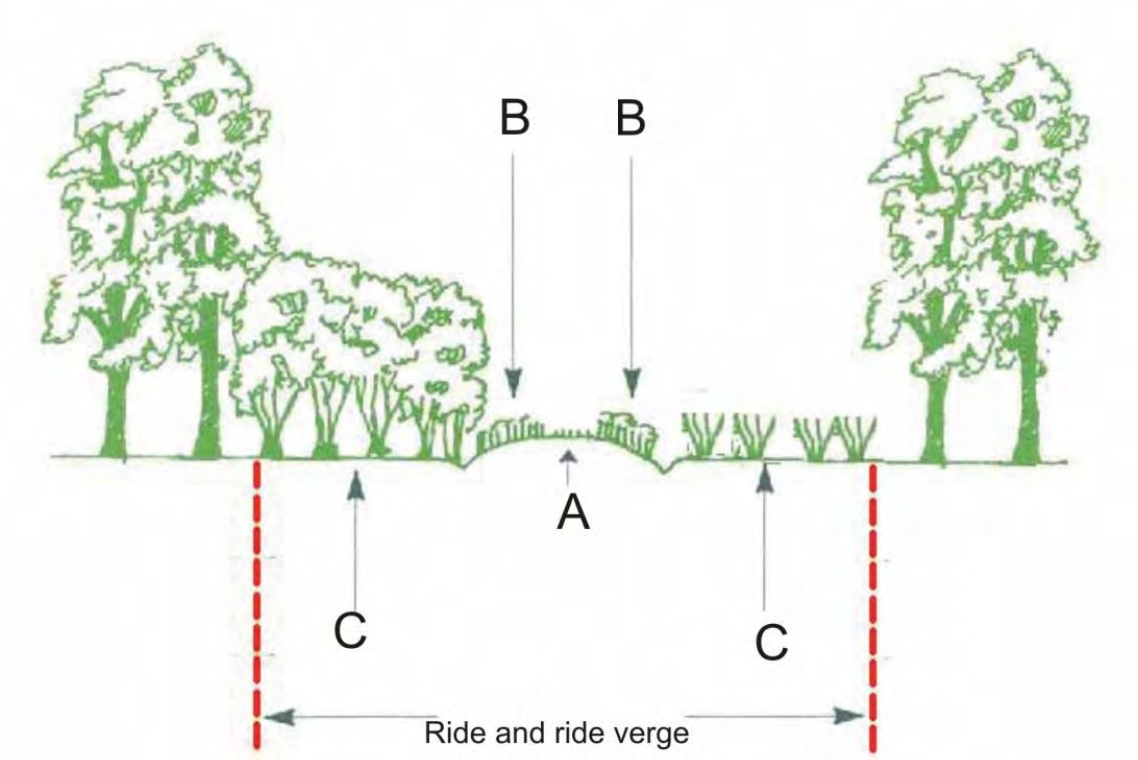
At least some, if not most, of the ride-side verge to the main track through Hurn Forest main block appears to be managed on a three-zone system (Warren and Fuller, 1993). This is generally good for creating the kind of varied habitat structure and rich-floral diversity which is required for insects such as butterflies. There are additional areas of this track which could be enhanced using this management, in particular allowing the development of a deciduous mixed-species shrub layer alongside the plantation blocks next to the cut verge. There are also some other tracks and rides across the forest where this ride-side structure could be created.

The specific benefits could include increased nectar sources and an increased variety of deciduous scrub species which would be of benefit to many moths in particular. This could also increase Honeysuckle habitat for species such as Broad-bordered Bee Hawk-moth *Hemaris fuciformis* and White Admiral. This management has been shown to also benefit many other animals and to increase floral diversity.

Another enhancement that can be of enormous benefit to insects is simply not to cut the entire verge in the same year. Blocks can be cut on rotation along the verges in different years and it doesn't matter if the boundaries vary a bit between cuts, it all adds to diversity. This management is very flexible, if for example Bracken is an issue, then certain sections can be selected for more regular cutting than the rest of the verge.

Sometimes it is important (public use, track upkeep, vehicle access) that all trackside vegetation must be kept short. In such a case, a 2 year rotation could be considered, or if the cutting equipment will allow then a narrow band next to the track could be cut every year between zones A and B (see figure below) leaving the rest of the verge on a longer rotation.

A suggested generalised structure is given below, but further details can be found in most woodland management guides including Warren and Fuller (1993) and Clarke *et al*. (2011).



Adapted from Warren and Fuller (1993), proportions can be adapted for individual ride widths.

A is the central path/ride, which if not surfaced is to be cut at least once a year. B is a wide verge (at least 3 to 5 m) to be cut piecemeal on a 3 to 4 year rotation and C is a 3- 5 m wide scrub layer zone to be cut piecemeal on a 5 to 7 year rotation.

All recommendations need to be balanced and considered in conjunction with the requirements of other key flora and fauna found at Hurn Forest, particularly the reptiles.

Conclusions

Although only day-time surveys of Lepidoptera were carried out for this report, 25 species of butterfly and 58 species of moth were recorded, these included two UK BAP priority species (Silver-studded Blue and Grayling), one Nationally Notable B status, 11 species of Local distribution and one adventive species. In addition, a Nationally Notable A status spider was seen.

Generally the butterfly interest of the site was principally related to the heathland habitat and the site has developed a varied assemblage of typical heathland Lepidoptera. However, there were also many species that utilised the grassland and deciduous woodland features within Hurn Forest and future enhancement of selected wood edge / ride edge features could greatly increase the value of the woodland. The conifer habitat was not judged to be of high Lepidoptera interest.

The mix of woodland, grassland and heathland is an important feature at this site giving a variety of habitat and this is reflected in the butterflies recorded. As well as providing habitat the woodland also shelters patches of heathland, creating the warm conditions needed by species such as Silver-studded Blue and Grayling.

The key species found during the survey were all heathland specialists, to at least some extent. Of these species Silver-studded Blue is of primary importance. While it is fairly common in this immediate area (New Forest and Dorset heathlands) this butterfly is now restricted to its core range and the continuing fragmentation and degradation of heathland is a huge threat to the remaining populations. Hurn Forest can provide an important landscape link connecting habitat patches between the New Forest and the Dorset heathlands to the south and north of the site. Without this type of connectivity across a landscape the Silver-studded Blue in particular, but also to a slightly lesser extent, the Grayling, become trapped in habitat fragments and liable to local extinction.

The condition of the heathland within Hurn Forest is currently good for the key species found, but this will not persist in the absence of management. Management priorities for butterflies at Hurn Forest should focus on maintaining and enhancing the Silver-studded Blue and Grayling habitat. Whilst there are currently many highly suitable areas throughout the heathland, these will need active management if they are to remain suitable. That management should be targeted at creating and maintaining a mosaic of mixed-aged heathland with many areas of early successional open-structured growth. Scattered patches of bare ground are needed and scrub growth (conifer or deciduous) must not be allowed to shade the breeding habitat.

13) Moths

Survey methodology
The survey was carried out using portable, battery operated actinic moth traps of various designs and wattages. There would usually be in the order of 10 to 12 put out on any one night in a variety of sites. These sites predominantly follow the Moors River edge of the forest and extend from the southern to the northern edge of the Hurn Forest complex. The traps were put out one evening, left overnight and the moths inspected the following morning. In addition a small number of species were identified by daytime field observations of larvae or leaf mines.

Survey dates/weather conditions
The list of dates where trapping occurred is as follows: 23rd April, 31st May, 28th June, 16th July, 6th August, 10th September, 5th October and 5th November 2013. Trapping was attempted when suitably mild and calm nights were forecast.

Limitations of survey
The traps were only put in close proximity to accessible paths and tracks (for a 4x4 car) as carrying this many traps far from accessible points was deemed unworkable for a whole year.

Survey results
289 species were recorded with a grand total of 2614 individuals from 8 trapping sessions during the survey period. Where needed all records were verified by Mike Jeffes (Dorset County Micro Moth Recorder).

The survey results from 2013 complement ongoing existing data from previous years including data from Hurn Forest during 2010 – 2012 from surveys conducted by David Evans, as well as an overall species list of species from Moors Close (Hurn) from 1998 – 2012 as recorded by Mike Jeffes.

During the period 2010 to 2013 the highlights from within the Hurn Forest area were:

Macro Moth species
Notable species.

RDB2
Agrochola haematidea – Southern Chestnut (2013).

RDB3
Cyclophora pendularia – Dingy Mocha (2010)

Notable A
Anticollix sparsata – Dentated Pug, Cleora cinctaria – Ringed Carpet (both 2013)

Notable B

Cossus cossus – Goat Moth (2013), Pachycnemia hippocastanaria – Horse Chestnut (2013), Meganola albula – Kent Black Arches (2011), Elaphria venustula – Rosy Marbled (2013), Hypenodes humidalis – Marsh Oblique-barred (2013).

Photographs of Goat Moth (top) and Rosy marbled (bottom) - David Evans

Local Species
53 species of local national status were found.

Nationally Scarce B micro moths
Pediasia contaminella, Crambus hamella and Pampelia genistella

Newly arrived adventive from Australia/New Zealand. Musotima nitidalis, a fern feeding species, first noted in Britain at Merritown Heath in 2009 has occurred on 7 occasions during this survey and twice at Moors Close representing the first multiple records in Britain.

15 years of Moth recording adjacent to Hurn Forest

The garden of 33 Moors Close at Hurn which backs on to the small pocket of FC land to the south west of Mildren Construction has been extensively trapped for 15 years. This has a total list in excess of 850 species compared to about 350 from Hurn Forest so far. Therefore, looking at these lists as well, other notable species almost certainly to be found within the Hurn Forest site, in addition to the above, are:

Notable A
Chlorissa viridata – Small Grass Emerald,

Notable B
Apoda limacodes – Festoon, Synanthedon culiciformis - Large Red-belted Clearwing, Cyclophora annularia – The Mocha, Idaea sylvestraria – Dotted-border Wave, Euphyia biangulata – Cloaked Carpet, Eupithecia insigniata – Pinion-spotted Pug, Hemaris fuciformis – Broad-bordered Bee Hawk, Conistra rubiginea – Dotted Chestnut, Archanara sparganii – Webb's Wainscot, Earias clorana - Cream-bordered Green Pea, Hypena rostralis – Buttoned Snout

Nationally Scarce B micro moths
At least 12 additional species.

In addition, **Merritown Heath**, on the west side of the Moors River has also been trapped in the past and in reality represents a westerly extension of the same habitats. Perhaps the most important species as a group recorded from here are the Aspen feeding species which occur predominantly in the large stand that occurs near the north of this area. Some of the specialised associated species are Ancylis laetana, Tethea or - Poplar Lutestring, Archiearis notha - Light Orange Underwing and Orthosia populeti - Lead-coloured Drab. These almost certainly will occur in the larger stands of Aspen that are to be found in Hurn Forest complex.

Assessment of data

A large number of other interesting species were also noted. In addition to the above, a selection includes: Ghost Moth, Oak Eggar, Emperor Moth, Cream-spot Tiger and Pine Hawk Moth.

For the purposes of data analysis, the moth records collected from Moors Close over the past 15 years have been treated as being from the 1km buffer area around the study site. Whilst these have not been collated by DERC, these have been considered in the spatial analysis spreadsheet found in Appendix 2. It is fully recognised that many of the species recorded from Moors Close will be individuals flying from the study site, but in the interest of consistency are treated as species from the buffer area.

It should also be noted here that some of the 2013 records for the study area came from those surveying for general invertebrates and butterflies.

Photograph of Cream Spotted Tiger - David Evans

Conclusions / Assessment of habitats surveyed

The data collected demonstrates the importance of this area due to its patchwork nature of habitats, and the generally low impact on them by outside factors like human disturbance and pollution. Whilst species like Musotima nitidalis (an Australian or New Zealand adventive), are extremely interesting due to the fact that about half of all British specimens

have been recovered from the site and surrounding area, it is the native breeding species that are supported by the habitat variety that are key.

Of the species that are Notable A, B or RDB, we have representatives that are indicative of mature deciduous woodland, mixed woodland and scrub (sallow), damp riverine habitats, southern lowland heaths, dry grass/heath. Foodplants associated with these species are varied but include dead wood, Hop, Honeysuckle, Yellow Loostrife, Bulrush/Yellow Iris, Cross leaved heath, Heather, Tormentil, Oak, Sallow and Bramble. Some of the associations are very subtle and it is known from Sopley Common that the Southern Chestnut only breeds on certain small patches of Cross leaved Heath that are on the edge of open pine woodland.

This preference for particular microhabitats is also shown by the nationally important species *Coscinia cribraria subsp. bivittata* - Speckled Footman, an extremely local species on the edge of extinction in Britain and only found recently in a few sites in VC9. This species has historically been recorded from the area but not since 1981.

Of the conifer plantations, the areas that become more valuable for moths are the areas that contain maturing trees. This is indicated by the appearance at Moors Close, Hurn of very local species like *Archips operana* (conifers) and *Cydia illutana* (Larch and Norway Spruce). Therefore, it can be seen that often suitable habitat does not always harbour expected species and that the variety is maintained by having many suitable areas over a large expanse of land (ie a patchwork where variety is maintained through careful rotation of the economic areas, conservation of remnant habitats and maintenance of the balance within the area as a whole, to include where possible the non-felling of some mature conifers of various species).

14) Invertebrates (excluding butterflies & moths)

Introduction

The survey remit was to record the invertebrate fauna across the range of habitats found at the site. This report discusses the invertebrates recorded. Relevant ecological information for each species recorded is provided, where available, with a view to informing managers of important features and resources for invertebrates. Particular reference is made to rare or notable species. Management recommendations are discussed.

Methods

Survey design and sampling methods.

Hurn Forest was visited on 2nd June, 05th July & 28th August 2013.

Five sample site centroids were selected; either representative of the principle habitats encountered by the surveyor or providing a broad spectrum of habitat diversity within a manageable area:

Sample Site 1	**SU105023**	Car park & surfaced access track, linear habitat of enriched grassy rides with mixed broadleaved scrub bordering coniferous plantation.
Sample Site 2	**SU106018**	Track intersection with short sward wet & dry acid grassland (sorrel, tormentil, lousewort, bird's-foot trefoil etc) & mature heather edges to woodland, rush/tussock mire, broadleaved scrub edges, ditch line.
Sample Site 3	**SU110011**	Network of dry sandy tracks with broad early successional heath edges/bare

		ground. Narrow track through pine plantation with coarse grasses, figwort etc. Log piles.
Sample Site 4	**SU111008**	Carr woodland (Aspen, Willow, Birch). Boggy hollows, enriched grassland patches.
Sample Site 5	**SZ121993**	Heathland/scrub mosaic, boggy areas, log piles, bare ground.

The sample site centroids represent the hubs of sampling activity. From these points a walk-over approach to sampling was used; sampling invertebrates where they were found to be most abundant and targeting known resources and features, based upon the surveyor's knowledge and experience.

Demoiselle

The main sampling techniques used are presented in Table 14.1.

Table 14.1. Sampling techniques for invertebrates

Technique	Target Groups	Target Habitats
Sweep-netting ('sweeping') with a calico-bag sweep-net.	E.g. flies (Diptera), bugs (Hemiptera), beetles (Coleoptera) and spiders (Arachnida).	All field layer vegetation communities, with particular focus upon potential foodplants.
Spot-sweeping ('netting') with a fine mesh net.	E.g. bees and wasps etc (Hymenoptera) and flies (Diptera).	Pollen and nectar sources; identified food plants; nest sites.
Beating using a stick and an entomological beating tray.	A range of arboreal invertebrates inc. beetles (Coleoptera), bugs (Hemiptera) and spiders (Arachnida)	Foliage and branches of scrub and trees. Moribund branches and other dead wood. Coarse vegetation unsuited to sweep-netting.
Hand searching ('grubbing') & sieving.	A range of ground-dwelling invertebrates inc. beetles (Coleoptera), bugs (Hemiptera), ants (Hymenoptera), woodlice (Isopoda), spiders (Arachnida) and molluscs (Mollusca).	Ground layer and arboreal habitats; e.g. under host plants; logs, stones etc; sieving leaf litter; under bark, rot holes etc.

Once secured in a clear tube the individuals were either identified in the field and subsequently released. Or dispatched, in an ethyl acetate killing jar / 70% Iso-Propyl alcohol, for later microscopic examination in the lab. Voucher specimens of notable species have been retained where critical examination is required to confirm identification.

Taxonomic coverage and species diversity

The tables given in Drake *et al*. (2007a) were consulted to target the invertebrate groups most appropriate to analysing the assemblages of the sampled habitats and focused upon the major groups of reviewed British invertebrates associated with these habitats (see species summary Table 2). However, other invertebrate groups encountered are also included within the analysis.

The survey remit specified that Lepidoptera were being audited by other surveyors and therefore less focus than usual was placed upon this Order.

Analysis

Rarity statuses follow those given in the relevant published International Union for the Conservation of Nature (IUCN) criteria (e.g. Fox *et al.* 2010), national Species Status Reviews (e.g. Hyman & Parsons 1992) and Red Data Books[1] (Shirt 1987, Bratton 1991). Local status is derived from the ISIS (2010) programme, recent national atlases and the authors own knowledge. Definitions of rarity status categories are given in Appendix 4.

In addition, UK Biodiversity Action Plan (UK BAP) Priority Species and Species of Principle Importance (SPI), covered under The Natural Environment and Rural Communities Act 2006 Section 41 (NERC S41), are listed. There are currently 943 SPI (covering all taxonomic groups) included on the S41 list. The S41 list is intended to provide guidance to decision-makers, e.g. those representing public bodies and local/regional authorities, in implementing their duty under Section 40 of the NERC Act to '*…have regard to the conservation of biodiversity in England when carrying out their normal functions*'.

Those species listed in Section 5 of the Wildlife and Countryside Act 1981 (as amended) are also covered where present.

The invertebrate assemblages present at the site during the survey are assessed using Natural England's Invertebrate Species-habitat Information System (ISIS – 2010 version), as defined in Webb & Lott (2006) and Drake *et al*. (2007). Further developments for the programme are discussed in Lott (2008).

The system was developed for Common Standards Monitoring (CSM) on Sites of Special Scientific Interest (SSSI) but other applications are possible at a range of geographic scales. Lott (2008) describes the essence of ISIS as a database that can be used to recognise invertebrate assemblage types in species lists and evaluate their value for nature conservation. In broad layman terms ISIS has been described as the equivalent to an 'invertebrate National Vegetation Classification'.

Two levels of assemblage type are recognised* - Broad Assemblage Types (BATs) and Specific Assemblage Types (SATs). BATs represent the spectrum of species associated with a broad habitat description – such as 'wood decay'. SATs focus upon stenotopic species, i.e. those high-fidelity species able to tolerate only a restricted range of habitats and ecological conditions, of intrinsic nature conservation value within the parent BAT. For example, a SAT within the parent BAT of 'wood decay' would feature only those species restricted to a

[1]The Red Data Book system for allocating rarity status, based upon ten kilometre square (hectad) distribution, was devised by the then Nature Conservancy Council (now the Joint Nature Conservation Committee). This system is gradually being superseded by that of the IUCN, which focus upon decline. However, comprehensive IUCN coverage is currently unavailable for all invertebrate taxa (currently available for butterflies, dragonflies, aquatic beetles and some groups of flies) and therefore the statuses given in the relevant Red Data Books and their subsequent Reviews are primarily used here. Where an IUCN criterion does exist for taxa, this is given alongside the RDB / Review status.

*A third resource-based category is currently being developed and is in-part trialled within the ISIS (2010) system – see Lott (2008) for specific detail.

particular aspect of the wood decay process, such as 'heartwood decay' or 'bark & sapwood' decay.

The analysis returns a range of statistical information based upon species richness values, species rarity indices (mean values) based upon national status/distribution, BAT representation values (i.e. relative importance of BAT in species list) and SAT high-fidelity species weighted scoring values. The most basic outcome of which is favourable or unfavourable condition status of the detected assemblages. However, further applications are possible for continuous monitoring. It is worth noting here that not all species groups (e.g. micro moths, gall wasps, sawflies, aphids, psocids, various Diptera etc.) are currently used in analysis pending further development of the system and/or better understanding of the status, distribution and autecology of the excluded groups.

Historic records

The Dorset Environmental Records Centre (DERC) dataset contains records for 1091 species summarised by 'Year of Last Record'. The date range is 1821-2012.

Unfortunately these data were provided post-survey, hence the list could not be utilised to target searches for particular species. However, records for species assigned a current conservation designation are analysed in a separate appendices to this report with an accompanying .xls spreadsheet. A brief discussion of the data limitations and uses for targeting critical taxa is included.

Results

Species diversity and rarity.

In summary, **343 species were recorded** from the survey area, of which a total of **19 species have published conservation designations,** i.e. those species with UK BAP Priority / SPI, Red Data Book and / or Nationally Scarce status. A further **61 species considered to be nationally Local** in their distribution were also noted, giving **a total of 80 species of conservation significance**.

Species totals and rarity statuses are summarised by Order in Table 14.2. Species with published conservation designations are summarised in Table 14.3. A full annotated species list is given in Appendix 4.

Table 14.2: Species summary table by Order. NE in the IUCN column indicates that the species group is currently not evaluated. Nat. Scarce. species counts shown in parentheses ( ) denote formerly Notable species.

Order	Vernacular	Total spp.	Local	Nat. Scarce	RDB	IUCN	UKBAP	W&CA
EXOPTERYGOTA (Insects)								
Diplura	Bristletails etc	1	1	0	0	NE	0	0
Odonata	Dragonflies etc	2	1	0	0	0	0	0
Orthoptera & allies	Grasshoppers etc	12	1	(4)	0	NE	0	0
Psocoptera	Barklice	2	0	0	0	NE	0	0
Hemiptera	Bugs & Hoppers	56	6	3	0	NE	0	0
ENDOPTERYGOTA (Insects)								
Coleoptera	Beetles	102	24	3	1	NE	0	0
Diptera	Flies	24	7	0	0	NE	0	0
Neuroptera & allies	Lacewings etc	4	0	0	0	NE	0	0
Plecoptera	Stoneflies	1	0	0	0	NE	0	0
*Lepidoptera	Butterflies & Moths	29	7	(1)	0	1	1	**1
Trichoptera	Caddisflies	5	1	0	0	NE	0	0
Hymenoptera	Bees, wasps, ants etc	28	1	3	0	NE	0	0
Other Invertebrates (non-insects)								
Arachnida	Spiders etc	69	12	8	0	NE	0	0

Order	Vernacular	Total spp.	Local	Nat. Scarce	RDB	IUCN	UKBAP	W&CA
Chilopoda	Centipedes	1	0	0	0	NE	0	0
Diplopoda	Millipedes	3	0	0	0	NE	0	0
Isopoda	Woodlice	3	0	0	0	NE	0	0
Mollusca	Slugs & Snails	1	0	0	0	NE	0	0
Totals		**343**	**60**	**17 (5)**	**1**	**1**	**1**	****1**

*Note: Silver Studded Blue butterfly is formerly Nb, IUCN VU, UKBAP / SPI & W&CA listed

** Protected from Sale Only

Table 14.3: Summary of the IUCN, RDB, Nationally Scarce, UK BAP invertebrate taxa recorded during the survey. Species prefixed by * are thought to be increasing their ranges nationally. Species prefixed by ** have increased their ranges so substantially that their status is likely to be downgraded in any subsequent review.

Order	Family	Taxon	Vernacular	National Status	1	2	3	4	5	Comment
Lepidoptera	Lycaenidae	*Plebejus argus*	Silver-studded Blue	VU / UKBAP/ W&CA					*	Locally common on heaths
Coleoptera	Elateridae	*Athous subfuscus*	a click beetle	RDB3	Moth Light 9					New to VC11. Surrey & Woolmer Forest
Arachnida: Araneae	Araneidae	***Argiope bruennichi*	Wasp Spider	Na		*				Increasingly inland
Coleoptera	Chrysomelidae	*Calomicrus circumfusus*	a leaf beetle	Na					*	Scattered in S.England & Wales
Hemiptera: Heteroptera	Saldidae	*Micracanthia marginalis*	a shore bug	Na					*	Uncommon & scattered on heaths
Hymenoptera: Aculeata	Crabronidae	**Crabro scutellatus*	a digger wasp	Na				*		S, SE & E.Anglian heaths
Hymenoptera: Aculeata	Eumenidae	*Eumenes coarctatus*	Heath Potter Wasp	Na					*	S & SE heaths

Arachnida: Araneae	Lycosidae	*Xerolycosa nemoralis*	a wolf spider	Nb			*			Locally common in S
Arachnida: Araneae	Philodromidae	***Philodromus albidus*	a crab spider	Nb	*		*			S.England, often abundant
Arachnida: Araneae	Salticidae	*Evarcha arcuata*	a jumping spider	Nb		*	*			Mainly S & SE
Arachnida: Araneae	Theridiidae	*Anelosimus aulicus*	a spider	Nb			*		*	S.England
Arachnida: Araneae	Theridiidae	*Episinus truncatus*	a spider	Nb					*	S.England & Wales
Arachnida: Araneae	Theridiosomatidae	*Theridiosoma gemmosum*	a spider	Nb			*			Scattered S of Anglesey & Wash
Arachnida: Araneae	Thomisidae	*Thomisus onustus*	a crab spider	Nb		*	*			S & SE heaths
Coleoptera	Chrysomelidae	*Cryptocephalus bipunctatus*	a leaf beetle	Nb			*			Widely scattered
Coleoptera	Curculionidae	*Polydrusus confluens*	a weevil	Nb					*	Widely scattered
Hemiptera: Heteroptera	Lygaeidae	*Rhyparochromus pini*	a ground bug	Nb			*			Widely scattered, mainly S heaths
Hemiptera: Heteroptera	Rhopalidae	*Rhopalus maculatus*	a rhopalid bug	Nb			*			Mainly southern
Hymenoptera: Aculeata	Formicidae	*Formica sanguinea*	*Slavemaker Ant	Nb		*	*		*	S England/N Scotland & Wales

3.2. Assemblage composition and quality.

The overall broad assemblages (BATs) associated with **unshaded early successional mosaic** and **permanent wet mire** habitats were found to be in **Favourable condition** according to Natural England's ISIS (2010) programme, with the specific assemblage types (SATs) associated with **scrub-heath & moorland** and **scrub edge** habitats also found to be in **Favourable condition**.

Favourable condition status is based upon research undertaken across a range of Sites of Special Scientific Interest (SSSI). ISIS (2010) analysis results are given in full in Table 14.4.

Table 14.4: Summary of ISIS (2010) invertebrate assemblage results for Hurn Forest 2013.

BAT code	BAT name	Representation (1-100)	Rarity score	Condition	BAT species richness
F2	grassland & scrub matrix	42	141		127
A1	arboreal canopy	18	131		53
F1	unshaded early successional mosaic	8	165	fav	24
W3	permanent wet mire	8	200	fav	24
A2	wood decay	5			14
W2	mineral marsh & open water	4			12
F3	shaded field & ground layer	2			7
W1	flowing water	1			4

SAT code	SAT name	No. spp.	Condition	Percentage of national species pool	Related BAT rarity score
F003	scrub-heath & moorland	30	fav	9	
F001	scrub edge	15	fav	8	
F112	open short sward	6		3	165
A212	bark & sapwood decay	11		2	
F002	rich flower resource	3		1	
W312	Sphagnum bog	1		1	200
F111	bare sand & chalk	3		1	165
A211	heartwood decay	1		1	

The wasp spider Argiope bruennichi in wet heath in Hurn Forest.

Entomological assessment and recommendations

General assessment

Species diversity and rarity

The invertebrates sampled show a broad diversity across the represented taxonomic orders. Beetles and spiders were the most species rich taxonomic groups encountered, though there is a bias towards these groups due to the sampling methods employed. These groups contain useful ecological indicators and are therefore targeted by the surveyor.

Highly mobile Aculeate Hymenoptera (i.e. solitary wasps and bees) were poorly represented, a surprising result on heathland. However, it is generally accepted that 2013 was a poor year for this group in the region. Other Aculeate Hymenoptera, such as ants, were fairly well represented with several key heathland species present.

Another major group – the Diptera – was poorly represented. In general Hoverflies and similar were found to be in low numbers compared to sampling events at other similar sites in previous years and as with the Hymenoptera it is believed that 2013 was not a good year for many dipterans. Another likely contributing factor to the paucity of Diptera is sampling method – flies tend to quickly escape from sweep nets and beating trays.

Lepidoptera numbers are supressed as it was requested that this Order was not to be a focal point of the survey as other surveyors were recording this group using light traps.

Although aquatic habitats were not specifically sampled a number of species associated with wetlands were recorded. Many of these are species associated with wet heathland/bog, but other aquatic denizens such as water beetles and caddisflies were recorded – notably coming to lights set up for the separate moth survey.

In terms of rarity a moderate number of nationally rare or scarce species were recorded, notably within the Order Arachnida with eight Nationally Scarce species recorded – many of which are specific to heathland.

Despite forming ~30% of the total species recorded the beetles exhibited few rare or scarce species, though many localised and heathland specific species were recorded. However, the record of the RDB3 click beetle *Athous subfuscus* at a moth light is of interest as this is the first record for VC11 South Hants. The species has been previously recorded only in Surrey and at Woolmer Forest – just over the Surrey borders in North Hants. Hence this record at the South Hants/Dorset border represents a significant range extension for the species.

The majority of the other notable species recorded are not unexpected on heathland and several ‘notable’ species have become more widespread in recent years and their status

requires review (see Table 3). However, the leaf beetle *Calomicrus* and the shore bug *Micracanthia* are generally very localised. The weevil *Polydrusus confluens*, although widely scattered, is a species that the surveyor seldom encounters.

Assemblage composition and quality

Although not found to be in Favourable condition the broad habitats encompassing heathland, grassland and scrub mosaic (grassland & scrub matrix) and the arboreal canopy of broadleaved and coniferous woodland proved to be fairly biodiverse. Undoubtedly if moth trap data was incorporated into the ISIS analysis an improved status would be the result, particularly for arboreal species.

The Broad Assemblage Types (BATs) **unshaded early successional mosaic and permanent wet mire** were found to be in **Favourable condition** (see Table 4). The former is represented by species associated with bare ground patch habitats, such as exposed sand at the edges of tracks – more often at the drier end of the heathland spectrum. The latter category is formed of species associated with wetland, in this context wet heath, carr, pond edges and boggy hollows.

Interrogation of the Specific Assemblage Type (SATs) analysis – or those assemblages of stenotopic species restricted to a narrow environmental niche – suggests that the overall quality of the favourable BATs is by no means exceptional as the SATs for bare sand and open short sward (siblings within the Favourable parent BAT unshaded early successional mosaic) do not meet the thresholds for favourable condition. Similarly, the SAT sphagnum bog (parented by the BAT permanent wet mire) is poorly represented. With regards to the latter category, in general the surveyor encountered mainly wet to humid heath with scattered boggy hollows, ditch lines and ephemeral pools, hence to attain favourable condition status for sphagnum bog is unlikely.

The SATs for **scrub-heath and scrub edge** were found to be in **Favourable condition**. The former would be expected on a heathland / forestry mosaic of this size. The latter is pleasing as it represents a management success in allowing broadleaved scrub to develop along forestry rides / plantation edge.

Management recommendations

The following broad management prescriptions would further benefit the invertebrates assemblages in Hurn Forest:

- Allow for native broadleaved tree and shrub regeneration at forestry track edges and plantation edges – particularly where Aspen and Willows predominate.

- Aspen may require periodic management to ensure a range of age structures from sucker growth to mature.
- Retain areas of carr woodland.
- Ride management to promote a range of structural variation in grassland types, incorporating coarse grassland (e.g. *Molinia*) and open short sward acid grassland with bare trampled patches.
- Localised track-side enrichment is currently at tolerable levels and provides a nectar resource.
- Consider diversification of heather age structure in heathland compartments via cut-and-collect patch mowing and turf stripping to create areas of bare sand.

15) Reptiles

Introduction

A herpetological survey of Hurn Forest was made on voluntary basis for the Hurn Forest Biodiversity Audit, a project instigated and led by Hurn Parish Council, with financial support from Bournemouth Airport Community Fund, Lottery Awards for All and the Forestry Commission.

Surveying was limited to reptiles since systematic amphibian survey demands nocturnal search of (potential) breeding ponds in February and March – before the project began. Given the enormous size of the Forest, and difficulty of spotting reptiles (unless you are looking for something else), an exhaustive study by a single observer in a single year was impossible and attention was concentrated on a set of sample areas ("Plots"). Even so, time and weather seriously limited the search effort which could be afforded to any one plot.

Fortunately, David Tamarind has been surveying in Hurn Forest since 2002 and Amphibian and Reptile Conservation Trust (ARCT), who kindly made their records available to the Biodiversity Audit, for considerably longer. However, the searches have tended to concentrate on localities with habitat potential for sand lizards and smooth snakes, the rarest and most endangered of our reptiles. Consequently, localities which might be only be used by snakes in summer, or by slow worms or common lizards year-round, have had little attention.

British Herpetofauna

We have 6 native reptile species[1] and 7 amphibians[2]. All have some degree of legal protection, although all too often this merely means that they are removed from planned development sites to be dumped at recipient sites which they may or may not be suitable. All of the reptiles and most of the amphibians are subject to Biodiversity Action Plans (BAPs). The sand lizard, smooth snake, natterjack toad and crested newt have the highest levels of protection afforded any British wildlife, are covered by EU law, and are BAP "Priority" species. The first three have a very restricted distribution in the UK, historically being limited to the sandy lowland heaths of southern England and (except smooth snake) some coastal dune systems. Although crested newts are widespread, few suitable breeding ponds remain and their distribution has become very localised.

Both heathland and suitable duneland have diminished in extent over the past century or so. For example, Moore (1962) charted a loss of 80% of the Dorset heathlands between 1811 and 1960 - and we all know that losses continue - while fragmentation of the former heathland blocks reduced biodiversity. Amphibians have tended to become increasingly dependent on garden ponds through loss or of their natural and semi-natural breeding waters.

[1] Sand lizard, common lizard, slow worm, adder, grass snake and smooth snake
[2] Common frog, common toad, natterjack toad, pool frog, crested newt, smooth newt and palmate newt

Over the past two centuries, several exotic species have been released into the wild, which has caused some confusion. There is a (remote) possibility that two 'alien' populations might be native: the New Forest tree frogs (now probably extinct) and the Isle of Wight wall lizards. The East Anglian pool frog was not recognised as native (from DNA analysis) until after habitat loss drove it to extinction in 1993.

Overview of Ecology and its impact on surveying

All our reptiles are small, vulnerable to a diversity of predators (even those rare 2m grass snakes started off at a mere 6") and depend on invisibility for their survival. Consequently, they need an environment providing concealment. However, they also need access to direct sunshine to raise their body temperatures to a level at which their metabolism can function properly, higher than normal air temperatures. They thermoregulate by moving between sun and partial shade, remaining in their underground retreats when the weather is too hot or too cold for this to work. As with ourselves, a temperature only a few degrees above the optimum is lethal and they can easily overheat during a normally sunny day in even in spring and autumn. These factors impose a need for essentially open habitat with deep, tangled, ideally evergreen, ground vegetation,providing both good insolation and cover from predators and excessive sun, but with gaps to serve as basking platforms when their body temperature is below optimum.

Adder – Courtesy of Amphibian and Reptile Conservation Trust

This all affects surveying. A general rule is that an environment in which reptiles are easy to find is unsuitable for them. In a suitable environment, the vegetation (and the animals' small size) usually makes them difficult to spot from more than about 2m away – and it is often difficult to approach so closely without disturbing them into hiding. Most sightings are of reptiles basking overtly, which may occur during only brief, unpredictable, periods within any one day; for example, during a 3 hour survey of Troublefield in 2011, the surveyor saw reptiles (7 lizards) only during two 5 minute windows half an hour apart. On the other hand, the surveyor saw 6 sand lizards in only 20 minutes on my first-ever survey of the pipeline (April 2003). Early spring is usually the best time to see reptiles, for the ground retains its winter chill forcing the animals to use direct solar heating.

Male sand lizard - Courtesy of Amphibian and Reptile Conservation Trust

Tolerance to shading varies between species. None can persist in areas which are permanently shaded (though they might pass through such areas), but slow worms are the most tolerant of intermittent shade (they may be seen alongside paths in quite dense young natural woodland), sand lizards the least. Sand lizards are utterly dependent on availability of unshaded bare sand in which to lay their eggs[3]; the free-living lizards can move between shady and sunny spots and are more tolerant of partial shading than are the stationary eggs. This use of bare sand provides a means of indirect survey, since the female digs as many burrows as are necessary to find a suitable spot in which to lay her eggs.

[3] Grass snakes use the heat from rotting vegetation to incubate their eggs, but other species bear their young live

The burrow which she uses is backfilled, but the unused 'test' burrows are left open; being of quite distinctive appearance they can demonstrate sand lizard presence. A case study of sand lizard decline in forest rides is given in Appendix 4.

Adult lizards spend most of their lives within a limited area, and geographical expansion, or movement, of populations depends on the relatively high mobility of the young. Snakes are very mobile, crossing unsuitable habitat when it suits them. Adders occupy distinct winter (dry) and summer (often damp or wet) habitats which may be a mile apart (Prestt, 1971), but all species need plenty of space. This is partly because they and their prey (small vertebrates) may favour different environments (for example grass snakes are terrestrial, but feed mostly on amphibians and fish), but is also important genetically. Snake population densities are low (anything over 4 per hectare is considered high: HGBI, 1989), and their mobility allows them to form metapopulations and avoid adverse inbreeding effects: Madsen and co-workers (1996, 1999, 2004) were able to revive an isolated, inbred and moribund adder population simply by importing genes, in the form of 10 males, from vigorous populations elsewhere. Lizard population densities are much higher, and their prey (mostly invertebrates) is ubiquitous, so small pockets of habitat can support viable populations.

The outstanding limitation for amphibians is availability of suitable water for breeding – ponds or slow moving water. Surface water in heathland and conifer forest is too acidic for most amphibians unless buffered by milder water in the aquifer – eg derived from chalklands. In woodland, surface water is often too shady for egg and tadpole development, and leaf–fall can be deleterious.

Hurn Forest History

The area, a little under 400 ha (4 km2) in extent, was originally open wet and dry heathland. ARC records show good populations of sand lizards, smooth snakes and adders in the adjacent heathlands of Barnsfield and Merritown (Hurn Airport - where planned grazing makes the future of the populations dubious) and it is reasonable to assume that these species were equally abundant in what is now Hurn Forest. Apart from a few small areas of semi-natural birch/oak woodland (planted in the latter part of the 19th century), it was afforested rapidly in the 1950s.

Methods

Thirty survey plots were identified on which to concentrate attention (Fig. 15.1). Subject to their accessibility, they were selected to represent, as far as possible, the whole range of environments throughout the forest, with little regard to the expected chances of their supporting reptiles – though obviously including some of the known 'good' areas. Some plots, usually damp, were selected since they might be used by snakes (especially adders) during the summer. However, dense (impenetrable) woodland was excluded, as were a number of areas of heavily thinned forest which probably could support reptiles (including a few smooth snakes, or pockets of sand lizards) but where a carpet of deadwood would have made walking hazardous and surveys unproductive - the inevitable disturbance would have frightened any reptiles into hiding. Limited searches were also made of four other localities.

Visual search was used for all species. To improve prospects of finding slow worms and snakes, a total of 175 refuges were laid within the plots – a small number had already been laid in two areas in 2002 and 2004. Refuges are pieces of flat or corrugated material laid on the ground or, better, on top of short vegetation to give a range of temperatures beneath them. They allow the reptiles to enjoy concealed basking, emulating their natural use of plant litter or heathland mosses but with thermal advantages under many weather conditions. They are sometimes used also by amphibians and small mammals, though rarely by legged lizards. For various reason, the preferred materials are corrugated metal or composition roofing material (eg Corolinetm), but cost compelled use of roofing felt, pieces about 18" square.

Refuges are not perfect for a single-year survey for it can take a year or more for reptiles to find them. They were laid as early as possible during the year to maximise the prospects of their being found this year and their locations were recorded by GPS. As far as possible they were hidden from public gaze. Unfortunately, this also hid them from the surveyors gaze, and not all could be located on every survey; the problem was particularly acute in areas dominated by bracken, whose rapid development after May made even the ground invisible.

The original survey plan had been to work mechanically through the plots, starting at the northernmost, surveying as many as possible within one day, working progressively southwards in successive days then starting again at the north. However, after loss of almost six weeks of potential surveying because of alternating heatwaves and monsoons in July and August, and with increased tree-shading because of the lower sun of September and October, the surveyor had to adopt a more pragmatic approach, concentrating on plots which seemed most likely to give sightings under the ambient conditions.

Surveys were made during the afternoon and early evening whenever the weather conditions offered any prospect of seeing reptiles. Sightings levels are usually higher early in the morning, but the peak is often short lasting; afternoons tend to give a protracted low level of sightings. There was too much ground to cover to let the surveyor limit surveys to 'good' observing conditions and for the present purpose it seemed better to see at least *some* reptiles generally, rather than a large number in only very few places. The location of all sightings was recorded by GPS so that they could be displayed (by computer), to an accuracy of about 10m, on calibrated maps.

Fillybrook Bottom was visited only once, and was not included in the survey plots. Searches in 2006-07, after the first phase of timber harvesting, had revealed abundant common lizards and a few slow worms, but no other reptiles. Close survey of the Spur Road verges by Chris Gleed-Owen (2011) in 2009-10 had found only those two species alongside Fillybrook Bottom and for a considerable distance north and south, giving little prospect of colonisation by other reptiles. It was decided that further survey would add nothing to what is already known.

Fig 15.1. Survey plots shown on aerial photgraphs from Google Earth. Internal evidence suggests that the photographs were taken circa 2006, and there has been more recent tree-harvesting but they give a general indication of the plot environments. Perspective views used in an attempt to smooth the grainy appearance of these low resolution images.

Results

Thirty five days were spent on surveying, giving 132 surveys of specific plots and 10 of additional localities, 494 refuge checks, a little over 75 hours of actual surveying (excluding travel between plots) and 120 reptile sightings. Locations of the plots are shown in Fig. 1, a summary of plot details and survey results is given in Appendix 4, as well as a selection of photographs.

All six of the British reptile species were recorded during 2013. The overwhelming majority were found in open heathland and very young restock with well-developed ground vegetation; some were seen at sunny ride edges within the wooded areas, but only slow worms, actually within (open) woodland (Table 15.1). None were seen in bracken-dominated areas. Far more lizards than snakes were seen, in part reflecting the difference in normal population densities (anything over 4 per hectare is considered high for snakes, but less than 20 per hectare is low for lizards: HGBI, 1998). However, many areas elsewhere, both forest and aboriginal heathland, show snake 'hotspots' where sightings may outnumber those of lizards. None such were found in Hurn Forest. The distribution of sightings is shown in Maps 26-30.

Table 15.1. Sightings of reptiles in Hurn Forest 2013 in relation to habitat characteristics. Numbers include new-born young. Herb = herbaceous, usually grass.

Species	Total	Humidity			Character			Predominant Ground Cover		
		Dry	Damp	Wet	Open	Ride edge	Wooded	Heather	Herb	Other
Slow Worm	53	36	13	4	26	15	12	46	5	2
Common Lizard	31	24	3	4	23	8		28	3	
Sand Lizard	25	25			22	3		25		
Adder	7	7			6	1		7		
Grass Snake	3	3			2	1		3		
Smooth Snake	1	1			1			1		
Total	120	96	16	8	80	28	12	110	8	2

Slow worms were the most widely distributed species (recorded at 20 of the plots), followed by common lizards (19 plots), and these two were the only reptiles found in damp/wet areas. Most of the sand lizards were seen in the open heathland expanse of "South Hurn$_4$", with small foci at alongside the main gravel ride at Plots L and M (both uninhabitable by the species before timber harvesting in the mid-noughties), some at the pipeline (Plot J) and at Pig Farm/Troublefield.

Slow worm in Hurn Forest

Two of the snakes (an adder and a grass snake) were near the pipeline, but all the others were at South Hurn. In addition, a single adder was seen by the project coordinator, Simon Weymouth, at each of Plot H and Plot M (whence the surveyor had records in 2008 and 2009), and a possible smooth snake near Plot Q.

Formal amphibian survey was not attempted. It had been planned to take samples from water bodies in or near the survey plots to measure pH (by indicator paper) to give an idea of potential suitability, but only two such bodies were accessible by late spring, and the normally permanent ponds/cisterns alongside the main gravel ride were dry. Samples were obtained only from the artificial pond in Plot B, and from one of the ponds south of the pipeline. The first was very acid (pH ~3.5), possibly useable by palmate newts but not by

other amphibians, the second was much milder (pH ~5.5), probably more generally acceptable.

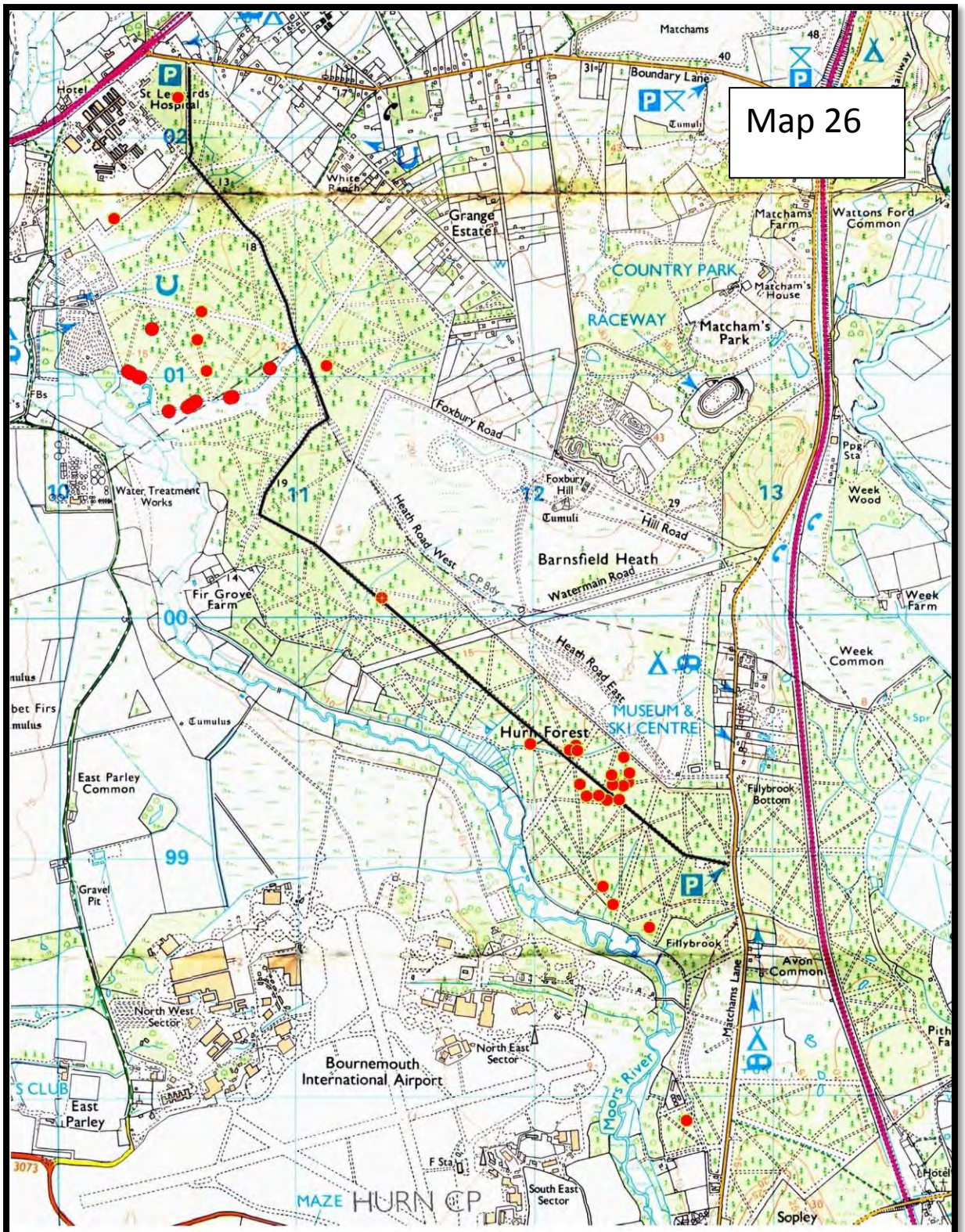
4 Embracing Plots Q, Q*, T, U, V and W

The general picture is of widespread slow worms and common lizards (the commonest reptiles in the whole UK), but with highly localised distribution, limited to more-or-less open heath, of sand lizards and of snakes.

The surveyor's previous records show a good sand lizard population around the pipeline, as do those of ARC; while there are grounds for concern over the long-term status of this population, paucity of sightings in 2013 seems due mainly to the fact that it was difficult to get there under suitable observing conditions. The combined records indicate good populations at Troublefield and the Pig Farm, confirmed by the surveyor's discovery of hatchlings in 2013, a year when few were to be seen anywhere.

Although the surveyor had previous adder records from the pipeline area, they were not numerous. It is difficult to evaluate ARC records: Nick Moulton found 10 (and 2 sloughs – cast skins) during a single survey in 1999. Adders evidently inhabit this area, but their status is unclear. No one has seen many grass snakes. Between 2002 and 2011, the surveyor found only 4 (including a corpse which could have been airlifted from elsewhere by a raptor), while ARC record only one. All were at South Hurn. This year's smooth snake sighting(s) could prove important, for the only previous record is of a slough, found by Nick Moulton in 2006, near to Plot T. In general, adders are the only snakes which can be considered established in Hurn Forest. In this connection, the surveyor's 2008 record at Plot M was of a neonate; since females normally return to their hibernation area to give birth, this suggests a nearby hibernaculum, denoting a population centre – though evidently not a large one.

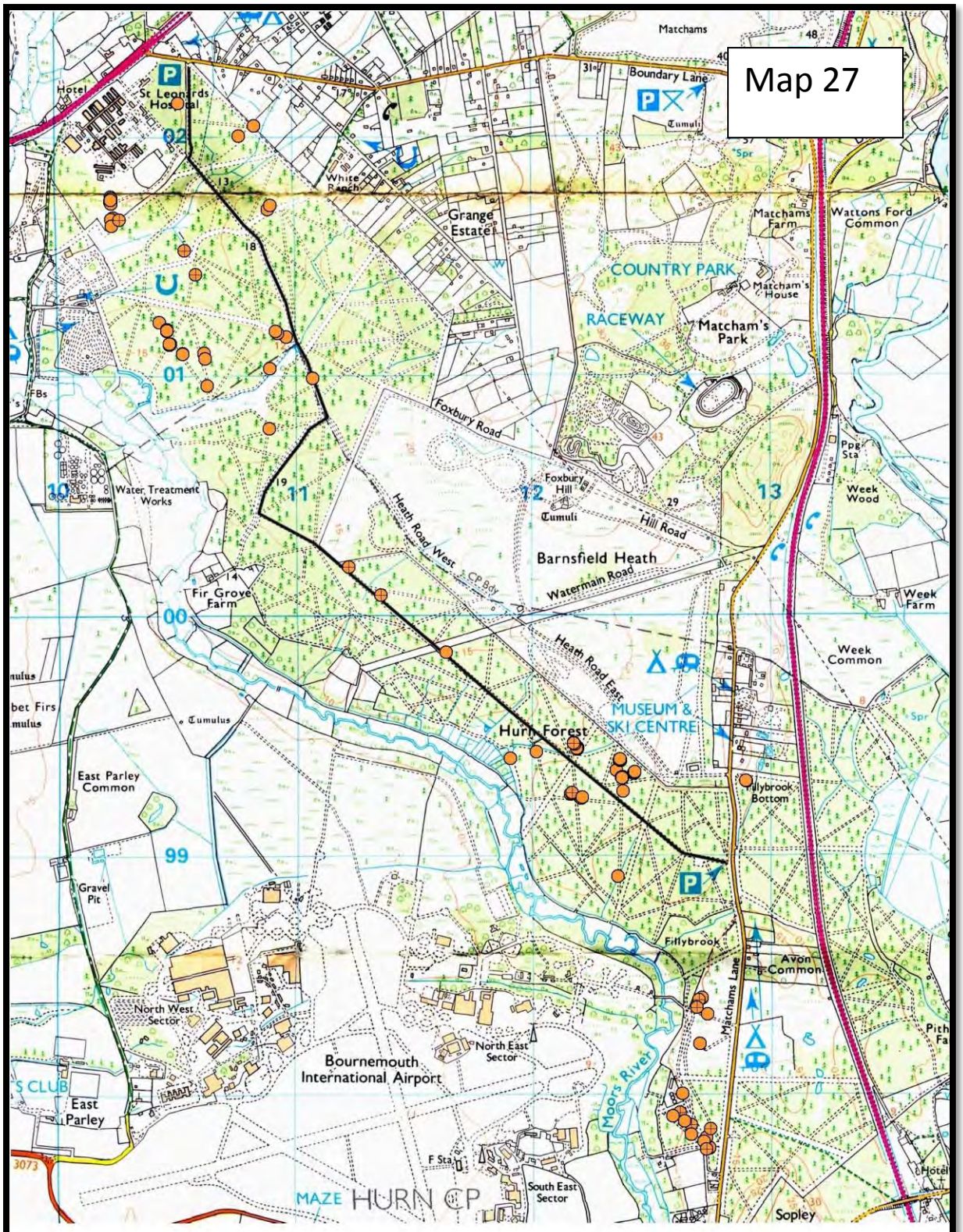
The only known amphibian records are of palmate newts found by the surveyor in 2003. They were in a flooded ditch which is normally dry, so they most have come from elsewhere – most likely ponds in the nearby agricultural land. DERC records show smooth newt and common frog have also been recorded in Hurn Forest but the surveyor has not encountered either here.

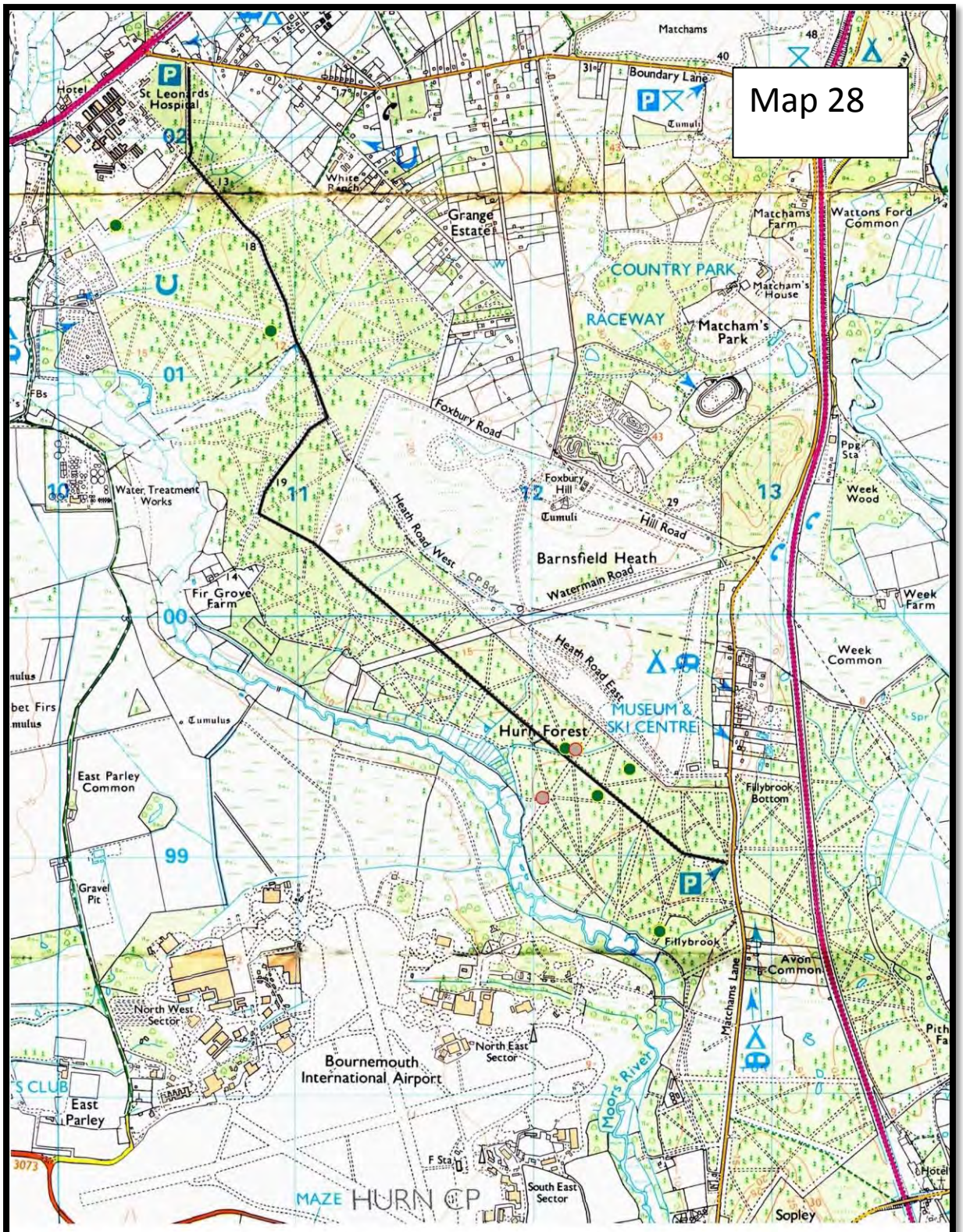


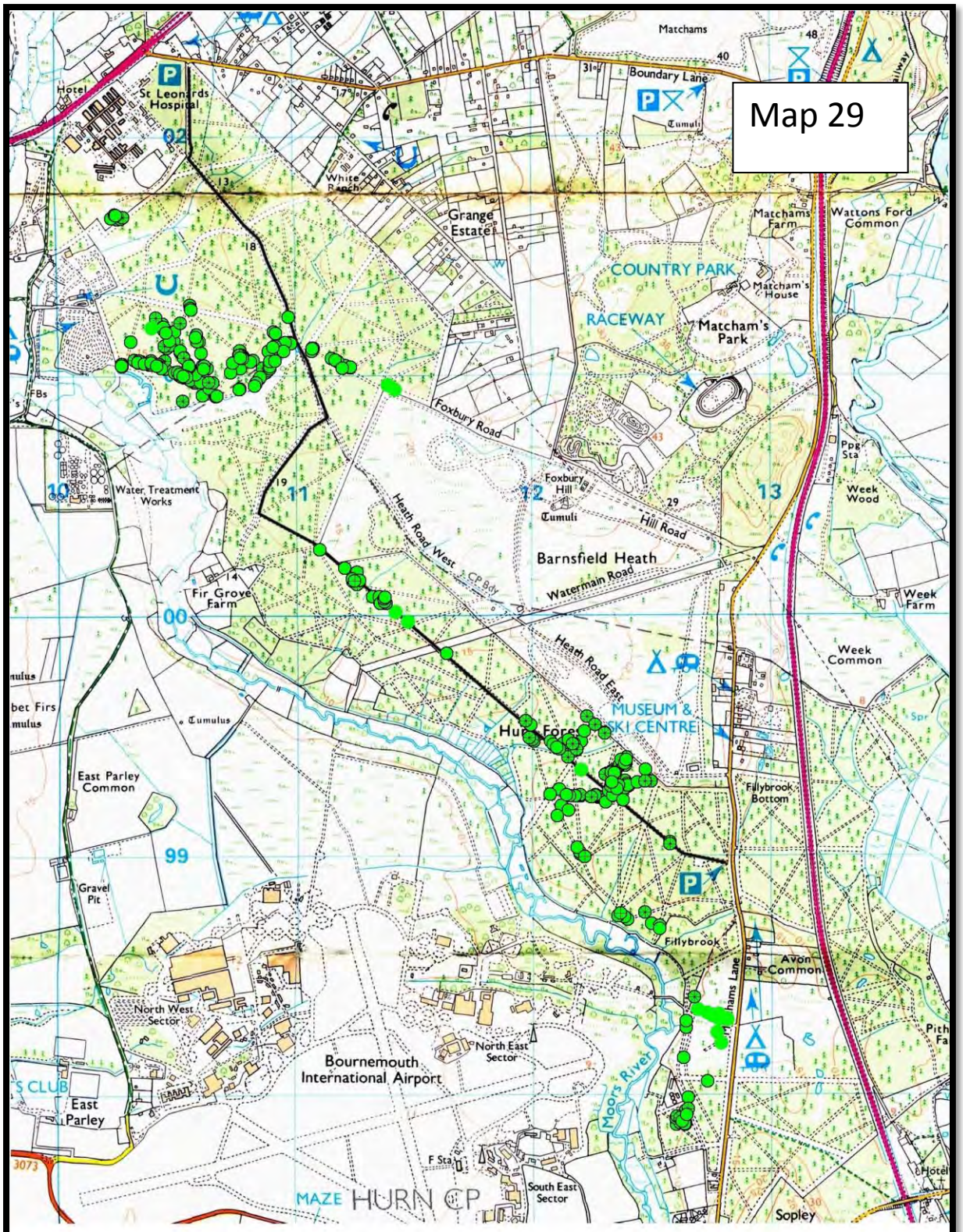
Distribution of adder sightings in Hurn Forest 2003-2013

Where they add to my observed range, records of others are shown, but without the yellow perimeter

David Tamarind, May 2014


Map 27
Matchams
Boundary Lane
Grange Estate
Matchams Farm
Wattons Ford Common
COUNTRY PARK
RACEWAY
Matcham's House
Matcham's Park
Foxbury Road
Foxbury Hill
Cumuli
Hill Road
Week Wood
Water Treatment Works
Heath Road West
CP Bdy
Barnsfield Heath
Watermain Road
Fir Grove Farm
Week Farm
Week Common
Heath Road East
MUSEUM & SKI CENTRE
Hurn Forest
Tumulus
East Parley Common
Fillybrook Bottom
Gravel Pit
Fillybrook
Avon Common
Matchams Lane
North West Sector
North East Sector
Bournemouth International Airport
Moors River
East Parley
South East Sector
MAZE HURN CP
Sopley
Distribution of slow worm sightings in Hurn Forest 2003-2013
David Tamarind, May 2014

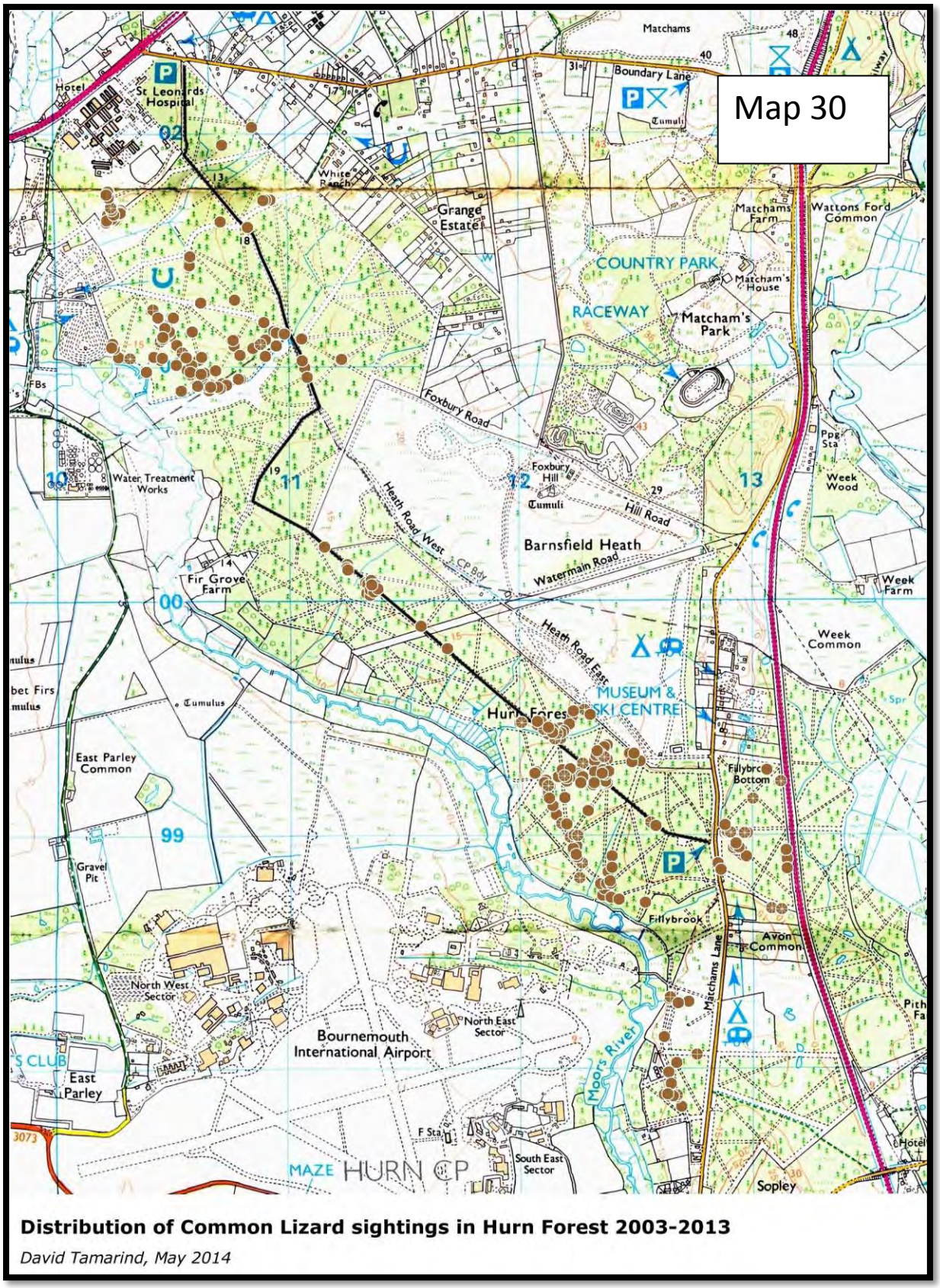

Map 28
Matchams
Boundary Lane
St Leonards Hospital
Hotel
White Ranch
Grange Estate
Matchams Farm
Wattons Ford Common
COUNTRY PARK
Matcham's House
RACEWAY
Matcham's Park
Foxbury Road
Foxbury Hill
Tumuli
Hill Road
Water Treatment Works
Heath Road West
CP Bdy
Barnsfield Heath
Watermain Road
Week Wood
Week Farm
Week Common
Fir Grove Farm
Heath Road East
MUSEUM & SKI CENTRE
Hurn Forest
East Parley Common
Fillybrook Bottom
Gravel Pit
Fillybrook
Avon Common
Matchams Lane
North West Sector
North East Sector
Bournemouth International Airport
Moors River
East Parley
South East Sector
MAZE HURN CP
Sopley
Distribution of grass snake (green) and smooth snake(grey) records in Hurn Forest 2003-2013
David Tamarind, May 2014



Distribution of sand lizard sightings in Hurn Forest,2003-2013

Where they add to range, records from other observers shown without the black perimeter

David Tamarind, May 2014



Distribution of Common Lizard sightings in Hurn Forest 2003-2013

David Tamarind, May 2014

Discussion

2013 has been a poor year for seeing reptiles generally, with half or less of the average number of sightings of lizard species, and an abnormal seasonal pattern of snake sightings. Consequently, the surveys tend to underestimate the local status of the populations which were found, and probably failed to reveal exploitation of some plots by common species. Indeed, some plots with slow worm records in the recent past did fail to give sightings in 2013. However, the surveys do serve to show relative importance of various habitat types to reptiles. Moreover my attempts to avoid pre-judgment meant that time was spent at barren areas so that some localities with habitat potential for the rarer species could not be examined.

Habitat Preferences

Qualitatively, the findings are in full agreement with the man-centuries of experience which have accumulated in recent decades, but I had too few sightings at Hurn in 2013 for rigorous quantitative analysis. The nearest approach is with slow worms, since a reasonable number were seen and all save one were under refuges. The number of sightings for each refuge check was tabulated against the immediate environment of that refuge, in each of the three classes used for Table 1 (humidity as wet, damp or dry; shadiness as open, ride edge or woodland; ground vegetation as heather, herbaceous – usually *Molinia* - or 'other'). No preference for any of them was identified, and we know from general experience that slow worms can get along in a wide diversity of environments. However, it should be noted that all plots had sufficient sunlight to support ground vegetation, and that the refuges giving records in 'wet' areas were sited in drier parts, not in permanent mud.

Only an extremely crude assessment was possible for the other species: sightings frequency as number per hour or number per survey. Neither measure is very satisfactory since the plots are unbalanced in their area, depth and extent of the ground vegetation and ease of surveying. For example, ride edges are easiest and quickest to survey because of ease of walking and the fact that the animals have little choice of where to be. Contrast this with open areas where the deep plough furrows concealed by deep ground vegetation make walking difficult. It can be hard enough to stay upright (I don't always succeed) without also trying to spot small, timid animals ready to bolt into hiding at the slightest disturbance. Because of the small number of sightings, all species (excluding slow worms) had to be concatenated for analysis. However, classifying the environment by shadiness as 'Open', 'Ride Verge' (ie verges of wider rides), 'Ride Edge' (edges of normal width rides), and "Woodland", showed a clear preference for the least shaded habitats ($p < 0.05$ by chisquare test).

Lack of any records from pure bracken areas is not surprising. The above-ground parts do not start to develop until May, so there is little ground cover in spring. This is particularly important when reptiles first emerge from hibernation, remaining sluggish for several days and easy pickings for a skyful of starving birds - even so small a bird as a robin has been seen to take hatchling sand lizards (Simms, 1970). Later in the year, the broad fronds stop sunlight from reaching the ground. In addition, it is noteworthy in Hurn Forest that bracken dominance occurs within woodland, where there is insufficient light for heather or herbaceous vegetation, with heather, or sometimes *Molinia*, dominant at the edges. The

ability of bracken to establish itself in shade can be a problem. When the trees are felled, it spreads rapidly before other vegetation can even gain a foothold. This is evident in the recently harvested land north-east of Plot Q*.

From a single year's work it is not possible to determine whether a species presence in any locality signifies permanent occupancy or merely a chance occurrence of one or a few individuals in an environment which is not really suitable. From past surveys we have indisputable evidence of long term occupancy of all species, in the open areas and some rides, and of occasional, apparently transient, presence (of sand lizards) in some more-or-less shady areas.

Impact of afforestation

A threatened reptile hides in the vegetation. If this does not abate the threat, it goes underground. This is how many reptiles survive heathland fires - only to be gobbled up by crows when they emerge to a denuded landscape. Preparation of virgin land for forestry is not dissimilar: the land is ploughed to a depth greater than that at which reptiles seek refuge so killing many directly, and the ploughing destroys the ground vegetation cover exposing any survivors to predation. There may be good recovery at first, but eventually increasing tree shade makes the land uninhabitable for most reptiles.

No two forests are identical, but in general reptiles seem to do best where afforestation was spread over many years, resulting in mixed-aged timber[5]. Thus there are almost always some reasonably sunny areas which can be colonised by refugees wandering randomly from places which have become too shady. Where afforestation is rapid, as at Hurn, there is little age diversity of the timber and everywhere becomes shaded at the same time, the refugees have nowhere sunny to go to and only the most shade-tolerant species (slow worms and, to a lesser extent, common lizards) will remain widespread. Snakes are probably particularly vulnerable to rapid afforestation because of disruption of their movement routes with no time for them to adapt. Rempstone Forest, also afforested rapidly during the 1950s, is somewhat similar to Hurn, with lizards widespread and locally abundant, snakes sparse.

The very localised distribution of sand lizard and adder populations in the main body of Hurn Forest suggests that they arose mainly through recolonisation, after recreation of open heath areas, from Barnsfield with adders (which can swim) also from Merritown. However, the pipeline populations might be 'native'; perversely, the various wildfires, which always left some unburned habitat, could have promoted long-term survival by enforcing timber age-diversity. Much of Troublefield and the Pig Farm were never afforested.

Sand Lizard Recolonisation of South Hurn

Complete documentation is not possible, since there were no pre-deforestation surveys, and the first surveys recorded subsequently were in 2002, at least 5 years after deforestation, so some of the evidence is indirect.

[5] This is a slight oversimplification. Local variation in soil fertility and tree species can result in different growth rates, giving the effect of age diversity.

Adult sand lizards harass their young, forcing them to disperse, so a characteristic of a population expanding geographically and/or numerically is a high proportion of youngsters

amongst the sightings, and a small proportion of large, old lizards (greater than 5-6 years old). The proportion of subadults (1 and 2 years old) amongst sightings fell from 44% over the period 2002-2006 to 15% during 2007-2013, while the proportion of large lizards rose from 7 to 33 %. These changes were statistically highly significant ($p < 0.01$). A similar pattern might be expected from progressive breeding failure, but hatchling sightings did not fall after 2006. Rather, the changes are consistent with a population expanding rapidly during the earlier period, later becoming relatively stable. In addition, the "sightings frequency" (number of sightings per hour or per survey over the year), of sand lizards increased progressively, and statistically highly significantly, ($p <= 0.001$ by chi-square test) up to 2007 (Fig. 15.2). Thereafter, dramatically increasing depth and density of the heather made surveying very difficult and sightings frequencies fell - as did those of common lizards – though remaining fairly stable from one year to the next.

These patterns could result from internal colonisation, from any pockets which might already have existed in rides of the former woodland. However, the gross distribution of sightings also changed over the years (Fig. 15.3). A detailed analysis was not attempted, but a simplified approach was used: a line was drawn on the map approximately parallel to, and 300m from, the boundary with Barnsfield and the numbers of records on each side tabulated. Up to and including 2006, only 2 (4.5%) of sightings were beyond this line; the proportion increased to 27% thereafter, and the change was statistically significant, albeit only at the 5% level.

Top: female disturbed while excavating nesting burrow, track at Plot W, 16/05/2011.
Middle: abandoned test burrows, Plots T and U,
June 2013. Bottom: Hatchling sand lizard Plot Q*, 27/09/13

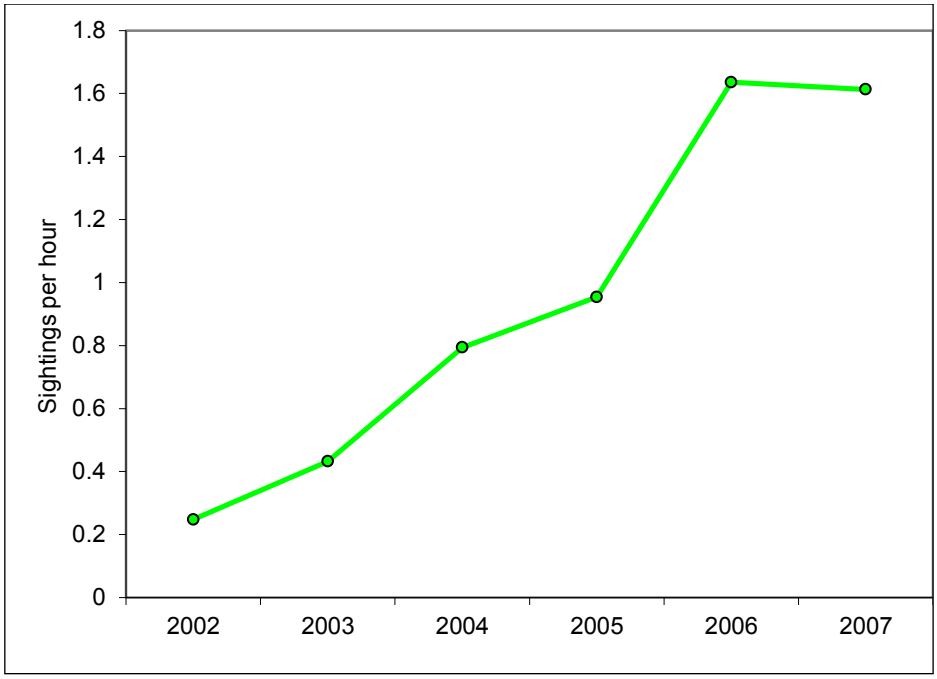


Fig. 15.2. Annual changes in sightings frequency (number per hour of survey) of sand lizards, excluding neonates since they are present only for part of the year, in the South Hurn heathland complex 2002-2007

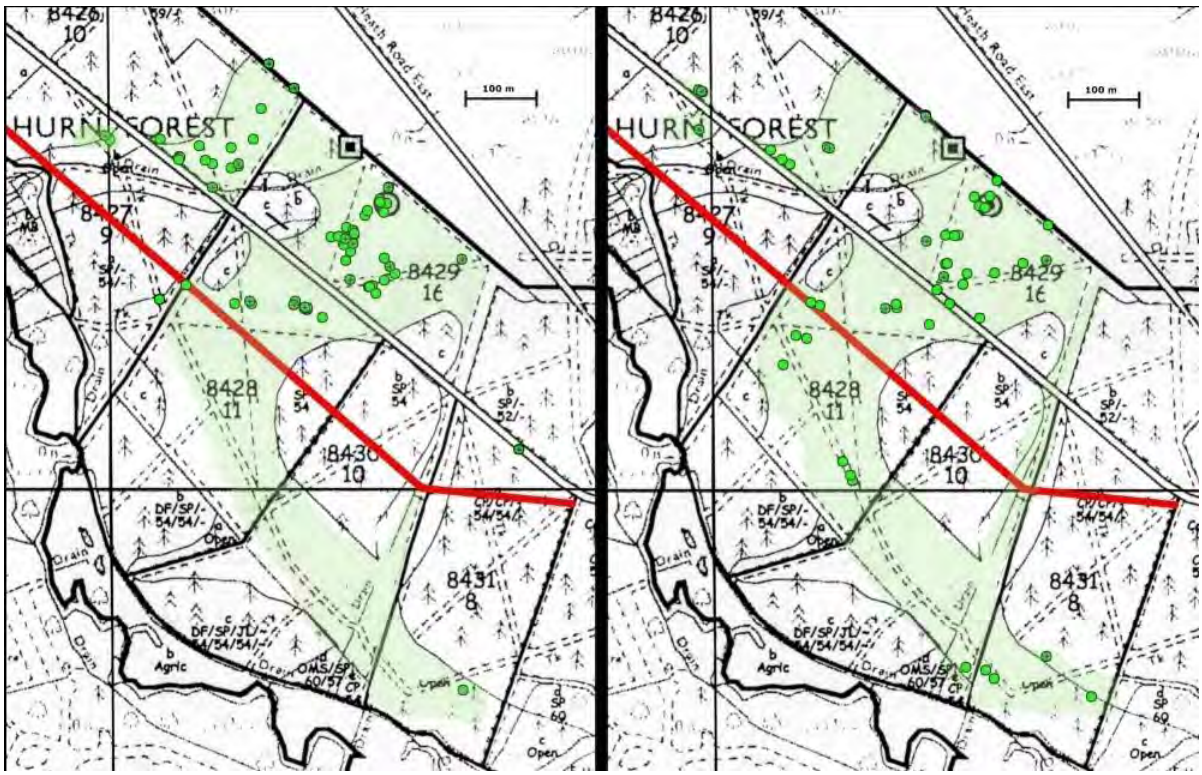


Fig. 15.3. Distribution of sand lizard sightings in the South Hurn complex. Left: 2002-2006, Right 2007- 2013. The red line is 300m from the Hurn Forest/ Barnsfield Heath boundary. Prior to 2007, there were vey few records beyond the 300m line, with a notable increase thereafter. The open heath areas are colour-flooded in pale green.

Top: identificaltion photograph of smooth snake fount at Plot Q on 14/06/13. This snake was far too active for free-range photography, so the lower photograph is from near Verwood in 2012 – that rarest of sights, a smooth snake basking in the open.

Smooth snakes

The situation with smooth snakes is far from clear, and rather puzzling. Given the known, good, populations at Barnsfield and, only a short swim away, at Merritown, rapid colonisation of South Hurn would have been expected, at least after about 2006 when the heather became sufficiently developed. It is always possible that a population has existed undetected for many years, since there were very few refuges – 15 in an aggregate area of about 17 ha. However, the fact that it has taken 12 years before even one refuge was found by a smooth snake points to any population being very sparse. It would be nice to think that this year's record(s) herald the start of effective colonisation. Hopefully, the additional refuges will give more records in future years.

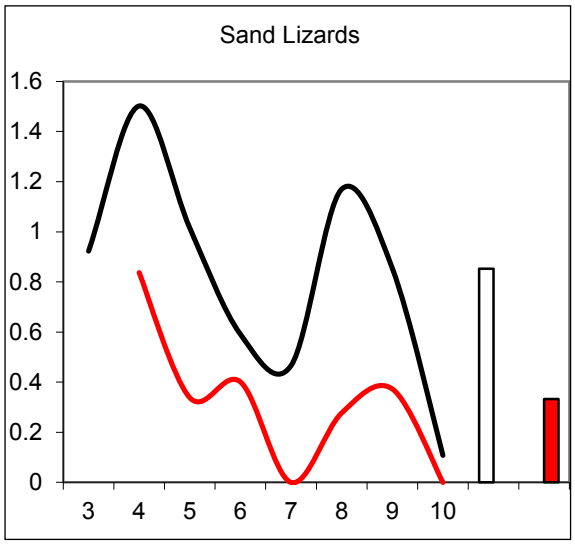
Grass snakes

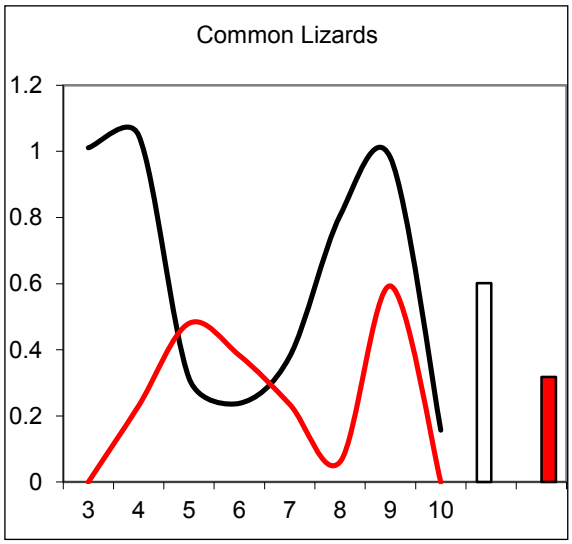
While grass snakes would have been as much affected as other snakes by the afforestation, ARCT have very few records from the adjacent heaths so other factors must be involved in their poor status. Moreover, 118 grass snakes were translocated to South Hurn from a building site in 2000-2001 (EPR, 2006). Such a large number gives an average density of about 5/ha; had the translocation been successful we should now have a good population. Habitat *per se* does not seem to be an issue, for grass snakes can be abundant in open heathland, given amphibian prey, and the problem at Hurn is almost certainly lack of food: the only amphibian record known of is the surveyor's own from 2003 (see Fig 3) – palmate newts in a usually dry ditch. Even if these newts occur more widely in the Forest, they are small and many are needed to feed a single adult grass snake. While it is unsafe to draw conclusions from a single observation, the grass snake handled for photography in 2013 was very clearly emaciated, with loose folds of skin along the flanks.

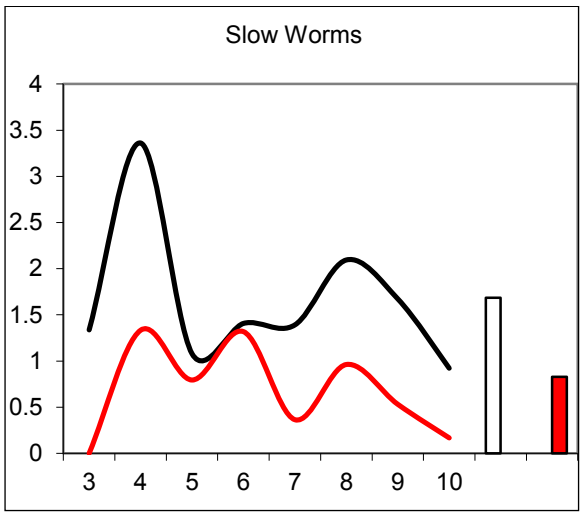
Top: three slow worms sharing a refuge. The two in focus are females, shown by the dorsal stripe (absent in males) and light colouration. The female in the forground has unusual bold and complex markings on the head and neck.
Lower left: the second rarest herpetological sight: a slow worm (female) basking in the open: main gravel ride near to Plot F, 20/07/13.
Lower right, grass snake on top of the felt beneath which he was found, Plot W, 19/08/13. Fortunately he shammed dead on handling, or the photograph could not have been taken. The cloudy covering of the eye signifies that he was preparing to slough.

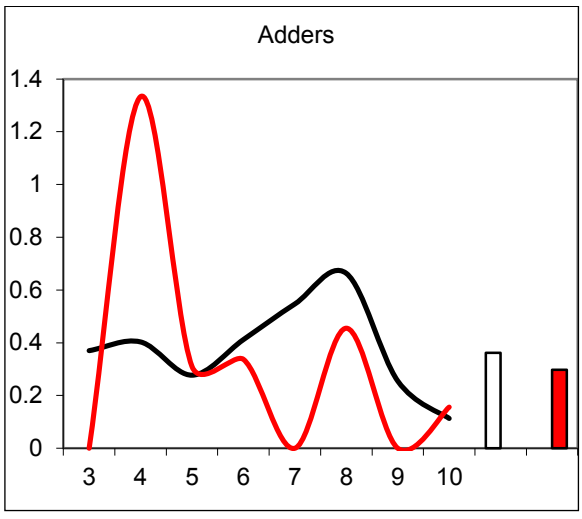
Comparison of Reptile Sightings in 2013 with those of previous years

The graphs below (Fig. 15.4) show monthly sightings frequencies (number per hour) over the reptile active active period from a number of sites, or localities, at which the relevant species is seen regularly. Localities with only occasional records of a species are excluded since we cannot be sure that they are occupied permanently. Consequently, the Hurn localities not surveyed before 2013 are excluded, as are Hurn smooth and grass snake records, since their sightings are irregular. The graphs compare the average values 2008-2012 (black lines) with 2013 values in red, with bars showing the whole-year values (white for 2008-2012, red for 2013). It is clear that sightings of lizards were much lower than usual in 2013, and that the seasonal pattern of sightings of some species was abnormal. While snake sightings were similar to the average, the pattern of sightings was distorted.









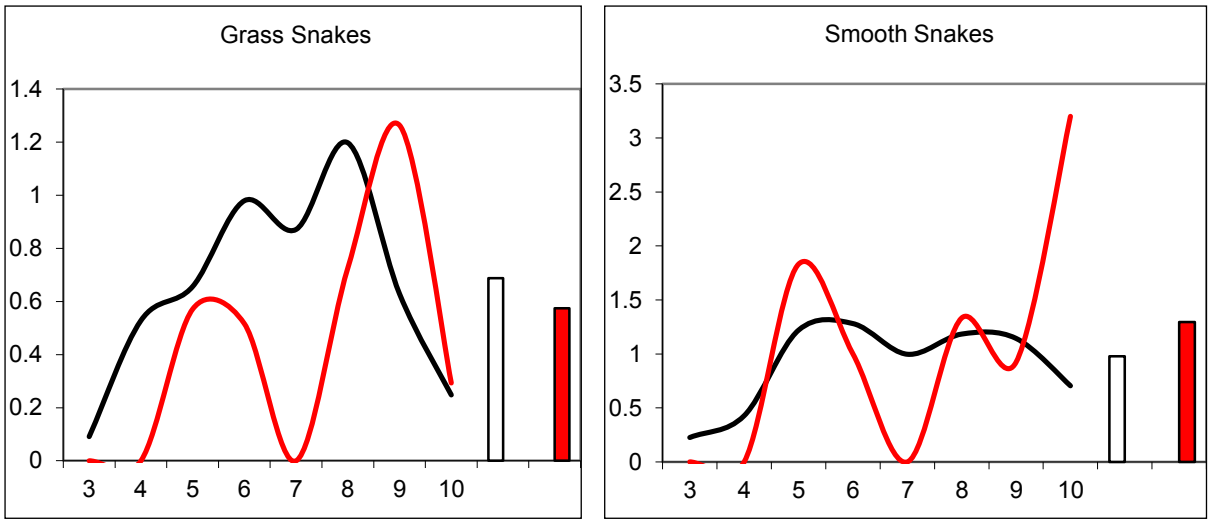


Fig. 15.4. Monthly sightings frequency (sightings per hour of survey) in 2013 (red) compared with the average 2008-2012. The bars show sightings frequencies over the whole year, red for 2013, white 2008-2012.

Use of sightings frequency can be misleading, for example the apparent adder peak in April 2013 represents only 2 sightings, but it is the only way to take search effort into account. Similarly, the October 2013 smooth snake peak reflects 8 sightings from two exceptionally good sites surveyed on the same day; no other smooth snake sites were surveyed in the month. To put the sightings frequencies into context, absolute annual sightings are shown below in Table 15.2.

Species	2008-2012	2013
Sand lizard	96.8	26
Common lizard	72.8	28
Slow worm	198.2	50
Adder	27	16
Grass snake	62.8	18
Smooth snake	80.4	39

Table 15.2. Absolute numbers of reptile sightings, from localities at which the individual species are seen regularly, in 2013 compared to average values 2008 to 2012.

Not only was 2013 a poor year for *seeing* reptiles, it was also a poor year for sand lizard breeding (no data available for other species). Normally, the evidence of fresh burrows shows that first egg-clutch is laid over about a two week period late May to early June, with some females laying a second clutch mid-July to early August (absolute dates vary from year to year depending on the weather). This year no burrows were observed until June, with the peak late in the month. A gravid female was seen on 1st July. Not only was laying late, and spread over a longer period than usual, but far fewer burrows were seen than usual. Moreover, it is reported that the captive-breeding programme found many addled eggs. This might be related to poor condition of the males. Normally, they become a vivid green in

March or early April, which fades slowly in subsequent months. This year, marked fading was seen as early as late May. A very small number of second-clutch burrows were seen at the end of August: given the subsequent rapid cooling of the weather, the chances of these eggs hatching is low; in a sunny autumn, recently born hatchlings can be seen throughout October and even early November, but this autumn was far from sunny. The problems may knock-on to 2014. Normally, autumnal females are plump, having been feeding avidly to lay-up food reserves to make next year's eggs; this year, many females remained quite skinny well into September.

Applicable research from Wareham Forest

At this point it is useful to consider how mobile reptile populations can be in this sort of Forest environment. Whilst no detailed studies have been made in Hurn, 5 years of research has been done in Wareham Forest by Dr Gabriella Jofre. The survey considered how all 6 species of UK reptile were using the Forest, and in particular the different types and ages of conifer woodlands. Individual snakes were pit-tagged to allow individual identification if and when re-found. Below is a brief summary of some of the findings (full report in Appendix 4).

- Most reptiles utilise woodland sites up to when the trees reach about 20 years and/or the canopy cover reaches 65% (due to effects of shade).
- New plantations in the age range of 7-14 years held highest numbers of reptiles.
- Sand lizards appear to colonise newly felled / restocked sites most rapidly, with peak numbers in 4 year old crops of trees. Once tree canopy reaches 20% their numbers decline.
- Commmon lizards appear to take a little longer to colonise (6 year old crops) and appear to favour Molinia dominated sites. Once tree canopy reaches 40% their numbers decline.
- Slow worms could be found in the open but also in older plantations with relatively high canopy cover, where Molinia was present.
- Smooth snakes were shown to move an average of 250 metres (males) between suitable sites. Once migrated to a new site appeared to stay there so long as canopy cover did not exceed 65%.

With this mobility in mind, it is important to consider the network of habitats alongside tracks and rides, the primary corridors along which reptiles are moving and colonising new areas of habitat (heathland and restocking areas). The following pages provide an assessment of habitat quality along some of these corridors in Hurn Forest.

EVALUATION OF SELECTED LOCALITIES AND MANAGEMENT COMMENTS

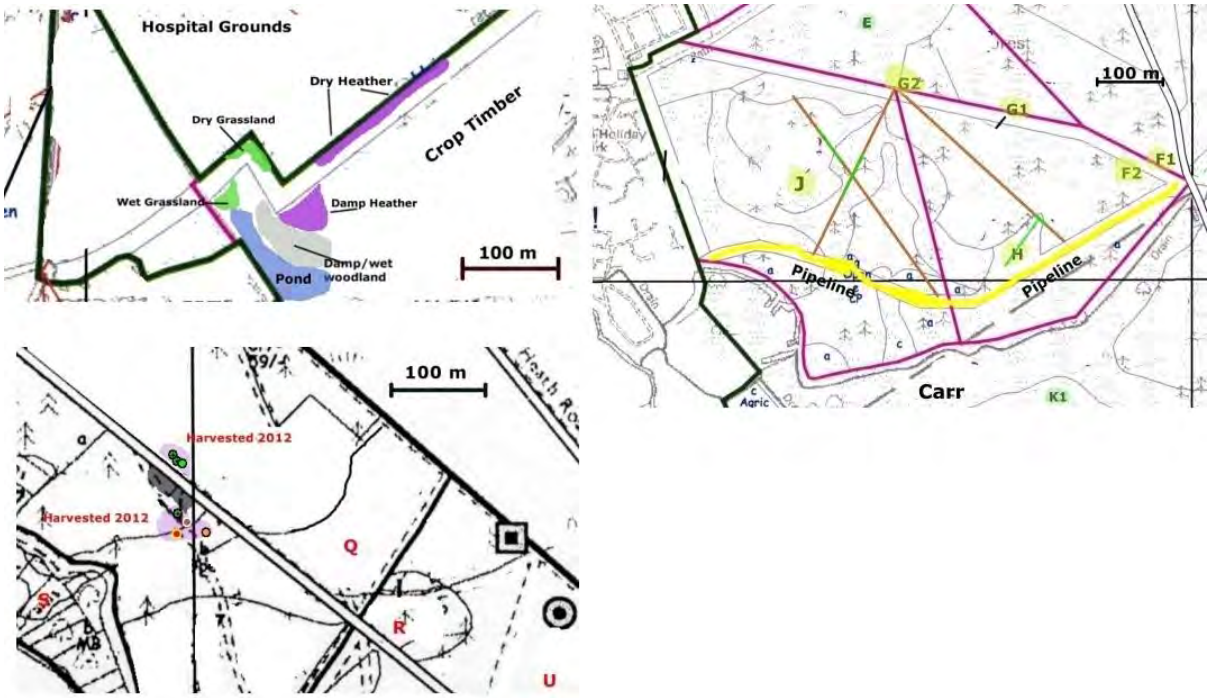


Fig. 15.5. Maps of some plots, sketched on to the Forestry Commission stock-map. Upper left: Plot B, to show the diversity of environments in this small area. Right, the pipeline complex showing relevant plot designators (Plot E is not considered part of this complex). Those parts of the tracks within the area north of the pipeline itself which could (potentially) support sand lizard breeding are shown in green. Lower left: Plot Q*, with heather patches flooded light purple and showing reptile sightings within them. Designators of nearby plots are also shown.

SW St Leonards: Plot B

The plot was selected for this project because of its proximity to the St Leonards hospital grounds, said to be herpetologically quite rich, and because of the diversity of habitats within a small area: dry and damp heather, dry and wet grassland, open damp/wet woodland, and open water (above Fig. 15.5).

The surveyor had sand lizard records, including hatchlings, in 2004 and 2006, occupying the ride edge and a small abutting patch of heath (perhaps 30m square) within the hospital grounds, breeding on the boundary bank. A few forays deeper into the hospital grounds produced slow worms, common lizards and adders (reputedly abundant in there) and revealed an area of potential habitat for smooth snakes – whose presence *circa* 2001 was confirmed by Simon Weymouth (email 14/10/13), though he had no information on their numbers.

Given the environmental diversity, it was striking that reptiles were found *only* in the dry heather strip alongside the track. No sand lizards were seen, but Nick Moulton (ARCT) had records in 2010, so they may still persist. However, the abutting habitat within the hospital

grounds is now severely overgrown by tall gorse and bracken, and little heather remains, while the heather strip within the forest is small in area and becoming invaded by saplings and gorse. The boundary bank is largely overgrown and almost completely shaded but the ride offers potential breeding sand.

The only present management option seems to be control of the invading gorse and saplings in the heather strip. If future surveys show a viable sand lizard pocket then longer-term plans can be made once the timber south of the ride is harvested. The prospects of reviving the population seem poor.

Crossride "Mire": Plot E

This is quite close to the adder population of the pipeline area, and potentially offers summer habitat for them and other snakes. Timber was harvested fairly recently, ground cover is ill-developed, and there may not yet have been time for adders to find it (they are rather conservative), but it is worth continuing to monitor.

Pipeline area: Including Plots F, G, H and J

These comments cover ride edges and open areas from the birch carr in the south to the ride at Plot G, from the western margin of the forest to the main gravel ride (Fig. 15.5). Sand and common lizards have been found throughout this area - notably alongside the pipeline itself and the track alongside the carr (possibly reflecting ease of surveying) – slow worms are widespread and adders are resident.

Despite this positive picture, there are grounds for concern over the long-term future of sand lizards:

a The area north of the pipeline, a mixture of open land, restock and more-or-less mature timber, is to be developed as a mosaic of forest and open glades (Forest Design Plan map, 2010). The plan promises a magnificent landscape, but at present, self-sown trees are spreading so rapidly that it is difficult, on the ground, to distinguish the projected open areas from intentional forest. Moreover, there are concerns that the glades will be large enough to escape significant shading as the timber develops. In any event, the existing populations need to be maintained as far as possible, to facilitate colonisation of the future glades. For the sand lizards, and other sand-dependent animals, this means making plenty of bare sand available in the places where they occur *now*, irrespective of the long-term plans. Now, the area is criss-crossed by sandy tracks, but only about 270m (18% of the total length of nearly a mile) are potentially able to support breeding, because of tree shading and the nature[6] of the sand elsewhere (we have lost one 220 m breeding stretch, no longer used as a path, within the last 6 years because of overgrowth and tree-shading). But of the 270m, about 200m is narrow, and the sand is becoming shaded by ground vegetation in the sunward direction - the shading vegetation could be cut back to restore or maintain breeding. At present, given the limited distances that a sand lizard can travel to lay her eggs, only an aggregate of about 0.2 ha of the whole area (~17 ha) can support breeding foci.

[6] The eggs are deposited about 3 inches below the surface. In loose, soft sand they are vulnerable to mechanical damage from feet, hooves, and wheels. Firm sand affords some protection.

b Elsewhere in the complex: Sightings on the southern track seem to have been falling in recent years. This might reflect the small number of surveys, but there does seem to be increasing tree-shade from the carr. Occasional sand lizards have been seen on the ride edge at Plot F, probably an overflow from the pipeline population, for there is no evidence of breeding and the only available bare sand is close to the timber SW which shades it for most of the day. That block was only planted in 1980 and there is a long wait before it will be harvestable. No sand lizards have been seen for several years at the small breeding pocket at Plot G(2). Here, small patches of sand on the northern, insolated, side of the ride are long overgrown. There may well be some sand lizards scattered along the ride edge between Plots F and G, and some spots where they might be able to breed, but would only be a small contribution to the total population of the area. Similarly, there may be some westward of Plot G, and along the western edge of the forest, but occasional past surveys were unsuccessful.

c The surveyor had believed that sand lizards could remain in perpetuity on the pipeline itself even if no management is undertaken, because of the timber age-diversity immediately south: as one block becomes so tall as to shade the northern verge, an adjacent block will have been harvested, so the population can persist by shifting back and forth. However, the western 150 m was shaded during all the 2013 surveys, while at the eastern 200m there is little bare sand and the vegetation balance is drifting away from heather to gorse and bracken. Consequently, without management any remaining population is likely to be small, making it particularly vulnerable to wildfire – to which the camp site abutting at the west makes the area particularly prone.

This may all seem too negative, but there is already some weak evidence of a population decline, as shown in reduced sightiings of sand lizards over time (Fig 15.6).

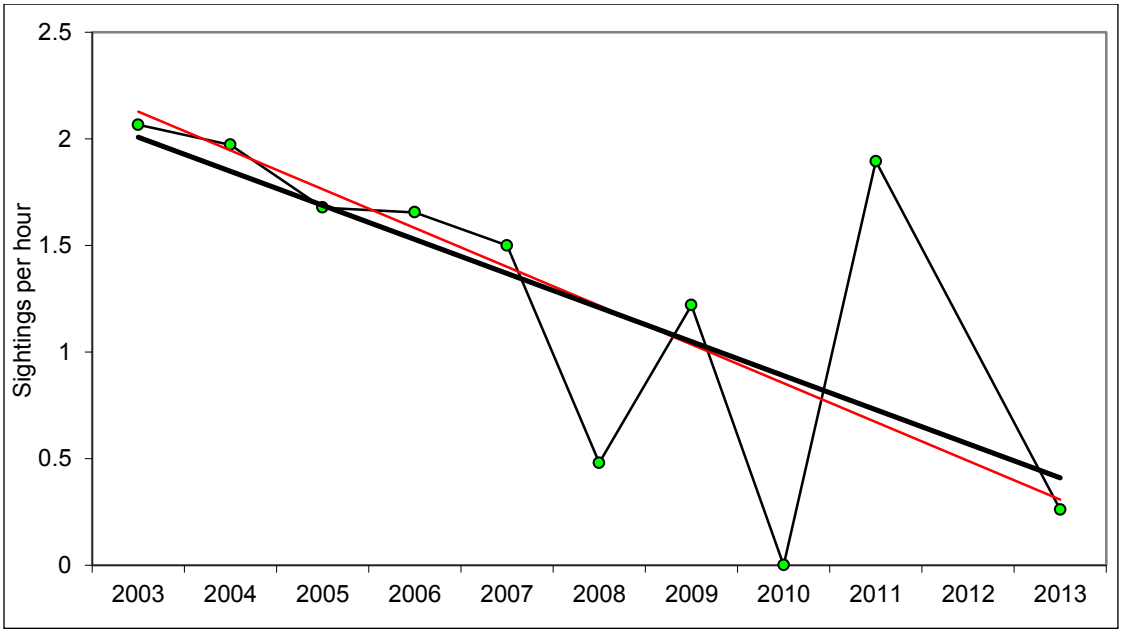


Fig.15.6. Sand lizard sightings frequency inthe pipeline complex 2003-2013. There were no surveys in 2012. The erratic pattern after 2007 probably reflects too few surveys to even-out the normal variations between surveys – a result of complacency, since the population seemed to be doing well. The heavy black line is a linear regression (courtesy of Microsoft Graph). It correlates fairly well with the observations ($r = 0.677$, 8 df, $p < 0.05$). However, excluding the 2008 – 2011 observations gives virtually the same regression line (shown in red) but a much higher correlation ($r = 0.993$, 4 df, $p < 0.001$). The evidence is not conclusive, but gives serious grounds for concern.

Main Gravel Ride: Plot L ("North Bracken Bank") and M ("Heather Bay")

Sand lizards were first recorded at Plot M in 2007 (common lizards a year earlier), and the Forestry Commission adopted it to be maintained as an open heath bay – part of the Commission's policy of ride-side management to create and maintain connectivity between the main open areas. Sand lizards have been recorded in every subsequent year save 2011, when surveying was limited to four 10-minute quickies, and 2012 when there were no surveys. Finding of a new-born adder in 2008 implies presence of a hibernation area, ie a population centre, albeit probably a small one. Tree and gorse management is excellent, but there is little bare sand, visibly diminishing each year as the heather develops, and provision is needed.

The area is small, and cannot support many sand lizards (at a guess, possibly 10 pairs at most); their future depends on trees being cut back on the SW side of the ride to avoid future tree-shading: notably the surveyor has seen no reptiles on the ride edge immediately south (Plot N), which is tree-shaded for much of the day.

The ride edge at Plot L was originally dominated by bracken and *Molinia*, but heather seems slowly to be winning. A quick look in 2006 gave no reptiles. The first serious surveys were in autumn 2009 when breeding sand lizards were recorded, and the Plot has given records ever since. If not included within planned Forestry Commission ride-edge management, then it should be. Again bare sand is needed; there is some on the ride-side bank but it is becoming overgrown.

Main Gravel Ride: Plot P ("South Bracken Bank")

From the ride this seems rather unpromising for reptiles, with a mixture of pine and birch and ground vegetation mostly bracken. The surveyor did see a sand lizard in heather at the northern corner in 2010, but lack of subsequent sightings led him to conclude that this male was just a lost wanderer. However, examination of the hinterland for the present project revealed an impressive sward of heathland. Deep plough furrows imply soft, damp, ground (and make it extremely difficult to survey), but there is a covering of sand. The area may or may not prove suitable for sand lizards, but it looks suitable for all our other reptiles and is sufficiently close to Barnsfield for smooth snake colonisation. Moreover it was exceptionally rich in honey- and bumble- bees.

This area is certainly a candidate for inclusion in the ride-side management plan. The immediate requirement would be experimental sand exposure (which would also facilitate surveying) in the northern half, then decide future policy according to the results.

SouthHurn/North Outlier: Plot Q*

This is actually two small pockets, 40m apart and about 120 m NW of the heathland which includes Plot Q. One sub-plot is a small heather patch, where sand lizards were first seen in 2006, alongside the dry part of a sandy track running SW from the gravel ride through mainly damp terrain. Subsequent sightings have been intermittent, but surveys take only about 5 minutes and the chances are low of any lizards being on view during such a short time. An adder was seen in the nearby open wet heath in 2009; only a single record, but that area has had little attention because of the difficulty of walking in it. The recently harvested land SW has evidently been prepared for restocking, so the long-term future of the pocket is bleak; fortunately, it is only a small outlier of the main reptile area.

The other sub-Plot is a heather bay on the NE side of the gracel rides, carved from the crop timber (harvested 2012) by the Wildlife Ranger, Colin Elford, about 4 years ago. Since it was usually shaded when the surveyor was present, it was given little attention. However, timber harvesting in 2012 removed the shade and sand lizards are now known to be breeding here – an amazingly rapid colonisation. This specific area will become shaded in time, by timber on the SW side of the ride, but by then the cleared land immediately NE should have developed suitable habitat, whose colonisation would have been accelerated by the rideside bay.

Removal of the small area of trees, colour-flooded dark grey in Fig. 15.6, between the two sub-Plots should perpetuate the two foci.

South Hurn: including Plots Q*, Q, R, S, T, U, V, W

The Forestry Commission's management is superb, with one caveat - a problem of finance not of policy - namely insufficient bare sand to realise the full potential of the area. The aggregate area of the whole complex (excluding woodland) is about 20 ha, with 17 extant sand 'strips'. Taking the strips as, on average, 25 m long and 3m wide (in fact, most are smaller), gives an aggregate area of 0.1275 ha, about 0.64% of the total heathland. For dry heathland, DEFRA (2006) recommend that between 1 and 10 % of the ground should be bare (herpetologists consider a minimum of 2 % to be necessary), for the benefit of those fauna which depend on bare sand. However, producing those 17 strips took two working days, spread over two years, not long, but hire of the excavator and operator represented a substantial proportion of the Beat's total conservation budget. Moreover, the strips become

overgrown and have to be refurbished or replaced every 4-5 years. Policy is to replace sand exposures rather than to refurbish them, letting the old strips grow-over to enhance heather age-diversity. However, refurbishment is quicker, hence cheaper, than replacement, so we do not always have the choice.

There may be a future threat to this area, in that the Forest Design map (2010) shows it as within a planned grazing area. This plan may have been dropped for grazing is harmful to reptiles (see, eg, Blanke & Podloucky, 2009; Fleischner, 1994; Jones, 1981; Reading, 2009), to other heathland wildlife (Offer *et al*, 2003), to the heather itself (Welch, 1984) and possibly also to forestry (Belsky & Blumenthal, 1997). Certainly the author cannot imagine grazing as being benign to the Dartford Warblers, Stonechats and occasional Nightjars which live in South Hurn. On the other hand, the author *can* imagine it presenting a problem for dog-walkers. Some of the effects on reptiles can be mitigated by fencing-off particularly sensitive areas, notably sand exposures (Moulton & Corbett, 1999). But consider the cost of moving fencing around whenever the sand strips are replaced.

Pig Farm and Troublefield

Sand lizards, common lizards and slow worms are widespread throughout the heath in Troublefield; no common lizards were observed at the Pig Farm, but it would be astonishing if they were absent. The only snake record the surveyor is aware of was an adder he found at Troublefield in 2009. However, the deep, tussocky heath is very hard to survey, so this does not necessarily imply a poor population. The surveyor was told that a commissioned survey, regarding a proposed pipeline, *circa* 2010 failed to find any smooth snakes.

As always, the main management requirement is provision of bare sand within the heaths. There is only a single sand strip (Troublefield, Plot B) and only localised natural sand. The Forestry Commission's attempts to provide bare sand by harrowing (2009) met with limited success: there is a high herbaceous content in the ground vegetation and the harrowed strips became overgrown very rapidly.

Grasslands in both areas are heavily overgrazed by rabbits, which probably accounts for about a third of the 'parched grassland' at the Pig Farm being bracken-dominated, and undoubtedly severely reduces biodiversity. Rabbits are also fond of *Calluna* (see Webb, 1986) and can add devastation of heathland to devastation of grassland. Reptiles often hibernate in rabbit burrows, and winter rabbit gassing, perhaps the most efficient (though probably also the most obnoxious) method of short-term control, is known to have caused reptile extinctions (Corbett in Corbett & Tamarind, 1979). So control must be left to foxes (there are some, but not enough) and shotguns (likewise).

16) Birds

Introduction:

Surveys were undertaken throughout the seasons of 2013 to record the full range of bird species using Hurn Forest. In particular, survey emphasis was placed on recording the species of importance for the Dorset heathlands Special Protection Area (SPA); woodlark, Dartford warbler and nightjar.

Furthermore, walkover surveys were carried out throughout the seasons to record the presence of woodland birds, and birds of prey.

Woodlark

Species introduction

Woodlark (*Lullula arborea*) is a resident species that is largely restricted to the south-west region of England, with a population also breeding in the Brecklands of East Anglia. Breeding very early in the season, woodlark favour short, open vegetation and bare ground, most often found in heathlands, grasslands and forest clearings. Changes in heathland grazing, afforestation and the intensification of formerly marginal farmland were major influences in the population decline of this species during the middle of the 20th Century. However, more recently the population has responded well to the reintroduction of heathland management and the clearfelling of conifer compartments within forests on sandy/gravelly soils.

Conservation status: AMBER

Methodology

The survey methodology replicated that of the national survey for this species (last undertaken in 2006 alongside the national Dartford warbler survey). Refer to Appendix 4 for the British Trust for Ornithology survey form. In accordance with the methodology, a minimum of two survey visits were made to within 100m of all areas of suitable habitat across Hurn Forest between mid-February and late May. Visits were only made in the morning, when temperatures were above 5^{o}C, and when settled weather conditions prevailed.

Results

Despite a thorough search of open habitats across the Forest over four visits, the only area where woodlark were encountered was at the boundary with Barnsfield Heath to the east. A pair was flushed from the track at cpt 2927 in March, and in May an individual was observed in a tree just beyond the Hurn Forest fenceline at cpt 2928.

Discussion

Woodlark require a short vegetation sward in which to breed and forage for invertebrates. Much of the open habitat in Hurn Forest is maturing heather or occasional *Molinia* grasslands in which the vegetation is unsuitable as it is too tall. Whilst woodlark will use the short swards of rides and tracks in undisturbed areas to breed, the opportunities are limited at Hurn due to the frequent use of visitors to the Forest from the Matchams Lane car park. It was surprising that woodlark were not found on clearfell / re-stock sites such as in cpt 2926 and 2927. It is thought that those woodlark observed were nesting on the edge of Barnsfield Heath, but that their territory extended across in to the edge of Hurn Forest.

Should the provision of habitat for woodlark be a future management objective, it is recommended that controlled burning of heather be undertaken (at a suitable patch size) to create open ground and young heather regeneration. Alternatively, employ livestock grazing at moderate to high density for short periods to create open vegetation conditions. However, it should be noted that woodlark were not using some of the existing potential habitat nearby (former clearfell sites) and so adopting heathland management options to favour this species may not result in breeding woodlark.

Dartford warbler

Species introduction

Dartford warbler (*Sylvia undata*) is an iconic heathland species which is resident in the UK throughout the year. It is very vulnerable to cold winters and during the mid-20th Century a combination of poor winters and habitat loss caused the population to drop to just a few pairs in the UK. However, relatively milder winters in recent years have allowed this species to bounce back, with the breeding population currently estimated at 3,200 pairs (RSPB). In the last national survey this bird was a real success story, with breeding territories discovered in new areas as well as a wide range of range of scrub habitats, not just the traditional heathland strongholds. Traditionally found in heather with gorse, Dartford warblers will use a range of scrub species in which to create their low nests, using adjacent open habitat in which to forage for spiders and invertebrates.

Whilst there has been a gradual increase in numbers and range over the last few decades, the cold winter of 2010 is thought to have had a serious impact, with high rates of mortality at more inland population centres.

Conservation status: Amber because Species of European Concern, Localised Breeding Population.

Methodology

The survey methodology replicated that of the national survey for this species (last undertaken in 2006 alongside the national Woodlark survey). Refer to Appendix 4 for the RSPB survey methodology (Gilbert et al - revised). A minimum of two survey visits were made to within 100m of all areas of suitable habitat across Hurn Forest between the beginning of April and end of June (with the first visit made before mid-May), with most of the Forest visited 3-4 times. Visits were only made when warmer, more settled weather conditions prevailed.

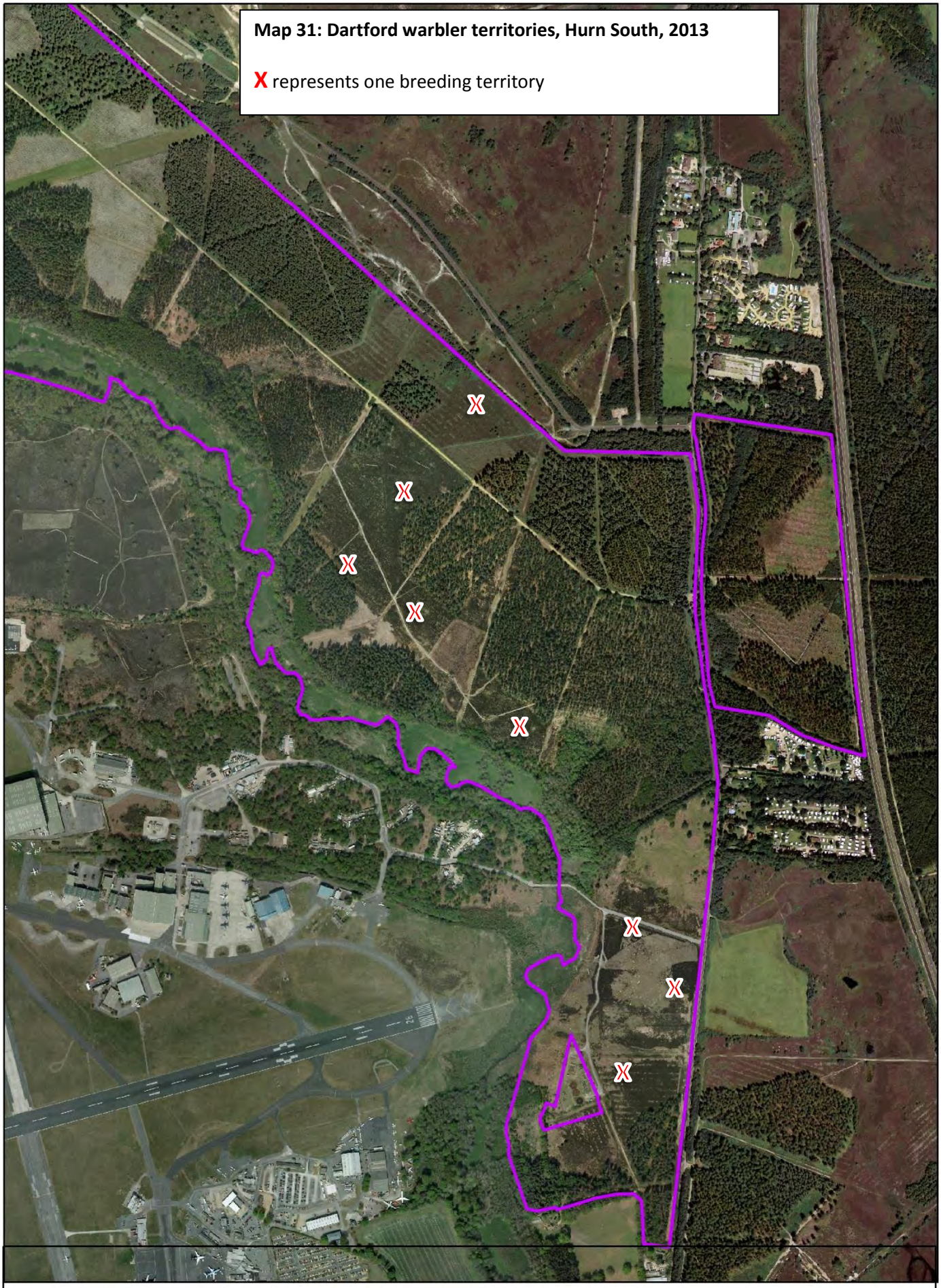
Results

An estimated total of 8 breeding territories were recorded, all from the southern half of the Forest (see Map 31). Territories were indicated by a range of bird behaviour such as singing males, nest-building, and later the presence of family groups. Where a bird(s) kept crossing a track or ride, confirmation of the location of the territory was made on another survey visit.

Observations of interest included carrying nest-building material – flying along carrying long leaves of dead *Molinia*. Later in the season, adults with juveniles working their way through the heather foraging for invertebrates (in cpt 2928 by the barrow, and again in cpt 2931b). All of the birds were using typical heathland habitat (with gorse very limited in Hurn Forest) with one exception, a pair nesting in the hedgerow on the south side of the access road in to the airport industrial estate at Troublefield.

Discussion

The pattern of distribution of territories recorded at Hurn has been a little surprising. Almost all of the available habitat in the southern half of the Forest is occupied (the notable exception was cpt 2934 a&c south of sewage works), whereas there were no records at all in the north. In the north there are a number of suitable (albeit perhaps not optimal) areas of habitat in which to breed (such as cpts 2902g, 2905d) which support maturing heather and young trees. Furthermore, if the Forest as a whole was at saturation, breeding birds might


Map 31: Dartford warbler territories, Hurn South, 2013
X represents one breeding territory
X
X
X
X
X
X
X
X
Forestry Commission
England
Hurn Biodiversity Audit Area
1:10,000
Map Produced by South England Forest
District Planning Team April 2014
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also have made use of the boundary gorse and hedgerow scrub beneath the powerlines at along the edges of cpts 2902, 2908 and 2909.

With available habitat unoccupied, the survey results do suggest that the local population of Dartford warbler is below the carrying capacity for the site. This is likely to be due to the cold winter of 2010 which is believed to have caused significant mortality.

There is concern that Dartford warblers can be disturbed from nesting by dog-walking activities, but it is worth noting that here the Dartfords are breeding in the area most visited by people accessing from Matchams Lane car park.

The most significant limiting factor for this species in Hurn Forest in the last few years has no doubt been winter weather. Future management to vary the age structure of the stands of heather, and to encourage scrub development along ride and track sides will benefit this species. As gorse is very limited in Hurn, alternative scrub could be encouraged to provide more of the habitat structure they require in which to nest. That said, Dartfords will utilise any scrub including young conifer crops in which to breed.

Nightjar

Species introduction

The nightjar (*Caprimulgus europaeus*) is another iconic heathland species, a summer migrant to England to breed, before returning to Africa for the winter. Nightjars arrive at the heathlands and forests of southern England in later April/early May, setting up territories by early June. This species is most active at dusk and dawn, although can be active for much of the night. In the evening males can be heard churring (calling) from their territories from May through to September (although churring intensity varies during the season). Flying low over the ground, individuals feed on beetles and moths. They migrate south for the winter in September.

Nightjars primarily use forest clearings and heathland in which to breed. At the time of the last national survey in 2004, the breeding population in the UK was estimated to be 4,600 males.

Conservation status: Red – due to limited breeding distribution and vulnerability to habitat change, and the global population of European Nightjar has an unfavourable conservation status.

Methodology

The survey methodology replicated that of the national survey for this species (last undertaken in 2004). Refer to Appendix 4 for the survey methodology (Gilbert et al - revised). A minimum of two survey visits were made to within 100m of all areas of suitable habitat across Hurn Forest between the beginning of June and mid-August, with most of the Forest visited 4 times. Visits were only made on warmer evenings, when settled weather conditions prevailed, to ensure every chance of males churring. Several additional records were also made when accompanying the bat surveyors.

Results

An estimated total of 10 breeding territories were recorded, scattered along the full length of the Forest. Territories were indicated by churring males. Where churring occurred on one side of a track or ride and a bird was then seen crossing and churring then commenced on the opposite side, further confirmation of the location of the territory was made on subsequent survey visits.

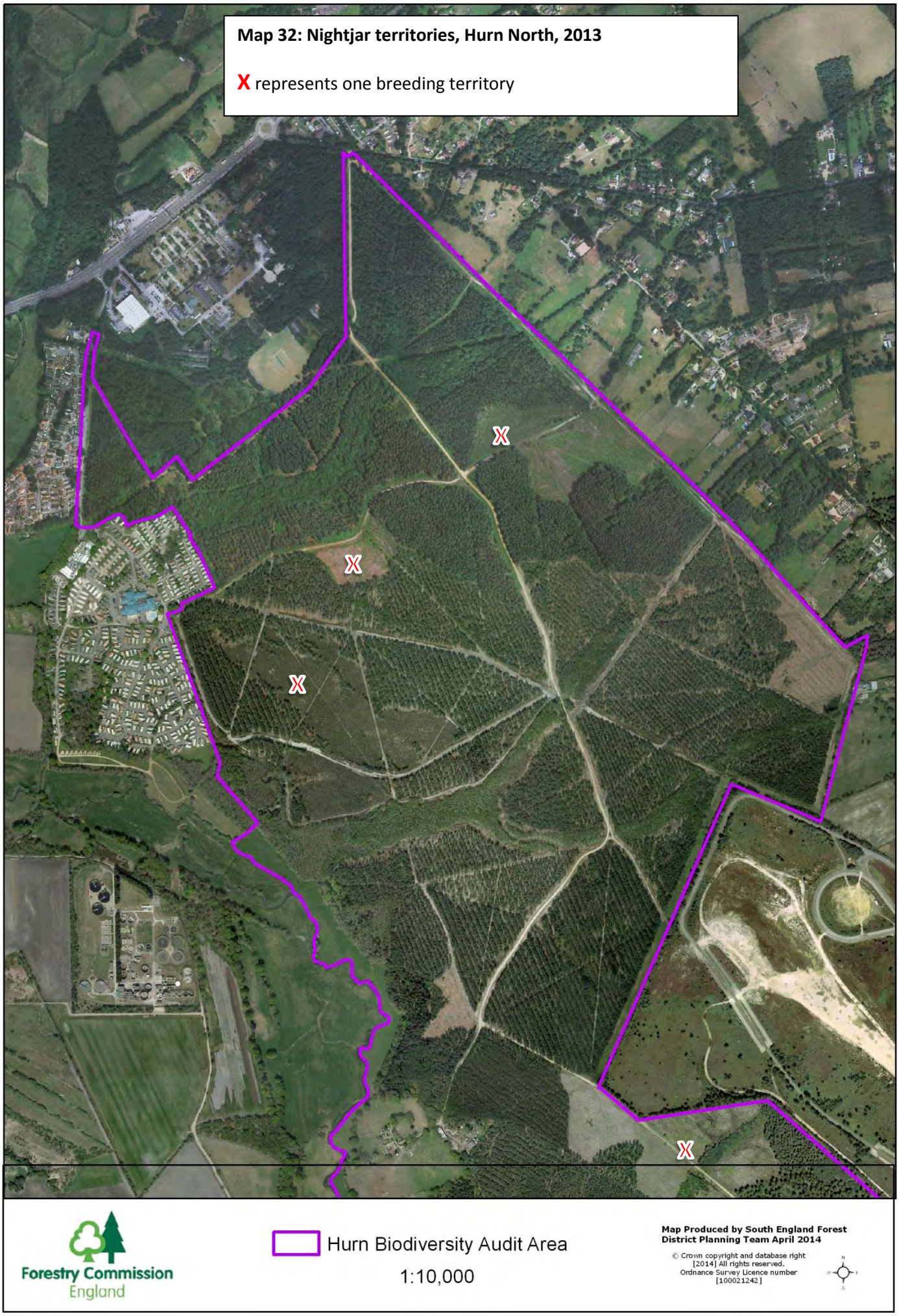
In cpt 2912b only one territory if shown on the map, although there potentially was a second one, but it was very difficult in low light levels to keep track of the individual(s) as it/they flew back and forth across this area due to the density of young trees. Two nightjar nests were accidentally discovered during the day whilst undertaking Dartford warbler surveys (cpts 2902g and 2912b); in both instances the adult was flushed from the nest and the surveyor rapidly moved away to avoid disturbance. On several evenings the surveyor observed aerial displays and wing-clapping as birds moved within their territories. In one instance a male flew overhead (close to sewage works), landed in a birch directly above the surveyor's head and churred for 6-7 minutes.

Discussion

The occupied territories in Hurn Forest represent both permanent heathland and conifer clearfell / re-stock sites. Most, but not all, of the suitable breeding habitat was occupied – the notable exceptions being cpts 2927 b&c and 2926 c&d, and to the east of Matchams Lane in cpts 2936c & 2937b. Whilst the former cannot readily be explained, perhaps the latter is due to the proximity of the A338 dual carriageway and the associated road noise.

The future management of Hurn Forest will continue to include heathland management and rotational forestry, providing nesting and foraging habitat. Diversification of ride sides through the promotion of scrub would increase the breadth and abundance of invertebrate prey. Continued management of livestock and hay production adjacent to the Moors River

will retain additional foraging opportunities (birds were seen over these fields on several occasions).


Map 32: Nightjar territories, Hurn North, 2013
X represents one breeding territory
X
X
X
X
Forestry Commission
England
Hurn Biodiversity Audit Area
1:10,000
Map Produced by South England Forest District Planning Team April 2014
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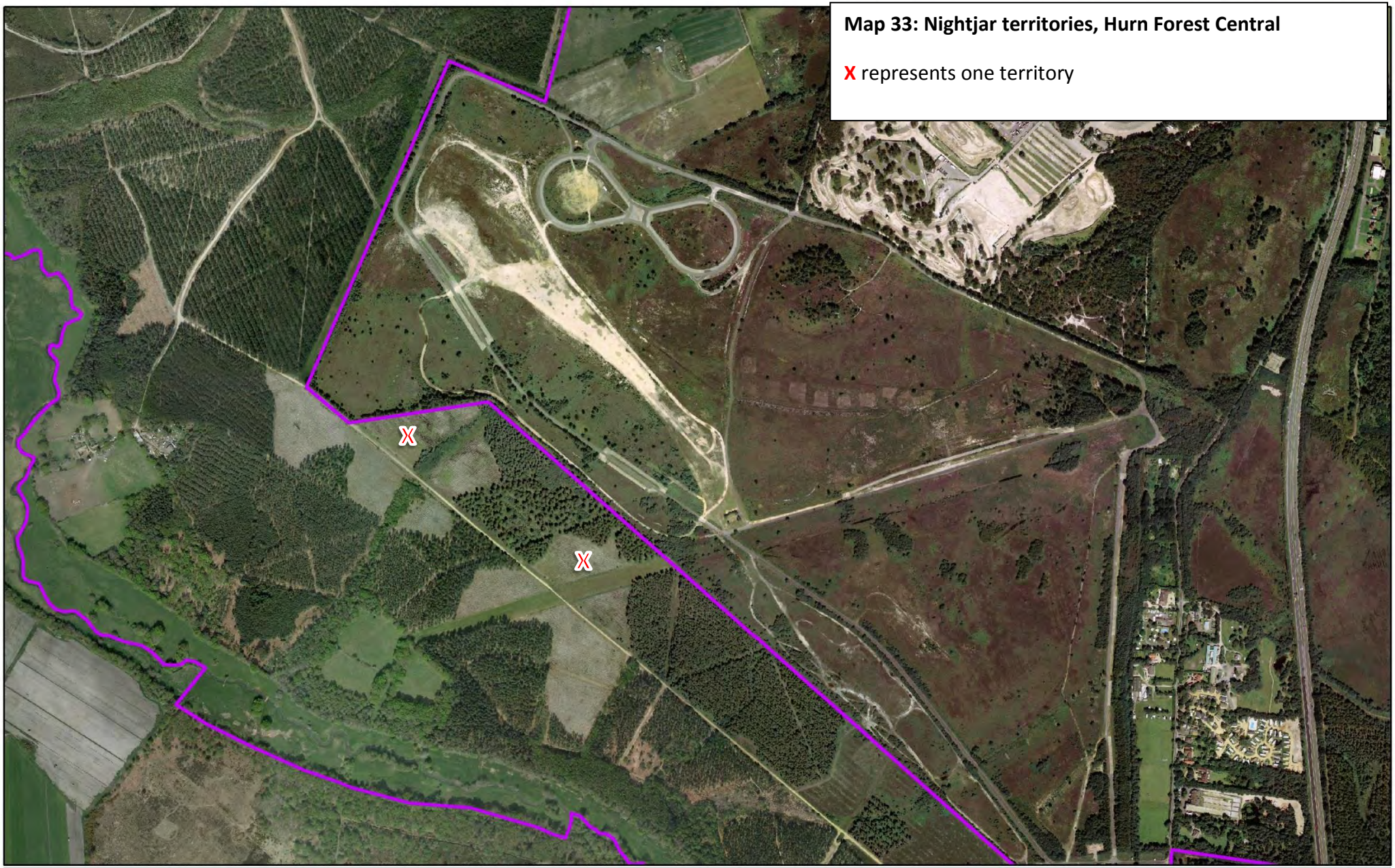
Map 33: Nightjar territories, Hurn Forest Central

X represents one territory

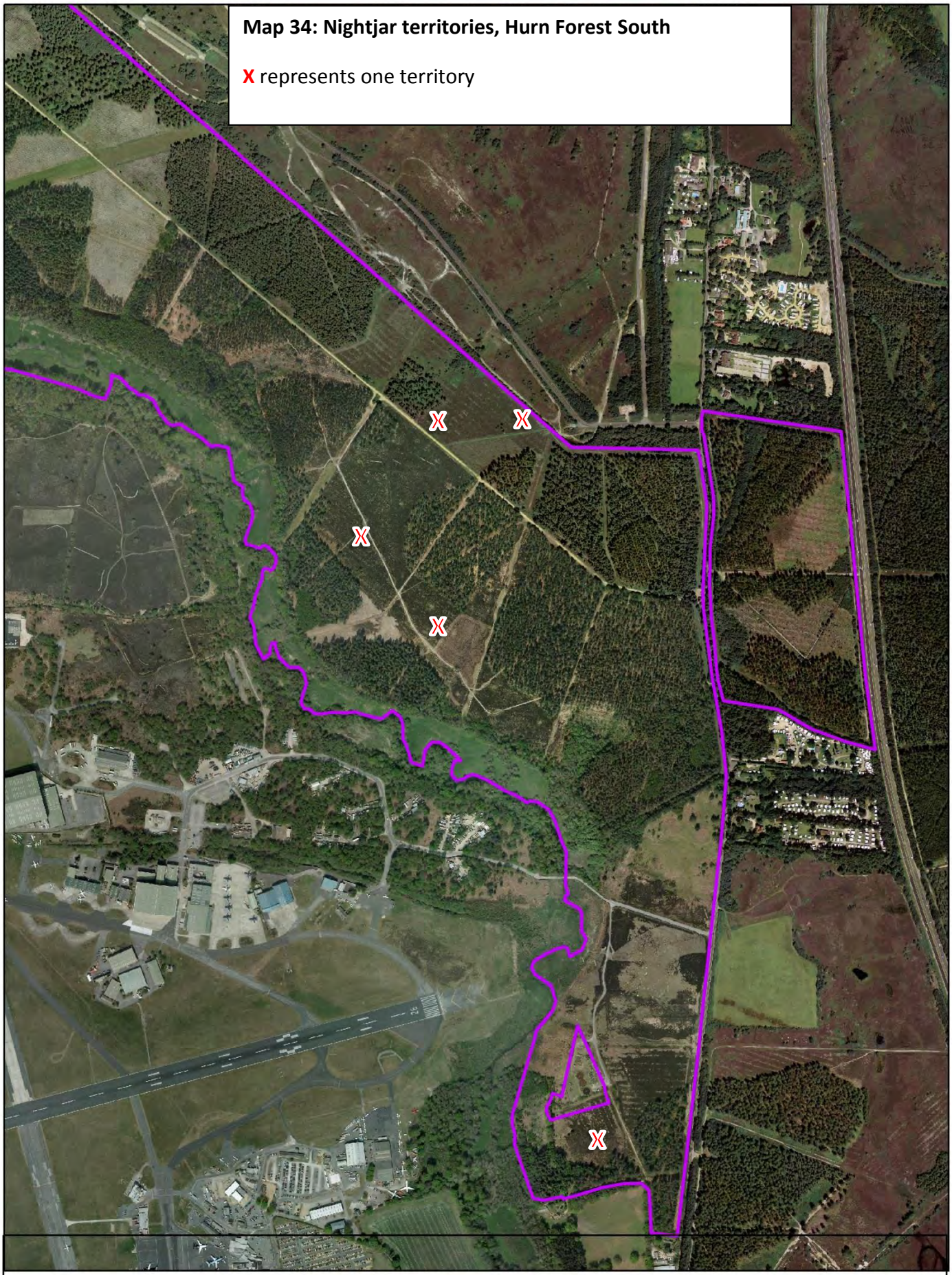


Forestry Commission England

Hurn Biodiversity Audit Area

1:10,000

Map Produced by South England Forest District Planning Team April 2014


Map 34: Nightjar territories, Hurn Forest South
X represents one territory
X
X
X
X
X
Forestry Commission
England
Hurn Biodiversity Audit Area
1:10,000
Map Produced by South England Forest District Planning Team April 2014
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Once again it is worth noting that nightjar territories did not seem to be significantly influenced by the visitor pressure experienced at Hurn, with birds nesting in proximity to some of the most well-used tracks.

Other common heathland species encountered during the SPA bird surveys:

Whilst surveying to within 100m of all available habitat for the SPA species, several other species were frequently encountered. The south of the Forest supports numerous stonechat territories, with males displaying from any available tree or bush. Meadow pipits were frequent throughout the Forest's heathlands and vegetated clearfells (where restocking was more than a few years old). Tree pipits were frequently observed at heathland edges and on clear-felled sites. Whilst not recorded this season, snipe are likely to have bred in the mires such as in cpt 2932c, 2926b, 2922b, and will of course also have been feeding in the floodplain meadows adjacent to the Moors River during the sometimes wet summer. There are also historic records of Jack snipe from Hurn Forest. Despite the potential for wheatear (Amber Status), none were recorded this survey season.

Other avian interests

Throughout the seasons, from Feb-Nov 2013, walkover surveys were conducted to record the presence of all bird species using the Forest. The full list is in Table 16.1 below:

Species	GPS Ref / CPT	Comments
Blackbird		Widespread.
Blackcap		Widespread where understorey / scrub
Blue Tit		More frequent at periphery - broadleaf.
Brambling		Low numbers in with other finches
Bullfinch		In scrub in NE of Forest
Carrion Crow		Present throughout.
Chaffinch		Widespread throughout woodlands
Chiff Chaff		Widespread
Coal Tit		Widespread throughout conifer
Common Buzzard	SU1113 0013	Nest - 1 young. See later further comments.
Cormorant		Flying over
Crossbill		Lower numbers than expected. One nest found.
Cuckoo		Calling on several visits
Dartford Warbler		See separate survey
Dunnock		Low numbers - scrub
Garden Warbler		Frequent where understorey / scrub
Goldcrest		Widespread across woodlands

Goldfinch		Flying over - winter
Great Spotted Woodpecker	2903 / 2913	Frequent - usually observed in broadleaf.
Great Tit		More frequent at periphery - broadleaf.
Green Woodpecker		Frequent & widespread
Greenfinch		Low numbers, around the periphery.
Grey Heron		Using the river corridor
Greylag Goose		Flying over
Hobby		Flying over - not hunting. Seen once
House Martin		Feeding / foraging
Jackdaw		Frequent
Jay		Widespread in low numbers
Kestrel		Male hunting on several occasions.
Lesser Spotted Woodpecker	SZ1142 9968	Nest. Wet woodland, mature broadleaf.
Linnet	CPT 2929	Flock roosting in gorse (winter)
Long Tailed Tit		Winter groups and summer pairs. Scrub.
Magpie		Widespread
Mallard		Flying over. Breeding along river.
Meadow Pipit		Widespread in open habitats
Mistle Thrush		Associated with paddocks
Nightjar		See separate survey
Nuthatch	2901 / 2940	Broadleaf nr car park and farm
Peregrine Falcon		Seen in summer
Pheasant		Breeding
Reed bunting	CPT 2928	Winter record near Barnsfield Heath
Reed warbler		Troublefield, beside Moors River
Redpoll (Common or Mealy)		Winter.
Redwing		In winter using fields and paddocks
Robin		Widespread
Rook		Recorded around periphery
Siskin		Widespread
Song Thrush		Wet woodland, paddocks
Sparrow Hawk		Repeatedly seen but no nest found
Stock Dove		Flying over
Stonechat		Widespread in open habitats
Swallow		Feeding / foraging
Swift		Feeding / foraging
Treecreeper		Widespread in low numbers
Tree Pipit		Frequent in open habitats and woodland edge.
Whitethroat	SZ1162 9971	Nest. Only bird found in Hurn.
Willow Warbler		Widespread.
Woodcock		Repeatedly flushed.
Woodlark		See separate survey
Wood Pigeon		Widespread
Wren		Widespread

Table 16.1: Birds recorded during surveys in 2013.

Discussion

Looking at Hurn at the macro scale, the Forest (including Sopley Common, Ramsdown and Town Common) represents a substantial area and corridor for birds to inhabit or move through from the coast. This combined with the corridors of the Moors and Avon river valleys, and wider forest areas such as the New Forest in the east, and the Avon Heath / West Moors / Ringwood Forest complex in the north, collectively provides a phenomenal resource for mobile species such as birds.

Looking more closely at Hurn Forest, the botanical work of Sanderson in 2007 has demonstrated the wide range of different vegetation communities present in the Forest, and alludes to the incredibly varied opportunities this would provide to birds and other taxa alike.

For the most part the bird species encountered represent common assemblages of mixed woodland and open scrub/woodland edge. The importance of these common species and their associated avian communities should not be understated, as the population status of bird species thought common in the UK can change rapidly.

Woodland birds

The woodlands vary greatly in structure, tree species composition, age, types of management, component understorey and soil moisture regime. This results in a range of habitats of varying suitability for individual bird species.

In addition to common warblers (chiffchaff, blackcap, garden warbler) recorded during the survey, at a scrubby edge of the woodland a breeding pair of whitethroat (Amber Status) was observed.

For common tits large numbers were recorded (blue, great, coal and long-tailed), although it was hoped that the wet woodlands in the north of the Forest might support marsh or willow tit (both Red Status species) although none were recorded this season (there is a marsh tit record from Merritown heath from 1990, and a willow tit record from Avon Heath Country Park from 2005). There is good potential for one or both of these species to be present in Hurn Forest in future seasons.

Good numbers of common finches were recorded (chaffinch, green finch) in the Forest during the breeding season. Crossbills were frequently recorded (albeit in lower numbers than expected) and a nest located. Bullfinch (Amber Status) was also recorded in woodland edge scrub in the north of the Forest. In winter the flocks of finches included brambling, goldfinch, linnet (Red Status), siskin and redpoll.

Strong populations of common thrushes and chats are present in Hurn {robin, blackbird, song thrush (Red Status), mistle thrush (Amber Status)}. In winter large flocks of thrushes were using the Forest and the adjacent fields to east and west, with the above species but also including fieldfare (Red Status) and redwing (Red Status).

All three species of woodpecker were recorded; greater spot usually restricted to the broadleaf areas near the Moors River whereas the green woodpecker (Amber Status) was recorded in a range of habitats. The nesting record of a lesser spotted woodpecker (Red Status) is notable, as the UK estimate of population is only 1000-2000 pairs (RSPB).

Common crossbill

Raptors

Despite varied habitats and prey for a range of species of raptor, only a few species were recorded in the Forest over the survey period.

Common buzzard

This species was observed on almost every survey visit to Hurn Forest. One nest was located in cpt 2930 at SU111 001 and one juvenile was observed here. In the south of the Forest, from underneath the flight path on two occasions an adult was seen carrying small rabbits across the river into broadleaf woodland near the industrial estate. Juveniles were calling and seen flying in NE of Forest, and again either side of the river near the industrial estate to the north-east of the airport.

Sparrowhawk

This species was seen on a number of occasions when surveying in the Forest but unfortunately no nest site could be located. Sparrowhawks favour nest sites with low levels of human disturbance, and prefer more dense areas of conifer crop. Some suitable crops (with low levels of disturbance) for nest sites include denser pine in cpt 2910, and near Fir Grove Farm at cpt 2918. On several occasions old kill sites were found, with the remains of wood pigeons evident.

Kestrel

Kestrels were seen numerous times during the survey season. This species will nest in holes as well as on ledges. In this context kestrels are likely to be nesting in holes in pine as well as mature broadleaf along the Moors River corridor.

Peregrine

A single record of peregrine was recorded whilst out surveying for Dartford warbler. The bird was flying low along the woodland/heathland edge in cpt 2928, close to the boundary with Barnsfield Heath. It briefly perched in an edge pine before flying off through the pine crop. Inland this species will utilise pylons and ledges on buildings on which to nest, and is likely to be breeding in the local landscape.

Hobby

Hobby was only seen once during the survey season, which is rather surprising. A relatively common raptor in summer in forests with open ground, the reason for only one recorded sighting is not easy to explain. This species is known to nest most years in a clump of pine on Sopley Common, and so it would be expected that Hurn Forest would be an important part of its hunting range.

Tawny owl

Tawny owls were occasionally recorded during the evening surveys for nightjar and bats, and from across the Forest. Whilst a nest site was not located, they are likely to be using holes in either / both conifer and broadleaf as nest locations.

Unfortunately the survey did not record any migrant raptor species, winter visitors or species exploring the edge of their range – species such as hen harrier, osprey, great grey shrike or red kite.

Common Buzzard

Future management considerations

Habitat management for many bird species is relatively well understood, with a beadth and depth of research to define their individual habitat requirements. With 112 different species recorded from the site in the last 40 years, and 61 species recorded during 2013, it is not possible to cover all of their niche requirements here. However, some general comments about suitability and availability can be made.

Of the SPA interests (Dartford warbler, nightjar and woodlark) Hurn Forest supports good heathland and clearfell/restock sites which suit nightjar well. As such these birds can be found throughout the Forest. For Dartford warbler, the inability of the poor soils to support good gorse growth is a limiting factor. The very limited resource of gorse means that Dartfords are forced to use alternative woody species for nesting, as well as for some foraging. Through future management, any additional provision of gorse or low woody scrub will almost certainly result in additional Dartford territories. For woodlark the lack of short, open mixed heather and grasses is seriously limiting the potential for nesting, although some habitat on recent re-stock sites did look suitable. In the absence of heavy grazing to create these conditions, an intense mowing regime could be considered although a suitable site would need to be found (absent of the ridge and furrow ploughlines).

Scrub species are present around the periphery of the Forest, and in particular in the north-east adjacent to the fields and paddocks. Scrub habitat could be promoted throughout the Forest along the network of rides and tracks, providing a transition in structures from conifer crop, broadleaf edge, scrub and down to heathland communities. In order to achieve this in some areas, the conifer crop would need to be moved further back from ride edges.

In the conifer crops, the majority of tree species present are not suited to continuous cover silviculture, and so thinning of the canopy is not going to generate different age classes (and therefore structural diversity) within the crop. However, varying the intensity of thinning within suitable stands can provide more dense areas of crop which can favour some raptors. Where windfirm (not likely to fall over once exposed to the elements), clumps of the tree crop may be retained when the majority is clear-felled, and these trees can then be allowed to grow on in to old, senescent trees with associated opportunities for wildlife.

17) Bats

Introduction

Ecological Consultancy Services Ltd (ECS) was appointed by HPC to undertake bat surveys of Hurn Forest. ECS conducted three capture surveys and two transect routes over a total of four evenings between May-September 2013. A total of seven bat species were confirmed to be present including a single male of the rare species of Bechstein's bat *Myotis bechsteinii*. This chapter presents the methodology and results of these surveys. An overview is given of the value of the habitats present within the site for bats together with some observations on how future management could improve habitats for foraging and roosting.

Survey Methodology

Survey & Reporting Standards

Surveys & assessments were undertaken with reference to Bat Conservation Trust[1] (BCT) and Natural England survey and mitigation guidelines[2] and conform to the Chartered Institute of Ecology & Environmental Management (CIEEM) assessment and reporting standards[3]. For more information see original report in Appendix 4.

Desktop Research

A data search of bat records from within 2km of the site was commissioned from Dorset Environmental Records Centre (DERC) by SW Environmental in spring 2013.

Visual Assessment of the Site

The site was visited on 6 April 2013 by Colleen Hope of ECS. The majority of tracks and paths were walked noting key changes in habitats from coniferous to deciduous woodland, healthland and pasture fields/riparian habitats. The site visit and Forestry Commission Stock Maps were used to design two transect routes for subsequent detector surveys. These aimed to encompass as much of each habitat type as possible including potential foraging areas and commuting routes whilst gaining coverage across most of the site. Each transect route was designed to take 90-120 minutes.

Time did not permit a detailed assessment of trees for potential roost sites.

Evening Transect Surveys

Two experienced ECS surveyors[4] walked two transect routes on 28 June 2013. These are referred to as the north and south transects and are identified on **Map 35**. Surveyors waited at the start of the transect route from sunset for 20 minutes before commencing the walk. Each survey continued for 2 hours. Both surveyors used a Petterson D240x time expansion detector and Edirol R09 recorder.

1 Bat Surveys, Good Practice Guidelines, BCT (2012)

2 Bat Workers Manual (2004), Bat Mitigation Guidelines, (2004) both published by Natural England (formerly English Nature)

3 IEEM Guidelines for Ecological Impact Assessment in the United Kingdom (June 2006).

4 *Colleen Hope & Paul Hope. Colleen was accompanied by Simon Weymouth.*

Any time expansion calls needing subsequent analysis were assessed using Batsound V3 software. Surveyors noted the species and activity of bats they saw and heard.

Capture Surveys

Capture surveys were conducted on 16 May, 15 August and 2 September 2013 by the same surveyors[5]. Mist nets (2.6-12m x 2.6m Avinet bat nets) were set across tracks and rides to capture commuting bats. A two bank harp trap (2.4 x 1.8 m Austbat) was used. An acoustic lure[6] (Sussex AutoBat and/or Petterson D1000x) was used an hour after sunset to attract bats into more cluttered areas of vegetation.

Capture sites were focussed in two areas at the south and west of the site. These included an area of former water meadows and woodland edge (capture site 1) and an area of coniferous woodland (capture site 2). Nets were set in two locations within each site. Between 8 & 9 nets and one harp trap were erected on each survey evening. Surveys avoided the peak maternity season (June/July) to avoid stressing pregnant or lactating bats. The two capture sites are shown on **Map 35**.

Time of capture, species, sex, sexual status, weight and forearm measurements were recorded for each bat. Tragus width and thumb length were recorded for long-eared bats (an aid to the separation of brown and grey long-eared bat species). All bats were released at the place of capture.

The use of mist nets, harp trap and acoustic lure were under licence WML CL19 & WML CL20 (levels 3 & 48) registration number CL502415.

Although the surveys focussed on capturing bats, surveyors also made informal records of any bats heard on detectors. These results are shown on **Maps 36 & 37.**

Survey Limitations and Precautionary Approach to Evaluation

Bat detectors have limited ranges. The calls from some species such as pipistrelle, noctule *Nyctalus noctula* and serotine *Eptesicus serotinus* bats are more likely to be heard than quieter species such as long-eared bats and those in the genus *myotis.*

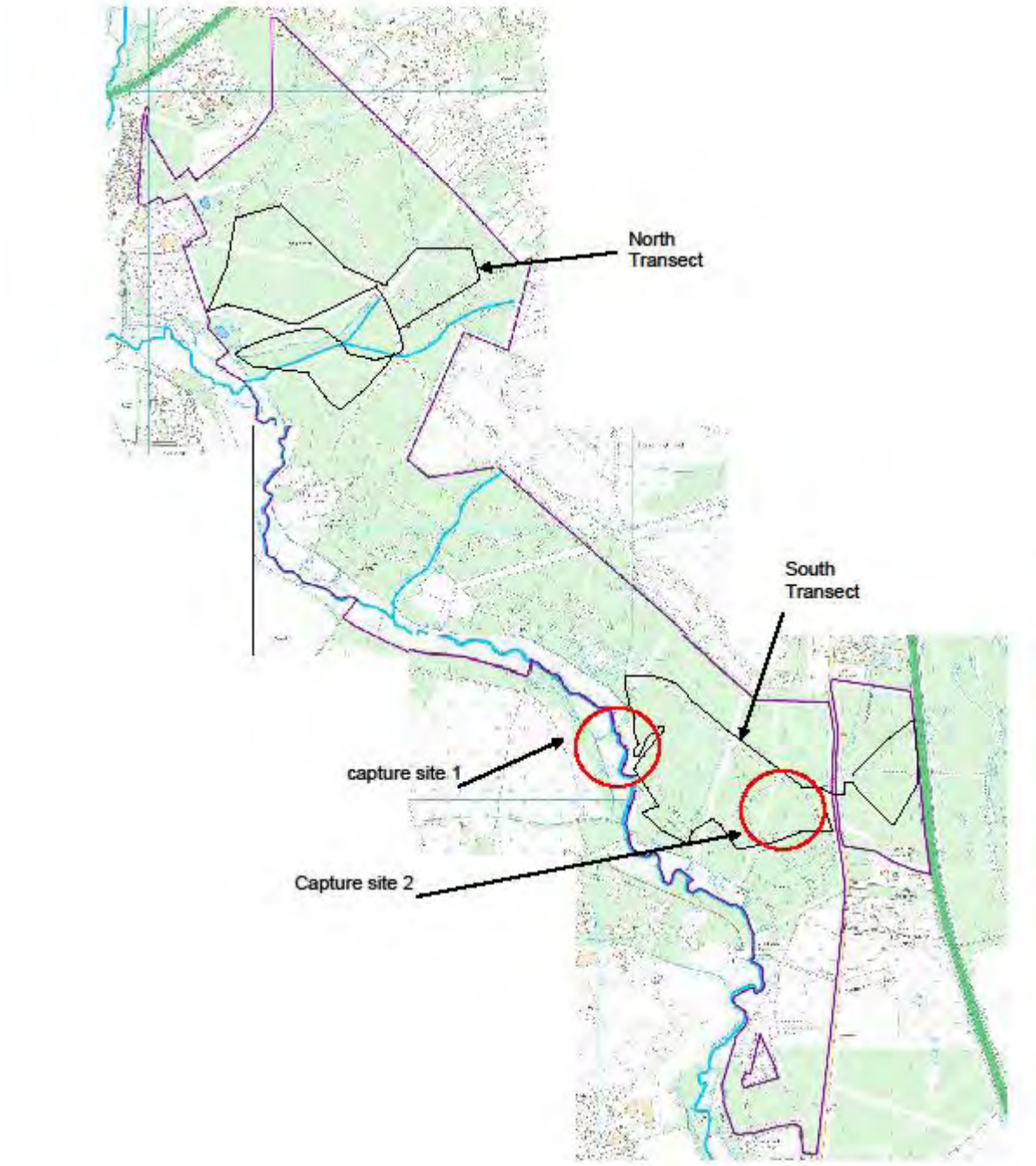
The first capture evening was unseasonably cold which almost certainly influenced the very low bat activity levels.

Bats move roosts and frequently alter foraging areas according to a number of factors including time of year, weather, seasonal availability of food sources and temperatures. Each survey should therefore be seen a 'snap shot' in time.

Signs of bat roosting are rarely present outside a tree roost entrance. Resources did not permit a detailed assessment of trees for potential roost features.

[5] Accompanied by Simon Weymouth or Jay Doyle [6] Playing pre-recorded or digitally processed bat social calls through ultrasound speakers to attract bats towards nets/harp trap this permits the capture of bats using these methods up to three times in any one year per site without the need for a specific project licence.

Map 35 *To show key features of the site and locations of the transects and capture sites*



Survey Results

Data Search

DERC held a number of records for the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, unidentified pipistrelle *Pipistrellus sp*., long-eared bat *Plecotus sp*., brown long-eared bat *Plecotus auritus*, noctule, serotine, Daubenton's bat *Myotis daubentonii*, unidienfied myotis sp. '*myotis sp*.' and simply 'unidentified bats'. Roost sites were recorded for both common and soprano pipistrelle, brown long-eared bats. No records were held for Bechstein's bat and no roost records were held for serotine bat.

Evening Transect Surveys

28 June 2013 (sunset 21.24)

North Transect

Three species were encountered. Common and soprano pipistrelle bats were heard commuting and foraging throughout the area with bats focusing along tracks and rides. Four serotine bat passes were heard in two areas in the centre and southern part of the transect.

South Transect

A greater diversity of species was encountered in the southern transect with six,possibly seven species recorded. Common and soprano pipistrelle bats were heard throughout the survey area with serotine bats focused more towards the southern end. A noctule bat pass was also heard. Bats in the genus myotis including one Daubenton's *Myotis daubentonii* bat were heard at the far western end of the transect near the Moors River and meadows. Two other '*myotis*' recordings were made, one with a broadband call which may have been a Natterer's bat *Myotis nattereri,* the other with a narrowband call. A small number of long-eared bat passes were also heard within the area.

Four small bats were seen at the beginning of the transect near the Matchams Lane car park between 21.37 and 21.45. Their size suggested that the species could only be pipistrelle, small *myotis* species or lesser horseshoe *Rhinolphus hipposideros* bats. All of these species emerge relatively early in the evening. The slow agile flight around low vegetation suggested that they were not pipistrelle bats. Their early arrival suggests that they were roosting nearby. Recordings could not be made as the bats were not echolocating.

Capture Surveys

16 May 2013

Seven mist nets and a harp trap were set at capture site 1 in the field east of the river and the adjacent woodland edge. Bat activity levels were extremely low with only a few common and soprano pipistrelle bat passes heard and no bats captured. The temperatures

dropped quickly which no doubt curtailed activity. The following days were also cold after a brief warm spell in an otherwise wet spring.

Table 17.1 Results of Capture Survey 16 May 2013

Mist net survey Hurn (16.05.2013)								
Sunset: 20.51	**Temp:** 9.7-7.1	**Cloud:** 10	**Wind:** 0					
End: 00.00	**Surveyors:** Colleen Hope, Paul Hope, Simon Weymouth							
Time	**Species**	**Sex**	**Status**	**F/Arm**	**Weight (g)**	**Thumb**	**Tragus**	**Other**
No bats captured								

During the surveys a noctule was seen and heard foraging above the field shortly after sunset (21.10) suggesting it may have been roosting nearby. Between one and two common and soprano pipistrelle bats foraged over the field and adjacent woodland edge throughout the survey period.

15 August 2013

Eight mist nets and a harp trap were set near the Matchams Lane car park towards the south of the site at capture site 2. Two adjacent locations were chosen which included the area where four non echolocating bats had been seen during the transect survey. These bats were not encountered during this August survey. Four species were captured including a juvenile noctule, two serotine, two brown long-eared and one juvenile Natterer's bats. One of the serotine as well as both brown long-eared bats were parous (breeding) females. The serotines were heard early in the evening suggesting they were roosting very nearby, almost certainly in a building. Brown long-eared bats have a small range normally within 1km of their roost sites and so this species is also likely to have been roosting nearby.

A soprano pipistrelle bat was heard shortly after sunset at 20.20 which must have been roosting nearby. Other than the species captured no other bats were heard.

Table 17.2 Results of Capture Survey 15 August 2013

Mist net survey Hurn (15.08.2013)								
Sunset: 20.26	**Temp:** 19-17.8	**Cloud:** 0	**Wind:** 0					
End: 23.30	**Surveyors:** Colleen Hope, Paul Hope, Simon Weymouth							
Time	**Species**	**Sex**	**Status**	**F/Arm**	**Weight (g)**	**Thumb**	**Tragus**	**Other**
21.15	Nn	m	juvenile	52.4	28			

22.30	Mn	m	adult	39	9			
21.00	BLE	f	P	37.1	8	7.4	5.1	
21.00	BLE	f	P			5.1	6.4	
21.40	ES	f	P	51.3	22			
21.40	ES	m	adult	54.5	20.5			

Species code: Pa = *Plecotus auritus,* W/B = *Myotis brandtii/ mystacinus,* Pip = *Pipistrellus sp,*

Mn= Myotis nattereri, Mbec= Myotis Bechsteinii, ES=Eptesicus serotinus, Nn=Nyctalus noctula

Status code: p= parous, np= nulliparous, lac= lactating, a = Adult, j =juvenile

2 September 2013

Seven mist nets and a harp trap were set at capture site 1. Again activity levels were low with only a few common and soprano pipistrelle bat passes heard. A single adult male Bechstein's bat was captured at 21.35 along the woodland edge part of the site (see **Photo 1**). The only other bats encountered throughout the evening were a single or small number of common pipistrelle and one long-eared bat.

Table 17.3: Results of Capture Survey 2 September 2013

Mist net survey Hurn (02.09.2013)								
Sunset:	19.50	**Temp:**	16.3-11.2	**Cloud:**	10	**Wind:**	0	
End:	23.00	**Surveyors:**	Colleen Hope, Paul Hope, Jay Doyle					
Time	**Species**	**Sex**	**Status**	**F/Arm**	**Weight (g)**	**Thumb**	**Tragus**	**Other**
21.35	Mbec	m	adult	41.1	9.5			
Species code: Pa = Plecotus auritus, W/B = Myotis brandtii/ mystacinus, Pip = Pipistrellus sp,								
Mn= Myotis nattereri, Mbec= Myotis Bechsteinii, ES=Eptesicus serotinus, Nn=Nyctalus noctula								
Status code: p= parous, np= nulliparous, lac= lactating, a = Adult, j =juvenile								

Photo 1 Bechstein's bat caught in September 2013.

Evaluation

Species Accounts

Table 4 below shows the status and distribution of the bat species encountered at Hurn.

Table 4 *To Show Status and Distribution of Bats in the UK (combined data from [1]JNCC & [2]IUCN).*

Common name	Scientific name	Status JNCC	Distribution JNCC	Status and population trend IUCN
Common Pipistrelle	*Pipistrellus pipistrellus*	common	widespread	LC stable
Soprano Pipistrelle	*Pipistrellus pygmaeus*	common	widespread	LC unknown
Brown Long eared bat	*Plecotus auritus*	common	widespread	LC stable
Daubenton's bat	*Myotis daubentonii*	common	widespread	LC unknown
Natterer's bat	*Myotis nattererri*	frequent	widespread	LC stable
Noctule bat	*Nyctalus noctula*	frequent	frequent	LC unknown
Serotine bat	*Eptesicus serotinus*	frequent	restricted	LC unknown
Bechstein's bat	*Myotis bechsteinii*	rare	restricted	NT decreasing

NT not threatened LC least concern

Annex 3 provides details of the basic ecology and habitat preferences of each of the bat species recorded at Hurn.

Key to Maps 3a & 3b

Pp common pipistrelle

Ps soprano pipistrelle

ES serotine

Nn noctule

M myotis sp.

Md Daubenton's

Mn Natterer's

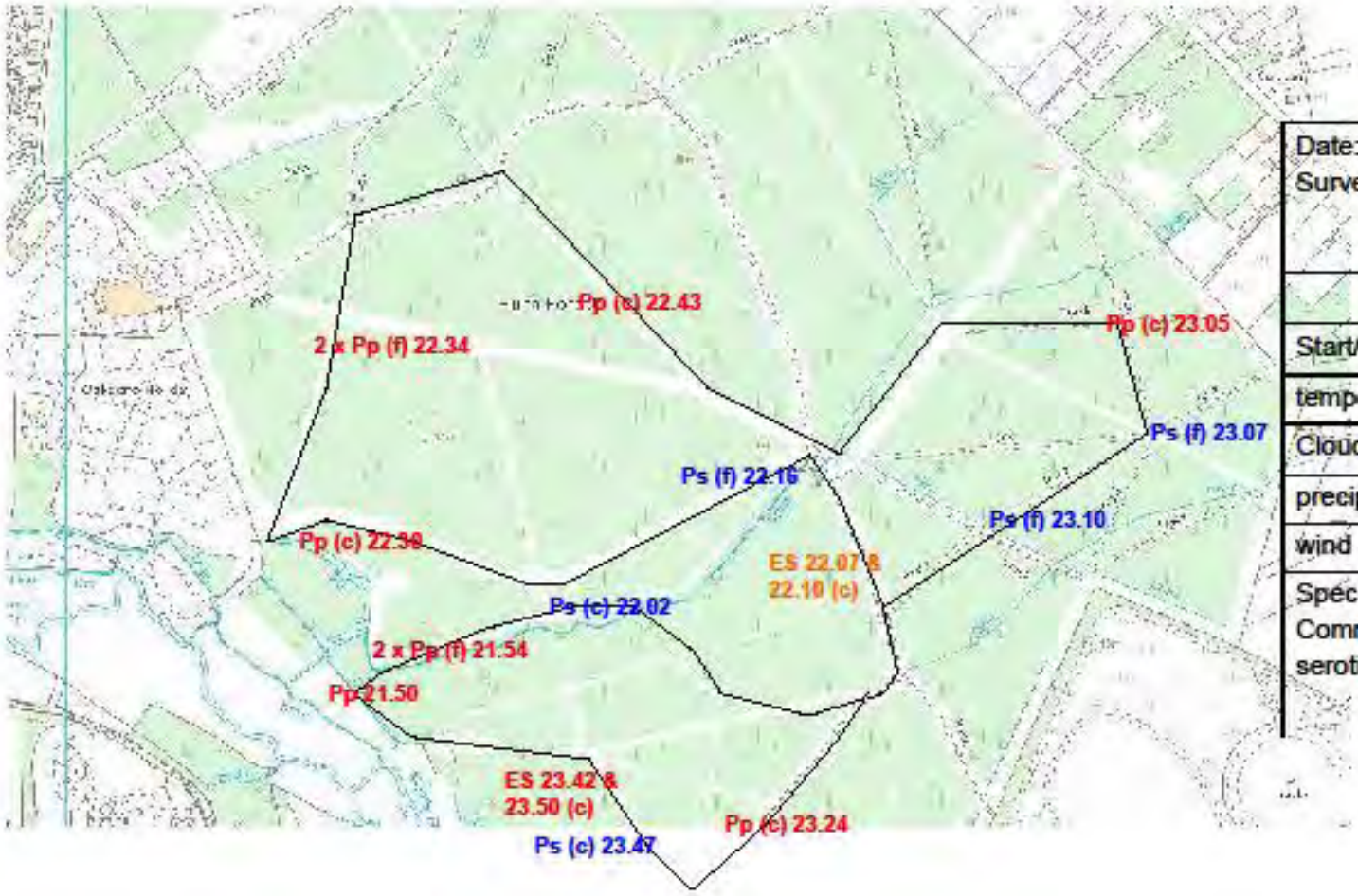
Unid unidentified bat (seen not heard)

LE long eared

[1] *JNCC Habitat Management for Bats (2000)*

[2] *IUCN Red data list of threatened species (2008)*

Map 36 *Results of North Transect 28/6/2013*

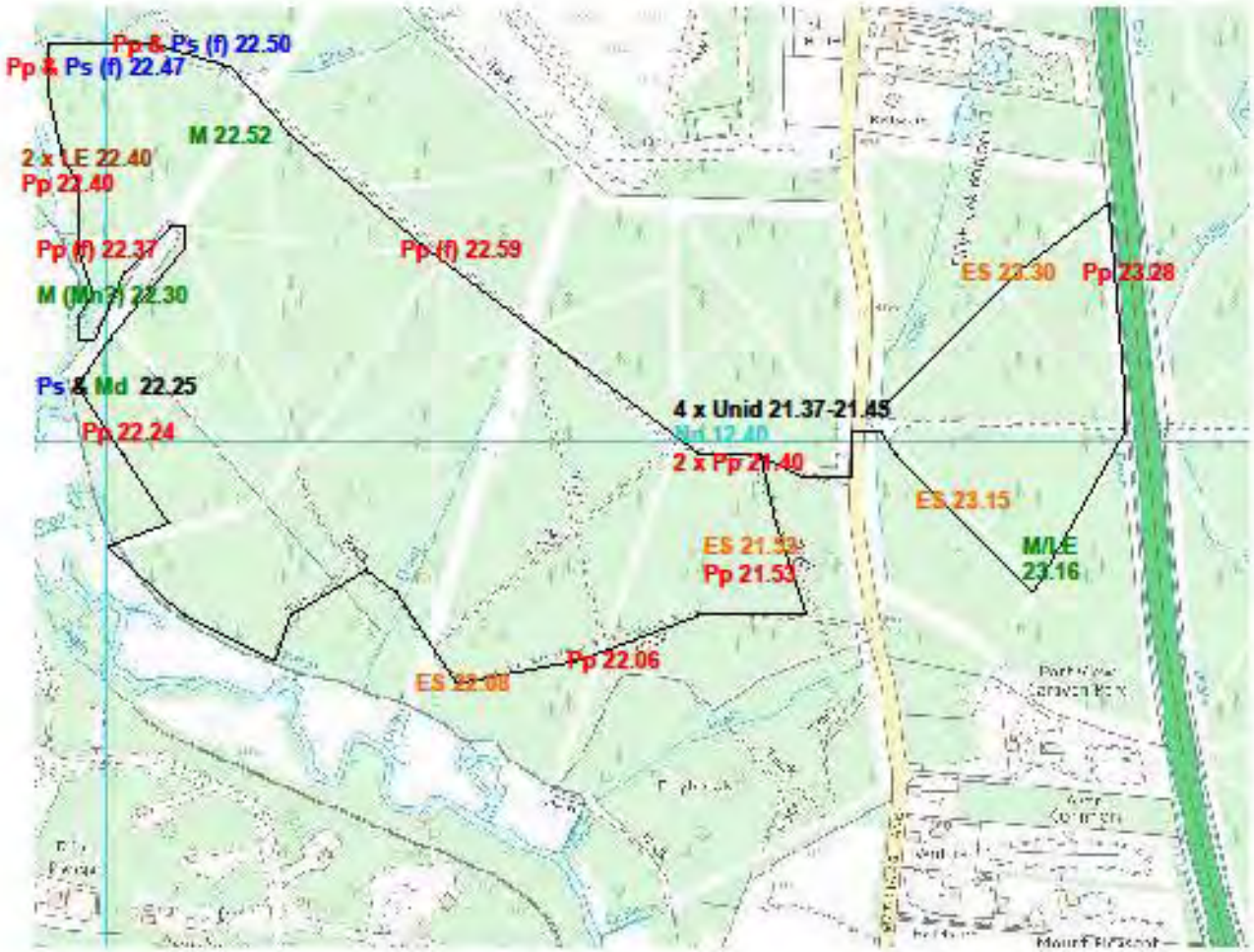


Date: 28/6/2013 Sunset time: 21.20
Surveyor/s: Paul Hope

	start	end
Start/end time	21.41	23.25
temperature	16.4C	16.4C
Cloud cover %	100	100
precipitation	0	0
wind	1	1

Species encountered:
Common pipistrelle, soprano pipistrelle, serotine

Map 37 *Results of South Transect 28/6/2013*



Date: 28/6/2013 Sunset time: 21.20 Surveyor/s: Colleen Hope/Simon Weymouth		
	start	end
Start/end time	21.40	23.40
temperature	17C	17C
Cloud cover %	100	100
precipitation	0	0
wind	0	0
Species encountered: Common pipistrelle, soprano pipistrelle, serotine, noctule, myotis sp, Daubenton's, long-eared, unidentified bat sp.		

General Site Evaluation

Overview of Habitats

The majority of the woodland in the site is coniferous plantation. Much of this is of a similar age and there are large tracts of woodland where tree cover has suppressed the shrub (field) and ground layers. This has resulted in a homogenous habitat with limited species or structural diversity. In turn this limits the diversity and numbers of invertebrates (upon which bats feed). The bat species which are associated with open areas and edge habitats such as noctule, serotine, Leisler's Nyctalus leislerii and pipistrelle bats are more likely to utilise the wide woodland rides and track as well as the woodland/heathland edge and open habitats. Not surprisingly noctule, serotine and pipistrelle bats were all common and reasonably widespread during the surveys.

Species such as long-eared, horseshoe bats and those in the genus *myotis* are strongly associated with more dense woodland habitats where they are able to fly amongst vegetation and in some cases 'glean' insects off the leaves. These species thrive best in deciduous or mixed woodland particularly where a dense and diverse understorey shrub layer is present. These habitats are lacking at Hurn Forest; they are limited to the edges (particularly the western edge near the Moors River) and a few wetter areas where streams run across the site. It is probably no coincidence that the greatest diversity of bats captured and heard during the surveys were in the areas with more diverse and dense shrub layer.

Foraging Habitats & Commuting Routes

There were no particularly well defined foraging areas identified during the transects. Pipistrelle bats tended to utilise all suitable areas but were not found in any areas in great densities. This probably reflects the homogeneous habitat which does not provide focal sites for invertebrates.

Surprisingly the activity levels were also relatively low along the water's edge. This was evident not only during the transects but also during the capture surveys.

Three to four serotine bats foraged north and south of the car park near Matchams Lane for most of the survey period in August. Serotine bats were heard on both transects. The early registrations for this species at capture site 1, parous female caught in August and early registrations at the beginning of the south transect strongly suggest that a maternity roost was present nearby, possibly within 0.5km of Matchams car park. The activity and results of the capture surveys suggest that there is also a maternity brown long-eared bat roost nearby.

Pipistrelle and serotine bats commuted along woodland rides and tracks to some extent but no clearly defined commuting routes were identified. This is probably a reflection of the relatively small number of individual bats using the site. It should also be noted that due to the quiet echolocation call of long-eared bats, their commuting routes are harder to detect.

Assessment of Specific Habitat Types

Coniferous Woodland, Tracks & Rides

This is the dominant habitat within the site with Scott's pine *Pinus sylvestris* & Corsican pine *Pinus nigra spp*. the most commonly occurring species. As already noted, its even age and structure result in limited foraging opportunities for bats (see **Photo 2**). The tracks and rides are used by commuting pipistrelle and serotine bats moving between foraging areas. They are also used by these 'edge habitat' specialists as foraging sites in themselves. The most valuable tracks and rides are those where light has reached and stimulated growth in the field layer resulting in small shrubs and bushes which in turn support invertebrates (see **Photo 3** shows a more diverse edge to one of the rides (although this could be improved further). Wetter areas also support more invertebrates (for example the area immediately north of capture site 1).

More mature trees with signs of damage such as split or twisted trunks, limbs, areas of rot or flaking bark provide potential roost sites for bats. Cavities accessed by woodpeckers also provide roost sites for bats. All of these features are limited in Hurn Forest.

Photograph 2: Homogenous stand with little structure along ride edges

Photograph 3: This ride has a more diverse edge with heather in the ground layer. It could still be improved by selective thinning and possibly planting a shrub layer.

Deciduous woodland

This habitat is fairly limited in Hurn Forest. Although some planted mixed woodland is present deciduous trees are mainly focused around the edges of the coniferous woodland stands where trees have self sown (see **Photo 4**). These trees still tend to be quite young and so although providing more structural diversity there are few trees which are mature enough to support roost features. Deciduous trees are also more prevalent along the sides of the watercourses (e.g. silver birch *Betula pendula* and willow *Salix sp*.), some of which traverse the site. These areas are potentially valuable bat foraging habitats in the context of the more homogenous coniferous woodland.

Moors River & Adjacent Meadows

Although there is more structural diversity and there are wetter conditions along this western perimeter (see **Photo 5**) the bat activity levels recorded during the capture surveys and transects were surprisingly low. This may not be easily explained (although one of the evenings was unseasonably cold). A large part of the area to the west of the river corridor is open and dominated by the airport. This lack of habitat may play a role in reducing activity in the area adjacent to it.

Photograph 4: Woodland edge at capture site 1. Location of captured Bechstein's bat

Photograph 5: Wetter habitat along field edge adjacent to Moors River at west of site.

Heathland

Bats were recorded over the more open areas of heathland although this was limited to pipistrelle and serotine bats. Few recordings were made of noctule bats suggesting that a significant roost was not present nearby when the surveys were conducted. Noctule bats favour more open areas for foraging and heathlands provide good numbers of invertebrates.

Although the open nature of the heathland may not suit many species of bats it may be an important source of invertebrate food which then migrates to the woodland/healthland edges where it becomes more available.

Photograph 6: Heathland edge with open area in the background at Hurn Forest.

Recommendations

Habitat Diversity

A long-term approach should be taken to diversify the age structure of some of the trees by selective thinning/felling. Any new planting should be of deciduous trees with the aim of increasing not only the diversity of the standard trees but that of the under storey species.
Some individual trees may be selected for ring barking[11]. This eventually kills the tree and provides standing deadwood habitats which encourage a diversity of invertebrates (particularly beetles). It may also attract woodpeckers which create holes which bats may use to access cavity roost sites. Flaking bark may also be used by bats as a roost sites.

[11] *Ring barked trees will eventually die and become unstable. They should be sited away from areas used by the public*

Tracks and Rides

Many of the tracks and rides are straight in plan view with abrupt vertical sides showing little structural diversity. A varied 'edge' habitat is valuable for bats and should be encouraged by creating meanders and bends in tracks and rides where possible. This not only effectively increases the total length of the 'edge habitat' but prevents the track/ride acting as a wind tunnel. The structure of the tracks and rides should be diversified by cutting back some of the edge trees and encouraging or planting a field layer. This will encourage light and in turn more vegetation and invertebrates and consequently food for bats.

Photograph 7: More varied structure to track edge (Fox Hunting Inclosure New Forest) with bracken and bramble grading into holly and yew with standard trees (beech, pine and fir)

Glades

Glades mimic areas around fallen veteran trees which in the past would have been a natural dynamic of the woodland ecosystem. There are few glades within any of the woodland blocks at Hurn Forest. Creating glades is another means of increasing 'edge habitat' and species/structural diversity within woodland blocks. A series of glades should be created in the homogenous woodland stands at Hurn Forest. Ideally a woodland management plan should show how these will eventually be linked to one another through subsequent selective thinning or felling.

Water bodies

The wetter areas are valuable as they provide a greater diversity in both the canopy and field layers. Many invertebrates also require water to breed. Any opportunities to create

new ponds should be taken. Networks of smaller ponds are generally more valuable for species than single large bodies of open water.

Bat Boxes

Artificial roost sites can be created using bat boxes. Hurn Forest offers comparatively few potential roost sites in trees and so these could offer a valuable conservation method for habitat creation.

Community Involvement

Dorset Bat Group should be approached and their members encouraged to get involved in the proposals. Most bat groups will be able to monitor sites e.g. checking bat boxes and giving guided walks for the public. They rely on volunteers and so a small contribution may be offered to cover expenses. Help promoting public walks is also normally appreciated.

Figure 17.1 *To illustrate positive woodland management principles in coniferous woodland (extract from JNCC, Habitat Management for Bats (2001)*

Conclusions

Seven bat species have been recorded within Hurn Forest during surveys in 2013. Most of these are common and nationally or locally widespread species adapted for open or 'edge' habitats. The woodland habitats available within the site are rather homogeneous in structure with low plant species diversity. A large proportion of the site is open healthand. This results in a landscape which is dominated by open and edge habitats. Potential roosting sites in trees on the site are limited.

Notwithstanding this, a male Bechstein's bat was captured along one of the more diverse woodland edges and breeding brown long-eared (and serotine) bats are apparently foraging in the more diverse woodland habitat towards the south of the site.

There are good opportunities for improving the tree/shrub species and structural diversity of the site without undertaking major woodland management works. By altering the nature of rides and tracks and creating glades the number and diversity of invertebrates will increase which will in turn benefit bats. Bat boxes could also be erected to provide new roosting sites.

The recommendations made in this report will benefit a range of other species such as birds, small mammals (including dormice if present), reptiles and amphibians. The increased biodiversity and the more varied visual experience will also enhance the site for the local community as well as visiting public. This in turn could have the added advantage of reducing pressure from some of the more sensitive sites such as the adjacent New Forest and Dorset Heaths.

18) Remaining gaps in knowledge

Inevitably with a study such as this, the available resources are deployed to where they will achieve maximum gain. And as such a huge amount has been discovered about Hurn Forest. However, there is certainly capacity to improve on this understanding of the wildlife of the Forest.

Due to time and resources, some taxa / species groups were not considered as part of this Biodiversity Audit:

- Molluscs
- Amphibia
- Fish
- Mammals (aside from Bats)

There are good records for mammals in the Forest and up the Moors River corridor. The only remaining unknown is whether dormice are present in the Forest – it is quite likely that they are. No further survey of fish is really required for Hurn Forest as there is good existing data and the river channel is not strictly in the study area. The understanding of amphibian is not comprehensive, but is based on many years of anecdotal survey by David Tamarind. Molluscs, however, are seriously under-recorded in the Forest (only 4 species!) and this could easily be remedied through survey.

The Audit is a snap-shot of what could be found in a survey season. With further survey effort it is certain that numerous additional new species for Hurn Forest would be discovered. The most likely taxa to yield new species for the site include lichens and bryophytes, fungi, invertebrates including moths and as previously discussed, Molluscs. The potential presence of dormice could also be investigated, and further research through radio-tracking could better inform our understanding of how bats are using this Forest.

19) Habitat management considerations

Strategic challenges to maintain and enhance biodiversity

It is not the purpose of this Biodiversity Audit for Hurn Forest to address fundamental questions about space for wildlife in the landscape of East Dorset. However, the Audit can provide information which can be used to fuel practical delivery of the Forest Design Plan and the Green Infrastructure Plan.

Taking in to account such factors as climate change, recreational pressure and renewable products, these documents set out the policy and the practical measures by which to deliver them. Terms such as 'wildlife corridors' and 'networks for resilience' are well-meaning, but often do not consider the requirements (autecology) of the species. And at a fundamental level, there needs to be an understanding of which species are present.

For the first time the Biodiversity Audit sets out the species associated with Hurn Forest, and starts to piece together the collective value of this wildlife resource in the landscape. From this, decision-making can be better informed, and allow greater understanding of the options for managing the local landscape over time.

Current Management

In each chapter the speciliast surveyor has made management suggestions that will benefit their respective species interests. As part of this they have made observations about the current condition of habitats, as well as prescriptions for consideration in future management.

For the most part, the observations relating to current condition of habitats are positive. A huge number of species have been recorded and the challenge for the Forestry Commission will be to maintain and enhance habitat suitability for these species.

Almost all of the open habitat present in Hurn Forest is dry heathland or parched acid grassland. These habitats are regarded to be in good condition for a range of interests, as has been assessed through Natural England condition assessment and the specialist surveyors who have contributed to this report. As such the current management regimes are having a positive effect for many species. Through actions such as cutting, burning, scraping, localised rabbit grazing, and in some places doing nothing, the age and structure of the heathland vegetation communities continues to provide varied opportunities for heathland fauna.

There is a broad network of these habitats across the Forest alongside tracks and rides, and links the various areas of permanent open heathland habitats with the more ephemeral

early successional and mid-aged vegetation communities associated with clear-felling and replanting of conifers. The network of habitats alongside these rides and tracks allows opportunities for movement and colonisation by more mobile species across the site, and the management of these corridors is therefore is integral to the success of future colonisation of newly clear-felled areas.

Where habitats are considered to be in decline for specific species interests, these are broadly associated either with colonisation (or shading) of open habitats by trees, or the loss of open vegetation structure due (in part) to the loss of grazing.

To maintain species diversity there is no single management prescription for each habitat present. With each management intervention (including 'do nothing') there will be species which will prosper, and others which will suffer. Whilst this may be an obvious statement, it is necessary to include it here. Expanding upon this, it must also be acknowledged that the effect of 'habitat management' on individual species will be both spatial and temporal. This is touched on further in subsequent paragraphs using the debate around livestock grazing as an example, but the principles apply to all habitats and any management intervention.

Shading and colonisation by trees on open habitats

For tree crops this is readily resolved, at a strategic level through the Forest Design Plan, and on the ground through consideration of scalloping the woodland edge. This is ongoing work between the Forester and the Wildlife Ranger, striking a balance across the varied objectives in Hurn Forest.

Where young trees are colonising open heathland it is often simply a question of resources. If there is a volunteer group / staff time available, this can be addressed.

Where mires have been colonised by woodland in the last 30-50 years, there has been a loss of some species. However, there have been gains for wet woodland interests, and this would continue to develop as it moves towards mature bog woodland. At present the Forest Design Plan does not prescribe the restoration of mire from wet woodland, but if it did so then the associated mires would almost certainly require livestock grazing if the restoration was to successfully restore botanical interests.

Introduction of livestock grazing to manage habitat condition

The positive and negative effects of livestock grazing on heathland habitats have been considered in a number of publications, and this report does not intend to recite the various

facets of this ongoing debate between the various ecologists and conservation managers. Instead the reader is referred to such publications as:

Impacts of livestock grazing on lowland heath in the UK, Lake, S., Bullock, J.M., Hartley, S. (English Nature Research Report No 422, Peterborough, 2001)

Conservation grazing on lowland heaths, Lake, S & Underhill-Day, J (RSPB, Sandy, 2004)

A practical guide to the restoration and management of lowland heathland, Symes, N and Day, J (RSPB, Sandy, 2003)

Grazing heathland: a guide to impact assessment for insects and reptiles, Offer D., Edwards M. & Edgar P (English Nature Research Report No 497, Peterborough, 2003)

Impacts of grazing on lowland heathland in north-west Europe. Newton, A.C., Stewart, G.B., Myers, G., Diaz, A., Lake, S., Bullock, J.M., Pullin, A.S. (Biological Conservation 142**:** 935-947, 2009)

An assessment of the impact of conservation grazing on reptile populations. Jofré, G.M. & Reading, C.J. (Amphibian & Reptile Conservation Research Report 12/01 2012)

In summary, the scientific community continues to make strides towards more fully understanding the nature of the effects of livestock grazing on heathlands. The autecology of 'key' species continues to be unveiled in an effort to fully understand habitat requirements and therefore the density, timing and types of livestock grazing that may assist in developing or maintaining these habitat requirements.

However, as has already been stated, there will always be winners and losers. This will be true whether heathland habitats are unmanaged, or managed through a range of techniques including cutting, burning, scraping and grazing. Inherent in the application of any management technique is that there will be effects – positive, benign or negative, depending on the species in question.

With respect to grazing, whilst livestock will create spatial diversity in a stand of vegetation (favouring some areas preferentially over others), it is debated as to whether structural diversity of vegetation is enhanced or degraded (as it depends on the floral or faunal interest considered). Changes in vegetation structure have knock-on effects on niche micro-habitats and aligned opportunities for individual species to complete their life-cycles, and subsequently their associated relationships in the food-chain. Many of these effects are still not known. That said, a body of evidence continues to be developed to demonstrate the effects of grazing on a wide range of target species (plants, invertebrates, Lepidoptera, reptiles, birds, small mammals). Some of this research could be applied to Hurn Forest to help to inform the future management of heathland habitats, but in order to do so there would need to be a prioritised list of the species to be favoured (in preference managed for) on this site.

Other management recommendations

The various surveyors make a number of other habitat management recommendations (aside from tree encroachment and grazing), most of which are broadly complimentary to one another. Not all can necessarily be achieved but do provide some suggested vegetation management outcomes to strive for. Below is a summary by broad habitat types:

Rides and tracks

- Ensure cutting/mowing regimes are not too intense. Consider longer rotations and only treating a proportion of the linear feature in anyone year.
- Allow space between the tree crop and the ride surface for heathland but also scrub habitats to develop.
- Manage to avoid the dominance of *Molinia* and bracken.

Heathland/grassland

- Maintain and enhance the age structure by a range of means (mow, forage harvest, small controlled burns).
- Increase the provision of bare sand through scrapes. It is suggest both to consider refreshing old scrapes (not favoured by entomologists) as well as creating now ones.
- Where soils allow, promote the development of gorse scrub.
- Balance the interests of woodland edge microclimate with shading of heathland

Within woodlands

- Retain deadwood.
- Where crops allow, try to develop and element of understorey.
- Create glades through irregular thinning. Create glades around ponds in wet woodland
- Allow clumps of trees to be left when the rest of the compartment is clear-felled, aiding the development of old trees.

- Consider not clearfelling one or two compartments, instead just thinning them in to old age.
- Coppice aspen to maintain a range of age-classes.

Woodland edge

- Allow the development of a range of habitats between the edge of the crop and the rdie/track.
- Plant broadleaf trees.
- Allow scrub development
- Maitain and enhance these important heathland corridors
- Balance the interests of heathlands (impact of shading) with benefits of woodland edge microclimate
- Secure resources to eradicate *Gaultheria.*

Water

- Consider opportunities to create series of small ponds.

Examples of recent broadleaf planting along the edge of conifer crops in Hurn Forest

20) Conclusion

This Biodiversity Audit set out to:

- Review and analyse the existing species records
- Undertake ecological surveys for key species
- Provide a central reference document.

In response to this:

- More than 26000 historic records were reviewed and analysed
- A total of 14 surveyors were involved in collecting new species records
- Several months of survey time invested (night and day)
- 1414 species recorded in Hurn Forest over this period
- 668 new species recorded in Hurn Forest
- This report and the varied appendices provide a repository for this information.

Appendix 2 sets out all of the records for Hurn Forest and the 1 kilometre buffer around the site. This data is also summarised in Table 1.1 (repeated over the page). Collectively, this represents the most comprehensive understanding of the wildlife of Hurn Forest to date.

New species have been found for the site, for the Vice-County, Dorset County and, in respect to fungi, potentially a new species for the UK (currently awaiting DNA testing). The Audit has discovered both common and notable species alike, and has demonstrated the high ecological value of this intimate mix of habitats across Hurn Forest.

Table 1.1: Summary of new finds

Species Group	DERC DATA Number of species in Hurn Forest study area	DERC DATA Number of species in 1km buffer around Hurn Forest	Number of species recorded in Hurn Forest study area (2013 surveys)	Number of <u>new</u> species recorded in Hurn Forest study area (2013 surveys)	Of these new species, how many were not previously recorded from buffer area	Total number of species recorded in Hurn Forest study area over last 30-40 years
Lower plants (lichens, liverworts, mosses, horsetails, ferns)	134	115	67	21	10	155
Fungi	14	31	269	257	240	271
Plants	326	625	265**	41	11	367
Moths	484	426 / 838*	380	107	57 / 10*	591
Butterflies	32	35	25	0	0	32
Other insects (plus millipedes, centipedes, spiders, harvestman	518	898	333	235	167	753
Molluscs	3	21	1	1	1	4
Birds	111	141	61	1	0	112
Reptiles and amphibia	7	9	6	1	0	8
Fish	10	10	-	-	-	10
Bats	3	6	7	4	1	7
Other mammals	8	23	-	-	-	8
Other	5	7	-	-	-	5
Total	1655	2347 / 2759*	1414	668	487 / 440*	2323

* Includes records from Moors Close **2007 survey

It should be noted that a small number of these species will be attributable to the Moors River channel, which forms the boundary of the study area.

21) Acknowledgements

The author would like to thank Hurn Parish Council, and in particular their Chairman, Mrs Margaret Phipps, for her passionate support for this initiative. Margaret has been instrumental in both instigating and delivering this project, identifying the need for then securing the resources to deliver this Biodiversity Audit.

Funding has generously been provided in support of this project by:

- Bournemouth Airport Community Fund
- Lottery – Awards for All
- Forestry Commission.

Carolyn Steele at Dorset Environmental Records Centre has been very supportive and generous with her time, providing the full suite of existing data and current maps for the Hurn Forest area.

Jane Smith, Denise Eccles, Michael Ndeze and Jay Doyle from the Forestry Commission's Planning & Environment Team have been incredibly supportive with their time and resources. My thanks also to the Forestry Commission's Beat Team – Mike Abraham, Marcus Stroud and in particular to Colin Elford, Wildlife Ranger for Hurn Forest for sharing his records and knowledge of this Forest.

Finally my thanks to all those surveyors involved – both those professionals who were commissioned to undertake specific surveys, and those members of the public who shared their records and photographs for the benefit of this project.

Neil Sanderson – botany & landscape history

Alan Lucas – fungi & birds

Mike Jeffes & David Evans – night-flying Lepidoptera

Dr Sue Clarke & David Green – butterflies & day-flying moths

Dr Scotty Dodd – invertebrates

David Tamarind – reptiles

Simon Weymouth & Alan Lucas – birds

Colleen Hope & Paul Hope – bats.

22) Data Sources

Sources of information

The following sources were searched for information on the study area and the adjacent land:

- Dorset Environmental Records Centre (DERC) provided all its wildlife records covering the study area, and a 1 km buffer beyond the boundary of the study area.
- Natural England's (NE) website www.magic.gov.uk provided SSSI citations, boundaries, details of the condition of SSSIs and some site specific species data. It also provided the data on the Natura 200 sites.
- The Dorset Minerals Strategy (Dorset County Council, 2014).
- Christchurch Borough Council and East Dorset District Council Core Strategy 2014.
- The definitive map of access land was consulted at www.countrysideaccess.gov.uk/things_to_do/open_access/open_access_maps (Sanderson 2007).
- South East Dorset Green Infrastructure Strategy website - www.dorsetforyou.com/greeninfrastructure

Additional data sources will have been used by individual surveyors in their respective reports. Please refer to Appendix 4.

23) Consultation

Hurn Parish

On several occasions (through newsletters and Council meetings) the local community has had the opportunity to share their wildlife experiences of the Forest, and to help steer the direction and content of this Biodiversity Audit.

Forestry Commission

A range of staff have been consulted about different aspects of Hurn Forest, from the Planning & Environment Team and from the Beat Team.

The following were also consulted:

Mr Korbett – resident farmer, Fir Grove Farm. With life-long experience of the wildlife of this Forest.

Douglas Kite of English Nature (now Natural England) was consulted on ENs views on the area (2007).

Robin Walls, a local ecologist who was much involved in the former Dorset Wildlife Trust nature reserves within the study area (2007).

24) References

Please refer to individual reports in Appendix 4 for the respective references.

Appendices

Tables and maps

Summary of lower plant records including 2007 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2007 Survey Season	New to Hurn Forest	New to Forest and buffer
Amandinea punctata	lichen	lichen	y				
Amblystegium serpens	Creeping Feather-moss	moss	y				
Anisomeridium ranunculosporum	lichen	lichen	y		y		
Archidium alternifolium	Clay Earth-moss	moss		y			
Asplenium trichomanes subsp. quadrivalens	Spleenwort	fern		y			
Athyrium filix-femina	Lady-fern	fern	y	y	y		
Atrichum undulatum	Common Smoothcap	moss	y				
Aulacomnium androgynum	Bud-headed Groove-moss	moss	y	y			
Aulacomnium palustre	Bog Groove-moss	moss	y	y	y		
Blechnum spicant	Hard-fern	fern	y	y	y		
Brachythecium albicans	Whitish Feather-moss	moss	y	y			
Brachythecium rutabulum	Rough-stalked Feather-moss	moss	y	y			
Bryum	moss	moss	y				
Calicium glaucellum	lichen	lichen	y		y		
Calliergon cordifolium	Heart-leaved Spear-moss	moss	y		y		
Calliergonella cuspidata	Pointed Spear-moss	moss	y	y			
Calypogeia muelleriana	Mueller's Pouchwort	liverwort	y	y			
Campylium stellatum	Yellow Starry Feather-moss	moss		y			
Campylopus flexuosus	Rusty Swan-neck Moss	moss	y	y			
Campylopus flexuosus	Rusty Swan-neck Moss	moss					
Campylopus introflexus	Heath Star Moss	moss		y			
Campylopus pyriformis	Dwarf Swan-neck Moss	moss		y			
Cephalozia bicuspidata	Two-horned Pincerwort	liverwort	y				
Cephalozia connivens	Forcipated Pincerwort	liverwort	y				
Ceratodon purpureus	Redshank	moss		y			

Cetraria aculeata	lichen	lichen	y	y	y			
Chiloscyphus polyanthos	St Winifrid's Moss	liverwort		y				
Chrysothrix candelaris	lichen	lichen	y					
Cladonia arbuscula subsp. squarrosa	lichen	lichen		y	y	y		
Cladonia cervicornis subsp. verticillata	lichen	lichen		y	y	y		
Cladonia chlorophaea	lichen	lichen			y	y	y	
Cladonia ciliata	lichen	lichen	y	y	y			
Cladonia ciliata var. tenuis	lichen	lichen	y	y	y			
Cladonia coniocraea	lichen	lichen	y	y	y			
Cladonia crispata var. cetrariiformis	lichen	lichen	y	y	y			
Cladonia diversa	lichen	lichen		y				
Cladonia fimbriata	lichen	lichen	y	y				
Cladonia floerkeana	lichen	lichen	y	y	y			
Cladonia furcata	lichen	lichen	y	y	y			
Cladonia incrassata	lichen	lichen	y	y	y			
Cladonia macilenta	lichen	lichen		y				
Cladonia polydactyla	lichen	lichen		y	y	y		
Cladonia polydactyla var. polydactyla	lichen	lichen		y				
Cladonia portentosa	Reindeer Moss	lichen	y	y	y			
Cladonia pyxidata	lichen	lichen	y	y				
Cladonia rangiformis	lichen	lichen	y	y	y			
Cladonia squamosa	lichen	lichen		y	y	y		
Cladonia subulata	lichen	lichen		y	y	y		
Cladonia uncialis subsp. biuncialis	lichen	lichen	y	y	y			
Cladophora	alga	alga		y				
Climacium dendroides	Tree-moss	moss		y				
Conocephalum conicum	Great Scented Liverwort	liverwort		y				
Cresponea premnea	lichen	lichen	y	y	y			
Dicranella heteromalla	Silky Forklet-moss	moss	y	y				
Dicranella varia	Variable Forklet-moss	moss	y					
Dicranoweisia cirrata	Common Pincushion	moss	y	y				

Dicranum scoparium	Broom Fork-moss	moss	y	y	y
Diploschistes muscorum	lichen	lichen	y		y
Dryopteris affinis	Scaly Male-fern	fern		y	
Dryopteris carthusiana	Narrow Buckler-fern	fern	y	y	y
Dryopteris dilatata	Broad Buckler-fern	fern	y	y	y
Dryopteris filix-mas agg.	Male Fern	fern	y	y	y
Enterographa crassa	lichen	lichen	y		
Equisetum arvense	Field Horsetail	horsetail	y	y	
Equisetum fluviatile	Water Horsetail	horsetail		y	
Equisetum palustre	Marsh Horsetail	horsetail		y	
Equisetum telmateia	Great Horsetail	horsetail	y		
Eurhynchium praelongum	Common Feather-moss	moss	y	y	
Evernia prunastri	Oak Moss	lichen	y		
Fissidens bryoides	Lesser Pocket-moss	moss	y		
Fissidens crassipes	Fatfoot Pocket-moss	moss		y	
Flavoparmelia caperata	lichen	lichen	y		
Fontinalis antipyretica	Greater Water-moss	moss	y	y	
Fossombronia incurva	Weedy Frillwort	liverwort	y		y
Frullania dilatata	Dilated Scalewort	liverwort	y		
Graphis elegans	lichen	lichen	y		
Graphis scripta	Script Lichen	lichen	y		
Grimmia pulvinata	Grey-cushioned Grimmia	moss	y	y	
Gymnocolea inflata	Inflated Notchwort	liverwort	y	y	
Hookeria lucens	Shining Hookeria	moss		y	
Hylocomium splendens	Glittering Wood-moss	moss		y	
Hypnum andoi	Mamillate Plait-moss	moss	y		
Hypnum cupressiforme	moss	moss	y	y	
Hypnum cupressiforme var. cupressiforme	moss	moss	y	y	
Hypnum cupressiforme var. resupinatum	Supine Plait-moss	moss		y	
Hypnum jutlandicum	Heath Plait-moss	moss	y	y	y

Hypnum lacunosum var. lacunosum	Great Plait-moss	moss	y	y	y
Hypogymnia physodes	Dark Crottle	lichen	y	y	
Hypotrachyna revoluta	lichen	lichen	y		
Kurzia pauciflora	Bristly Fingerwort	liverwort		y	
Lecanora albella	lichen	lichen	y		
Lecanora chlarotera	lichen	lichen	y		
Lecanora conizaeoides	lichen	lichen	y		
Lecidea doliiformis	lichen	lichen	y		y
Lepraria incana	lichen	lichen	y		
Leptodictyum riparium	Kneiff's Feather-moss	moss		y	
Leucobryum glaucum	Large White-moss	moss	y		
Leucobryum juniperoideum	Smaller White-moss	moss	y		y
Lophocolea bidentata var. bidentata	liverwort	liverwort	y	y	
Lophocolea heterophylla	Variable-leaved Crestwort	liverwort	y	y	
Lycopodiella inundata	Marsh Clubmoss	clubmoss		y	
Marchantia polymorpha	Common Liverwort	liverwort	y	y	
Melanelia subaurifera	lichen	lichen	y		
Metzgeria furcata	Forked Veilwort	liverwort	y	y	
Microlejeunea ulicina	Fairy Beads	liverwort	y	y	
Mnium hornum	Swan's-neck Thyme-moss	moss	y		
Mylia anomala	Anomalous Flapwort	liverwort		y	
Neckera complanata	Flat Neckera	moss		y	
Odontoschisma sphagni	Bog-moss Flapwort	liverwort		y	
Opegrapha corticola	lichen	lichen	y	y	y
Opegrapha varia	lichen	lichen	y		
Ophioglossum vulgatum	Adder's-tongue	fern		y	
Oreopteris limbosperma	Lemon-scented Fern	fern	y		
Orthodontium lineare	Cape Thread-moss	moss	y		
Orthotrichum diaphanum	White-tipped Bristle-moss	moss	y		
Osmunda regalis	Royal Fern	fern	y	y	y
Pachyphiale carneola	lichen	lichen	y		y

Parmelia sulcata	Netted Shield Lichen	lichen	y					
Parmotrema perlatum	lichen	lichen	y					
Pellia endiviifolia	Endive Pellia	liverwort		y				
Pellia epiphylla	Overleaf Pellia	liverwort	y					
Peltigera canina	lichen	lichen	y	y	y			
Peltigera didactyla	lichen	lichen	y					
Peltigera hymenina	lichen	lichen			y	y	y	
Peltigera lactucifolia	lichen	lichen	y	y				
Peltigera membranacea	lichen	lichen	y					
Peltigera neckeri	lichen	lichen	y		y			
Peltigera rufescens	lichen	lichen	y		y			
Pertusaria amara	lichen	lichen	y					
Pertusaria hymenea	lichen	lichen	y					
Phaeophyscia orbicularis	lichen	lichen	y					
Phyllitis scolopendrium	Hart's-tongue	fern		y				
Physcia tenella	lichen	lichen	y					
Placynthiella icmalea	lichen	lichen		y	y	y		
Plagiothecium denticulatum	Dented Silk-moss	moss	y					
Plagiothecium undulatum	Waved Silk-moss	moss	y					
Pleurozium schreberi	Red-stemmed Feather-moss	moss	y	y	y			
Pogonatum aloides	Aloe Haircap	moss	y					
Pohlia nutans	Nodding Thread-moss	moss	y	y				
Polypodium vulgare	Polypody	fern		y	y	y		
Polystichum setiferum	Soft Shield-fern	fern	y	y				
Polytrichum commune	Common Haircap	moss	y	y	y			
Polytrichum formosum	Bank Haircap	moss	y	y				
Polytrichum juniperinum	Juniper Haircap	moss	y	y	y			
Polytrichum piliferum	Bristly Haircap	moss		y	y	y		
Porpidia crustulata	lichen	lichen			y	y	y	
Porpidia soredizodes	lichen	lichen			y	y	y	
Pseudoscleropodium purum	moss	moss			y	y	y	

Pteridium aquilinum	Bracken	fern	y	y	y			
Punctelia subrudecta	lichen	lichen	y					
Pyrrhospora quernea	lichen	lichen	y					
Radula complanata	Even Scalewort	liverwort	y					
Rhizomnium punctatum	Dotted Thyme-moss	moss	y	y				
Rhynchostegium riparioides	Long-beaked Water Feather-moss	moss		y				
Rhytidiadelphus loreus	Little Shaggy-moss	moss	y					
Rhytidiadelphus squarrosus	Springy Turf-moss	moss	y	y	y			
Riccia sorocarpa	Common Crystalwort	liverwort	y	y	y			
Rinodina roboris var. roboris	lichen	lichen	y		y			
Schismatomma niveum	lichen	lichen	y		y			
Schistidium apocarpum	moss	moss	y					
Scleropodium purum	Neat Feather-moss	moss	y	y				
Sphagnum auriculatum	moss	moss			y	y	y	
Sphagnum capillifolium	Red Bog-moss	moss		y				
Sphagnum capillifolium subsp. rubellum	Red Bog-moss	moss		y				
Sphagnum compactum	Compact Bog-moss	moss		y	y	y		
Sphagnum cuspidatum	Feathery Bog-moss	moss		y	y	y		
Sphagnum denticulatum	moss	moss	y	y				
Sphagnum fallax	Flat-topped Bog-moss	moss	y	y	y			
Sphagnum fimbriatum	Fringed Bog-moss	moss	y	y				
Sphagnum flexuosum	Flexuous Bog-moss	moss		y				
Sphagnum palustre	Blunt-leaved Bog-moss	moss	y	y	y			
Sphagnum papillosum	Papillose Bog-moss	moss	y	y	y			
Sphagnum pulchrum	Golden Bog-moss	moss		y				
Sphagnum recurvum	moss	moss	y	y				
Sphagnum rubellum	moss	moss			y	y	y	
Sphagnum squarrosum	Spiky Bog-moss	moss	y	y	y			
Sphagnum subnitens	moss	moss			y	y	y	
Sphagnum tenellum	Soft Bog-moss	moss		y				

Stenocybe septata	lichen	lichen			y	y	y
Syntrichia laevipila	Small Hairy Screw-moss	moss	y				
Syntrichia ruraliformis	Sand-hill Screw-moss	moss	y				
Syntrichia ruralis	Great Hairy Screw-moss	moss		y	y	y	
Tetraphis pellucida	moss	moss			y	y	y
Thuidium tamariscinum	Common Tamarisk-moss	moss	y	y			
Tortula muralis	Wall Screw-moss	moss	y				
Tritomaria exsectiformis	Larger Cut Notchwort	liverwort		y			
Ulota crispa	moss	moss	y				
Usnea ceratina	lichen	lichen	y				
Usnea rubicunda	lichen	lichen	y				
Usnea subfloridana	lichen	lichen	y				
Vaucheria	chromist	chromist		y			
Warnstorfia exannulata	Ringless Hook-moss	moss	y				
Xanthoria parietina	lichen	lichen	y				
193 species			**134 species**	**115 species**	**67 species**	**21 species**	**10 species**

Summary of fungi records including 2013 surveys (data provided by DERC)

Species	**Common Name**	**Taxon group**	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest	New to Forest and buffer
Abortiporus biennis	Blushing Rosette				y	y	y
Agaricus campestris	Field Mushroom				y	y	y
Aleuria aurantia	Orange Peel Fungus				y	y	y
Aleurodiscus aurantius					y	y	y
Aleurodiscus botryosus					y	y	y
Alnicola melinoides					y	y	y
Alnicola subconspersa					y	y	y
Amanita citrina var. alba	False Deathcap	fungus		y	y	y	
Amanita fulva	Tawny Grisette	fungus		y	y	y	
Amanita muscaria	Fly Agaric	fungus	y		y		
Amanita phalloides	Deathcap	fungus		y			
Amanita rubescens var. rubescens	Blusher	fungus		y	y	y	
Amanita spissa	Grey Spotted Amanita				y	y	y
Amphinema byssoidies					y	y	y
Anthracobia macrocystis					y	y	y
Antrodia albida					y	y	y
Antrodia ramentacea					y	y	y
Armillaria mellea	Honey Fungus				y	y	y
Ascobolus furfuraceus					y	y	y
Ascocoryne cylichnium					y	y	y
Athelia bombacina					y	y	y
Athelia decipiens					y	y	y
Auriscalpium vulgare	Earpick Fungus				y	y	y
Baeospora myosura	Conifer Cone Cap				y	y	y
Bisporella citrina					y	y	y

Bisporella sulfurina					y	y	y
Bolbitius aleuriatus					y	y	y
Boletus badius	Bay Bolet				y	y	y
Boletus edulis	Penny Bun				y	y	y
Botryobasidium aureum					y	y	y
Botryobasidium subcoronatum					y	y	y
Brevicellicium olivascens					y	y	y
Bulbillomyces farinosus					y	y	y
Bulgaria inquinans	Black Bulgar				y	y	y
Byssomerulius corium	Netted Crust				y	y	y
Calocera cornea	Small Stags Horn				y	y	y
Calocera glossoides	fungus	fungus	y	y			
Calocera viscosa	Yellow Stags Horn				y	y	y
Camarops microspora					y	y	y
Chalciporus piperatus	Peppery Bolete				y	y	y
Chlorociboria aeruginascens	Green Elfcap				y	y	y
Chondrostereum purpureum	Silverleaf Fungus				y	y	y
Chromocypella muscicola					y	y	y
Clavulina cinerea	Grey Coral				y	y	y
Clavulina coralloides	Crested Coral	fungus	y	y	y		
Clavulinopsis corniculata	Meadow Coral	fungus		y			
Clitcybe clavipies	Club Foot				y	y	y
Clitocybe fragrans	Fragrant Funnel				y	y	y
Clitocybe gibba	Common Funnel				y	y	y
Clitocybe rivulosa	Fools Funnel				y	y	y
Clitopilus hobsonii					y	y	y
Clitopilus prunulus	The Miller	fungus	y	y	y		
Collybia butyracea var. butyracea	Butter Cap	fungus	y	y	y		
Collybia dryophila	Russet Toughshank				y	y	y
Collybia maculata	Spotted Touggshank				y	y	y
Collybia peronata	Wood Wooly Foot				y	y	y

Colpoma quercinum					y	y	y
Coltricia perennis	Tiger's Eye	fungus	y	y	y		
Coprinus micaceus	Glistening inkcap				y	y	y
Coprobia granulata					y	y	y
Corticium roseum					y	y	y
Cortinarius brunneus					y	y	y
Cortinarius decipiens					y	y	y
Crepidotus cesatii					y	y	y
Crepidotus lundellii					y	y	y
Crepidotus variabilis	Variable Oysterling				y	y	y
Cudoniella clavus	Spring pin				y	y	y
Cyphella feruginea					y	y	y
Dacrymyces stillatus	Common Jellyspot				y	y	y
Daedaleopsis confragosa	Blushing Bracket	fungus	y		y		
Daldinia concentrica	King Alfred's Cakes	fungus	y		y		
Delicatula integrella					y	y	y
Dendrothele commixta					y	y	y
Diatrype bullata	Willow Bark Spot				y	y	y
Diatrypella quercina					y	y	y
Dioporthe strumella					y	y	y
Exidia nucleatum	Crystal Brain				y	y	y
Exidia saccharina					y	y	y
Galerina marginata	Funeral Bell				y	y	y
Ganoderma australe	Southern Bracket				y	y	y
Gloeocystidiellum porosum					y	y	y
Gymnopilus junonius	Spectacular Rustgill				y	y	y
Gymnopilus penetrans	Common Rustgill				y	y	y
Hebeloma crusulinforme	Poison Pie				y	y	y
Hebeloma mesophaeum	Veilied Poison Pie				y	y	y
Hebeloma pusillum					y	y	y
Hebeloma sacchariolens	Sweet Poisonpie	fungus		y			

Hebeloma sinapizans	Bitter Poison Pie			y	y	y
Hemimycena tortuosa	Dew Drop Bonett			y	y	y
Heterobasidium annosum	Root Rot			y	y	y
Hohenbuehelia cyphelliformis				y	y	y
Hygrocybe conica	Blackening Waxcap	fungus	y	y	y	
Hygrocybe miniata	Vermillion Wax Cap			y	y	y
Hygrocybe psittacina var. psittacina	Parrot Waxcap	fungus	y			
Hygrocybe virginea var. virginea	Snowy Waxcap	fungus	y			
Hygrophoropsis aurantiaca	False Chanterelle	fungus	y	y	y	
Hygrophorus hypothejus	Herald of Winter	fungus	y	y	y	y
Hymenochaete corrugata	Glue Crust			y	y	y
Hymenochaete rubiginosa	Oak Curtain Crust			y	y	y
Hyphoderma argillacium				y	y	y
Hyphoderma cryptocallymon				y	y	y
Hyphodermopsis polonensis				y	y	y
Hyphodontia alutaria				y	y	y
Hyphodontia crustosa				y	y	y
Hyphodontia pallidula				y	y	y
Hyphodontia quercinus				y	y	y
Hypholoma myosotis	Olive Brownie			y	y	y
Hyphomyces pulvinata				y	y	y
Hyphomyces rosellus				y	y	y
Hypoxylon fuscum	Hazel Woodwart			y	y	y
Hypoxylon multiforme	Birch Woodwart			y	y	y
Inocybe geophylla	White Firecap			y	y	y
Inocybe lanuginosa	Woolly Firecap			y	y	y
Inocybe rimosa	Split Firecap			y	y	y
Inocybe whitei				y	y	y
Inonotus dryadeus	Oak Bracket			y	y	y
Ischnoderma benzoinum	Benzoin Bracket			y	y	y

Laccaria amethystina	Amethist deceiver				y	y	y
Laccaria bicolor	Bicoloured Deceiver				y	y	y
Laccaria laccata	Deceiver	fungus		y	y	y	
Laccaria proxima	Scurfy deceiver				y	y	y
Laccaria tortillis	Twisted Deceiver				y	y	y
Lachnellula occidentalis	Larch Disco				y	y	y
Lachnum niveum					y	y	y
Lachnum virgineum	Snowy Disco				y	y	y
Lactarius deliciosus	Saffron Milk Cap				y	y	y
Lactarius glyciosmus	Coconut Scented Milk Cap				y	y	y
Lactarius hepaticus	Liver Milkcap	fungus		y	y	y	
Lactarius lacunarum					y	y	y
Lactarius obscuratus	Alder Milkcap				y	y	y
Lactarius rufus	Rufous Milkcap				y	y	y
Lactarius semisanguifluus					y	y	y
Lactarius subdulcis	Mild Milkcap				y	y	y
Lactarius tabidus	Birch Milkcap				y	y	y
Lactarius torminosus	Woolly Milkcap				y	y	y
Lactarius turpis	Ugly Milkcap	fungus		y	y	y	
Lactarius vietus	Grey Milk Cap				y	y	y
Leccinum cyaneobasileucum					y	y	y
Leccinum scabrum	Brown Birch Bolete	fungus		y	y	y	
Lepiota echinella var echinella					y	y	y
Lepista nuda	Wood Blewit				y	y	y
Leucogyrophana mollusca					y	y	y
Lycoperdon perlatum	Common Puffball				y	y	y
Lyomyces sambuci					y	y	y
Macrotyphula fistulosa var contorta	Contorted Pipe Club				y	y	y
Marasmiellus ramealis	Twig Parachute				y	y	y
Marasmiellus vaillantii	Goblet parachute				y	y	y

Marasmius androsaceus	Horse Hair Parashute				y	y	y
Marasmius oreades	Fairy Ring Champignon	fungus		y	y	y	
Marasmius rotula	Collared parachute				y	y	y
Megalocolybia platyphylla	White Laced Shank				y	y	y
Megalocystidiellum luridum					y	y	y
Melanoleuca polioleuca	Common Cavalier				y	y	y
Mensularia radiatus	Alder Bracket				y	y	y
Merismodes fasiculata					y	y	y
Mitrula paludosa	Bog Beacon				y	y	y
Mycena acicula	Orange Bonnet				y	y	y
Mycena adscendens					y	y	y
Mycena alnetorum					y	y	y
Mycena corynephora					y	y	y
Mycena epipterygia	Yellowleg Bonnet	fungus		y	y	y	
Mycena galericulata	Common Bonnet				y	y	y
Mycena galopus var candida	White Milking Bonnet				y	y	y
Mycena galopus var nigra	Black Milking Bonnet				y	y	y
Mycena haematopus	Burgundy Drop Bonnet				y	y	y
Mycena inclinata	Clustered Bonnet				y	y	y
Mycena leptocephala	Nitrous Bonnet				y	y	y
Mycena megaspora	fungus	fungus		y			
Mycena metata					y	y	y
Mycena polygramma	Grooved Bonnet				y	y	y
Mycena pseudocorticola					y	y	y
Mycena pura	Lilac Bonnet	fungus		y	y	y	
Mycena speirea	Black Bonnet				y	y	y
Mycena stylobates	Bulbous Bonnet				y	y	y

Mycoacia fuscoatra					y	y	y
Mycoglaena myricae	fungus	fungus	y		y		
Myxarium nucleatum					y	y	y
Neottiella rutilans					y	y	y
Nidularia deformis					y	y	y
Omphalina pyxidata					y	y	y
Oxyporus latemarginata					y	y	y
Pachyella babingtonii					y	y	y
Paxillus involutus	Brown Rollrim	fungus		y	y	y	
Peniophora cinerea					y	y	y
Peniophora incarnata	Rosy Crust				y	y	y
Peniophora lycii					y	y	y
Peniophora pini					y	y	y
Peniophora quercina					y	y	y
Peniophorella praetermissa					y	y	y
Peniophorella pubera					y	y	y
Peziza limnaea					y	y	y
Phaeolus schweinitzii	Dyers Mazgill				y	y	y
Phaeomarasmius erinaceus					y	y	y
Phallus impudicus var. impudicus	Stinkhorn	fungus	y	y	y		
Phanerochaete velutina					y	y	y
Phellinus ferreus	Cinnamon Porecrust				y	y	y
Phellinus pomaceus	Cushion Bracket				y	y	y
Phlebia subochracea					y	y	y
Phlebia tremulosa	Jelly Rot				y	y	y
Phlebiopsis giganteus					y	y	y
Pholiota gummosa	Sticky Scalycap				y	y	y
Pholiota tuberculata					y	y	y
Physisporinus sanguinolentus	Bleeding Porecrust				y	y	y
Piptoporus betulinus	Birch Polypore	fungus	y		y		
Pirottaea nigrostriata					y	y	y

Pluteus cervinus	Deer Shield				y	y	y
Pluteus phlebophorus	Wrinkled Shield				y	y	y
Polyporus leptocephalus	Blackfoot Polypore				y	y	y
Psathyrella candolleana	Pale Brittlestem				y	y	y
Pseudoboletus parasiticus					y	y	y
Pseudovalsa lanciformis					y	y	y
Pterula gracilis					y	y	y
Radulomyces confluens					y	y	y
Radulomyces molaris					y	y	y
Resinicium bicolor					y	y	y
Resinicium sp					y	y	y
Resupinatus applicatus					y	y	y
Rhizopogon luteolus	Deer Truffle				y	y	y
Rickenella fibula	Orange Mosscap				y	y	y
Russula aeruginea	Green Brittlegill	fungus		y	y	y	
Russula atropurpurea	Purple Brittlegill				y	y	y
Russula betularum	Birch Brittlegill				y	y	y
Russula caerulea	Hump Back Brittle Gill				y	y	y
Russula claroflava	Yellow Swamp Brittle Cap				y	y	y
Russula cyanoxantha	Charcoal Burner				y	y	y
Russula emetica	Sickener	fungus		y	y	y	
Russula gracillima	Slender Brittlegill				y	y	y
Russula ochroleuca	Ochre Brittlegill				y	y	y
Russula pulchella	Bleached Brittlegill				y	y	y
Russula sanguinea					y	y	y
Russula sardonia	Primrose Brittlegill	fungus		y	y	y	
Russula silvestris					y	y	y
Russula vesca	The Flirt				y	y	y
Russuls fragiis	Fragile Brittlegill				y	y	y
Schizopora paradoxa	Split Porecrust				y	y	y

Scleroderma verrucosum	Scaly Earthball				y	y	y
Scopuloides rimosa					y	y	y
Scutellinia scutellata	Common Eyelash				y	y	y
Scytinostroma ochroleucum					y	y	y
Skeletocutis amorpha					y	y	y
Skeletocutis nivea	Hazel Bracket				y	y	y
Skeletocutis vulgaris					y	y	y
Sparassis crispa	Wood Cauliflower				y	y	y
Steccherinum ochraceum					y	y	y
Stenocybe septata	fungus	fungus	y				
Stereum hirsutum	Hairy Curtain Crust	fungus	y		y		
Stereum rugosum	Bleeding Broadleaf Crust				y	y	y
Stereum sanguinolentum	Bleeding Conifer Crust				y	y	y
Strobilurus tenacellus	Pinecone Cap				y	y	y
Suillius bovinus	Bovine Bolete				y	y	y
Suillius luteus	Slippery Jack				y	y	y
Suillius variegatus	Velvet Bolete				y	y	y
Suillus bovinus	Bovine Bolete	fungus		y			
Tapesia strobilicola					y	y	y
Tapinella atromentosus					y	y	y
Tarzetta cupularis					y	y	y
Trametes ochracea					y	y	y
Trametes versicolor	Turkeytail	fungus	y		y		
Trechispora alnicola					y	y	y
Trechispora farinacea					y	y	y
Tremella mesenterica	Yellow Brain	fungus		y	y	y	
Trichaptum abietinum	Purplepore Bracket				y	y	y
Tricholoma fulvum	Birch Knight				y	y	y
Tubaria furfuracea	Scurfy Twiglet				y	y	y
Tubulicium vermiferum					y	y	y
Typhula erumpens					y	y	y

Typhula setipes				y	y	y
Tyromyces caesia	Conifer Blueing Bracket			y	y	y
Tyromyces stipticus	Bitter Bracket			y	y	y
Tyromyces subcaesia	Blueing Bracket			y	y	y
Vesiculomyces citrinum				y	y	y
Vuilleminia alni				y	y	y
Vuilleminia comedans	Waxy Crust			y	y	y
Xerocomellus cisalpinus				y	y	y
Xerocomellus engelii				y	y	y
Xerocomellus riparielllus				y	y	y
Xerocomellus rubellus				y	y	y
Xylaria hypoxylon	Candle Snuff Fungus			y	y	y
278 species		**14 species**	**31 Species**	**269 species**	**257 species**	**240 species**

Summary of vascular plant records including 2007 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2007 Survey Season	New to Hurn Forest	New to Forest and buffer
Acer campestre	Field Maple	flowering plant		y			
Acer platanoides	Norway Maple	flowering plant		y			
Acer pseudoplatanus	Sycamore	flowering plant	y	y			
Achillea millefolium	Yarrow	flowering plant	y	y	y		
Achillea ptarmica	Sneezewort	flowering plant	y	y	y		
Aegopodium podagraria	Ground-elder	flowering plant		y			
Aesculus hippocastanum	Horse-chestnut	flowering plant		y			
Agrimonia eupatoria	Agrimony	flowering plant		y	y		
Agrostis canina	Velvet Bent	flowering plant	y	y	y		
Agrostis capillaris	Common Bent	flowering plant	y	y	y		
Agrostis curtisii	Bristle Bent	flowering plant	y	y	y		
Agrostis gigantea	Black Bent	flowering plant	y	y			
Agrostis stolonifera	Creeping Bent	flowering plant	y	y	y		
Agrostis vinealis	Brown Bent	flowering plant		y	y		
Aira caryophyllea	Silver Hair-grass	flowering plant	y	y	y		
Aira praecox	Early Hair-grass	flowering plant	y	y	y		
Ajuga reptans	Bugle	flowering plant	y	y			
Alchemilla filicaulis subsp. vestita	Lady's-Mantle	flowering plant	y	y			
Alisma lanceolatum	Narrow-leaved Water-plantain	flowering plant		y			
Alisma plantago-aquatica	Water-plantain	flowering plant	y	y			
Alliaria petiolata	Garlic Mustard	flowering plant	y	y			
Alnus glutinosa	Alder	flowering plant	y	y	y		
Alnus rubra	Red alder	flowering plant			y	y	y
Alopecurus geniculatus	Marsh Foxtail	flowering plant	y	y			
Alopecurus pratensis	Meadow Foxtail	flowering plant	y	y	y		
Amelanchier lamarckii	Juneberry	flowering plant		y			

Anagallis arvensis	Scarlet Pimpernel	flowering plant	y	y	y
Anagallis minima	Chaffweed	flowering plant		y	
Anagallis tenella	Bog Pimpernel	flowering plant		y	
Anchusa arvensis	Bugloss	flowering plant		y	
Anemone nemorosa	Wood Anemone	flowering plant		y	
Angelica sylvestris	Wild Angelica	flowering plant	y	y	y
Anisantha sterilis	Barren Brome	flowering plant	y	y	
Anthemis cotula	Stinking Chamomile	flowering plant		y	
Anthoxanthum odoratum	Sweet Vernal-grass	flowering plant	y	y	y
Anthriscus sylvestris	Cow Parsley	flowering plant		y	
Anthyllis vulneraria	Kidney Vetch	flowering plant	y		
Aphanes arvensis agg.	Parsley Piert	flowering plant	y	y	
Aphanes australis	Slender Parsley-piert	flowering plant	y	y	y
Apium nodiflorum	Fool's-water-cress	flowering plant	y	y	
Aquilegia vulgaris	Columbine	flowering plant		y	
Arabidopsis thaliana	Thale Cress	flowering plant		y	y
Arctium minus	Lesser Burdock	flowering plant	y	y	
Arctium nemorosum	Wood Burdock	flowering plant	y		
Arenaria serpyllifolia	Thyme-Leaved Sandwort	flowering plant	y	y	y
Armeria maritima	Sea Pink	flowering plant	y	y	
Arrhenatherum elatius	False Oat-grass	flowering plant	y	y	y
Artemisia vulgaris	Mugwort	flowering plant		y	
Arum maculatum	Lords-and-Ladies	flowering plant		y	
Aster	Michaelmas-Daisy	flowering plant		y	
Atriplex patula	Common Orache	flowering plant		y	
Atriplex prostrata	Spear-leaved Orache	flowering plant		y	
Ballota nigra	Black Horehound	flowering plant		y	
Bellis perennis	Daisy	flowering plant	y	y	y
Berula erecta	Lesser Water-parsnip	flowering plant	y	y	
Betula pendula	Silver Birch	flowering plant	y	y	y
Betula pubescens	Downy Birch	flowering plant	y	y	y

Bidens cernua	Nodding Bur-marigold	flowering plant		y			
Bidens tripartita	Trifid Bur-marigold	flowering plant	y	y			
Brachypodium sylvaticum	False-brome	flowering plant	y	y			
Bromopsis erecta	Upright Brome	flowering plant		y			
Bromus commutatus	Meadow Brome	flowering plant	y				
Bromus hordeaceus	Lesser Soft-Brome	flowering plant		y	y	y	
Bromus hordeaceus subsp. hordeaceus	Common Soft-brome	flowering plant	y	y			
Bromus racemosus	Smooth Brome	flowering plant	y	y			
Buddleja davidii	Butterfly-bush	flowering plant		y			
Calamagrostis canescens	Purple Small-reed	flowering plant		y			
Calamagrostis epigejos	Wood Small-reed	flowering plant		y			
Callitriche hamulata	Intermediate Water-Starwort	flowering plant		y			
Callitriche obtusangula	Blunt-fruited Water-starwort	flowering plant		y			
Callitriche platycarpa	Various-leaved Water-starwort	flowering plant		y			
Callitriche stagnalis	Common Water-starwort	flowering plant	y	y	y		
Calluna vulgaris	Heather	flowering plant	y	y	y		
Caltha palustris	Marsh-marigold	flowering plant	y	y	y		
Calystegia sepium	Hedge Bindweed	flowering plant	y	y	y		
Campanula poscharskyana	Trailing Bellflower	flowering plant		y			
Campanula rotundifolia	Harebell	flowering plant		y			
Capsella bursa-pastoris	Shepherd's-purse	flowering plant		y			
Cardamine flexuosa	Wavy Bitter-cress	flowering plant	y	y			
Cardamine hirsuta	Hairy Bitter-cress	flowering plant		y	y		
Cardamine pratensis	Cuckooflower	flowering plant	y	y			
Carduus crispus	Welted Thistle	flowering plant		y			
Carduus nutans	Musk Thistle	flowering plant		y			
Carex acuta	Slender Tufted-sedge	flowering plant	y	y			
Carex acutiformis	Lesser Pond-sedge	flowering plant	y	y	y		
Carex arenaria	Sand Sedge	flowering plant	y	y	y		
Carex binervis	Green-ribbed Sedge	flowering plant		y	y		
Carex caryophyllea	Spring-sedge	flowering plant		y			

Carex curta	White Sedge	flowering plant	y	y	y
Carex diandra	Lesser Tussock-sedge	flowering plant		y	
Carex disticha	Brown Sedge	flowering plant		y	
Carex echinata	Star Sedge	flowering plant	y	y	y
Carex elongata	Elongated Sedge	flowering plant	y	y	y
Carex flacca	Glaucous Sedge	flowering plant	y	y	y
Carex flava agg.	flowering plant	flowering plant		y	
Carex hirta	Hairy Sedge	flowering plant		y	y
Carex hostiana	Tawny Sedge	flowering plant		y	
Carex limosa	Bog-sedge	flowering plant		y	
Carex muricata subsp. pairae	Small-fruited Prickly-sedge	flowering plant	y	y	
Carex nigra	Common Sedge	flowering plant		y	y
Carex ovalis	Oval Sedge	flowering plant	y	y	y
Carex panicea	Carnation Sedge	flowering plant	y	y	y
Carex paniculata	Greater Tussock-sedge	flowering plant	y	y	y
Carex pendula	Pendulous Sedge	flowering plant	y	y	
Carex pilulifera	Pill Sedge	flowering plant	y	y	y
Carex pseudocyperus	Cyperus Sedge	flowering plant	y	y	y
Carex pulicaris	Flea Sedge	flowering plant		y	
Carex remota	Remote Sedge	flowering plant	y	y	y
Carex riparia	Greater Pond-sedge	flowering plant	y	y	y
Carex rostrata	Bottle Sedge	flowering plant	y	y	y
Carex sylvatica	Wood-sedge	flowering plant	y	y	
Carex vesicaria	Bladder-sedge	flowering plant	y	y	y
Carex viridula subsp. oedocarpa	Common Yellow-sedge	flowering plant	y	y	y
Castanea sativa	Sweet Chestnut	flowering plant		y	
Centaurea nigra	Common Knapweed	flowering plant	y	y	
Centaurium erythraea	Common Centaury	flowering plant	y	y	y
Cerastium arvense	Field Mouse-ear	flowering plant		y	
Cerastium diffusum	Sea Mouse-ear	flowering plant	y	y	y
Cerastium fontanum	Common Mouse-ear	flowering plant	y	y	y

Cerastium glomeratum	Sticky Mouse-ear	flowering plant	y	y	y			
Cerastium semidecandrum	Little Mouse-ear	flowering plant	y	y	y			
Ceratocapnos claviculata	Climbing Corydalis	flowering plant	y	y	y			
Chaerophyllum temulum	Rough Chervil	flowering plant		y				
Chamaecyparis lawsoniana	Lawson's Cypress	flowering plant		y				
Chamaemelum nobile	Chamomile	flowering plant		y				
Chamerion angustifolium	Rosebay Willowherb	flowering plant	y	y	y			
Chelidonium majus	Greater Celandine	flowering plant		y				
Chenopodium album agg.	Fat Hen	flowering plant		y				
Chenopodium polyspermum	Many-seeded Goosefoot	flowering plant		y	y			
Circaea lutetiana	Enchanter's-nightshade	flowering plant	y	y	y			
Cirsium arvense	Creeping Thistle	flowering plant	y	y	y			
Cirsium dissectum	Meadow Thistle	flowering plant	y	y				
Cirsium palustre	Marsh Thistle	flowering plant	y	y	y			
Cirsium vulgare	Spear Thistle	flowering plant	y	y				
Claytonia perfoliata	Springbeauty	flowering plant		y				
Clematis vitalba	Traveller's-joy	flowering plant		y				
Cochlearia danica	Danish Scurvygrass	flowering plant		y				
Conopodium majus	Pignut	flowering plant		y				
Convallaria majalis	Lily-of-the-valley	flowering plant		y				
Convolvulus arvensis	Field Bindweed	flowering plant		y				
Conyza canadensis	Canadian Fleabane	flowering plant	y	y	y			
Cornus sanguinea	Dogwood	flowering plant		y				
Coronopus didymus	Lesser Swine-cress	flowering plant		y				
Corylus avellana	Hazel	flowering plant		y				
Cotoneaster	Cotoneaster	flowering plant		y				
Cotoneaster franchetii	Franchet's Cotoneaster	flowering plant		y				
Cotoneaster rehderi	Bullate Cotoneaster	flowering plant		y				
Cotoneaster simonsii	Himalayan Cotoneaster	flowering plant		y				
Crassula helmsii		flowering plant			y	y	y	
Crassula tillaea	Mossy Stonecrop	flowering plant	y	y	y			

Crataegus monogyna	Hawthorn	flowering plant	y	y				
Crepis biennis	Rough Hawk's-beard	flowering plant		y				
Crepis capillaris	Smooth Hawk's-beard	flowering plant	y	y				
Crepis vesicaria	Beaked Hawk's-beard	flowering plant		y				
Crepis vesicaria subsp. taraxacifolia	flowering plant	flowering plant		y				
Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	flowering plant		y	y	y		
Cuscuta epithymum	Dodder	flowering plant	y	y	y			
Cymbalaria muralis	Ivy-leaved Toadflax	flowering plant		y				
Cynosurus cristatus	Crested Dog's-tail	flowering plant	y	y	y			
Cytisus scoparius	Broom	flowering plant	y	y	y			
Cytisus scoparius subsp. scoparius	Broom	flowering plant		y				
Dactylis glomerata	Cock's-foot	flowering plant	y	y	y			
Dactylorhiza fuchsii	Common Spotted-orchid	flowering plant	y	y				
Dactylorhiza fuchsii x praetermissa = D. x grandis	Marsh-Orchid	flowering plant	y	y				
Dactylorhiza maculata subsp. ericetorum	Heath Spotted-Orchid	flowering plant	y	y	y			
Dactylorhiza praetermissa	Southern Marsh-orchid	flowering plant	y	y	y			
Dactylorhiza traunsteinerioides	Narrow-leaved Marsh-orchid	flowering plant		y				
Dactylorhiza viridis	Frog Orchid	flowering plant		y				
Dactylorhiza x grandis		flowering plant			y	y	y	
Danthonia decumbens	Heath-grass	flowering plant	y	y	y			
Daucus carota	Carrot	flowering plant	y	y				
Deschampsia cespitosa	Tufted Hair-Grass	flowering plant	y	y	y			
Deschampsia flexuosa	Wavy Hair-grass	flowering plant	y	y	y			
Dianthus armeria	Deptford Pink	flowering plant		y				
Digitalis purpurea	Foxglove	flowering plant	y	y	y			
Dipsacus fullonum	Wild Teasel	flowering plant	y	y	y			
Dittrichia graveolens	Stinking Fleabane	flowering plant		y				
Drosera anglica	Great Sundew	flowering plant		y				
Drosera intermedia	Oblong-leaved Sundew	flowering plant	y	y	y			
Drosera rotundifolia	Round-leaved Sundew	flowering plant	y	y	y			
Echinochloa crus-galli	Cockspur	flowering plant		y				

Eleocharis multicaulis	Many-stalked Spike-rush	flowering plant		y	y	y		
Eleocharis palustris	Common Spike-rush	flowering plant		y				
Eleogiton fluitans		flowering plant			y	y	y	
Elodea canadensis	Canadian Waterweed	flowering plant	y	y				
Elodea nuttallii	Nuttall's Waterweed	flowering plant	y	y				
Elymus caninus		flowering plant			y	y	y	
Elytrigia repens	Common Couch	flowering plant		y				
Epilobium ciliatum	American Willowherb	flowering plant		y	y	y		
Epilobium hirsutum	Great Willowherb	flowering plant	y	y	y			
Epilobium lanceolatum	Spear-leaved Willowherb	flowering plant		y				
Epilobium montanum	Broad-leaved Willowherb	flowering plant		y				
Epilobium obscurum	Short-fruited Willowherb	flowering plant		y				
Epilobium palustre	Marsh Willowherb	flowering plant		y	y	y		
Epilobium parviflorum	Hoary Willowherb	flowering plant		y				
Epilobium tetragonum	Square-stalked Willowherb	flowering plant	y	y				
Epipactis helleborine	Broad-leaved Helleborine	flowering plant	y	y				
Epipactis phyllanthes	Green-flowered Helleborine	flowering plant		y				
Erica cinerea	Bell Heather	flowering plant	y	y	y			
Erica tetralix	Cross-leaved Heath	flowering plant	y	y	y			
Erigeron acer	Blue Fleabane	flowering plant	y		y			
Eriophorum angustifolium	Common Cottongrass	flowering plant	y	y	y			
Eriophorum latifolium	Broad-leaved Cottongrass	flowering plant		y				
Eriophorum vaginatum	Hare's-tail Cottongrass	flowering plant		y				
Erodium cicutarium	Common Stork's-bill	flowering plant	y	y	y			
Erophila verna	Common Whitlowgrass	flowering plant	y	y				
Euonymus europaeus	Spindle	flowering plant		y				
Eupatorium cannabinum	Hemp-agrimony	flowering plant	y	y	y			
Euphorbia helioscopia	Sun Spurge	flowering plant		y				
Euphorbia peplus	Petty Spurge	flowering plant		y				
Euphrasia arctica subsp. borealis	Eyebright	flowering plant		y				
Euphrasia nemorosa	Eyebright	flowering plant			y	y	y	

Euphrasia officinalis agg.	Eyebright	flowering plant	y	y			
Fagus sylvatica	Beech	flowering plant	y	y			
Fallopia baldschuanica	Russian-vine	flowering plant		y			
Fallopia convolvulus	Black-bindweed	flowering plant		y			
Fallopia japonica	Japanese Knotweed	flowering plant	y	y			
Festuca arundinacea	Tall Fescue	flowering plant		y			
Festuca filiformis	Fine-leaved Sheep's-fescue	flowering plant		y	y	y	
Festuca gigantea	Giant Fescue	flowering plant		y			
Festuca ovina	Sheep's-fescue	flowering plant	y	y			
Festuca pratensis	Meadow Fescue	flowering plant	y	y			
Festuca rubra	Red Fescue	flowering plant	y	y	y		
Filago minima	Small Cudweed	flowering plant	y	y	y		
Filago vulgaris	Common Cudweed	flowering plant	y	y	y		
Filipendula ulmaria	Meadowsweet	flowering plant	y	y	y		
Foeniculum vulgare	Fennel	flowering plant		y			
Fragaria vesca	Wild Strawberry	flowering plant		y			
Frangula alnus	Alder Buckthorn	flowering plant	y	y	y		
Fraxinus excelsior	Ash	flowering plant	y	y			
Fumaria officinalis	Common Fumitory	flowering plant		y			
Galeopsis tetrahit	Common Hemp-nettle	flowering plant	y	y	y		
Galium aparine	Cleavers	flowering plant	y	y			
Galium mollugo	Hedge Bedstraw	flowering plant	y	y			
Galium palustre	Marsh-bedstraw	flowering plant	y	y	y		
Galium palustre subsp. palustre	Common Marsh-bedstraw	flowering plant	y	y			
Galium saxatile	Heath Bedstraw	flowering plant	y	y	y		
Galium uliginosum	Fen Bedstraw	flowering plant	y	y	y		
Galium verum	Lady's Bedstraw	flowering plant		y			
Gaultheria shallon	Shallon	flowering plant		y	y	y	
Genista anglica	Petty Whin	flowering plant		y			
Genista tinctoria	Dyer's Greenweed	flowering plant		y			
Gentiana pneumonanthe	Marsh Gentian	flowering plant		y			

Geranium columbinum	Long-stalked Crane's-bill	flowering plant		y	
Geranium dissectum	Cut-leaved Crane's-bill	flowering plant	y	y	
Geranium lucidum	Shining Crane's-bill	flowering plant		y	
Geranium molle	Dove's-foot Crane's-bill	flowering plant	y	y	y
Geranium pusillum	Small-flowered Crane's-bill	flowering plant		y	
Geranium pyrenaicum	Hedgerow Crane's-bill	flowering plant		y	
Geranium robertianum	Herb-Robert	flowering plant		y	
Geum urbanum	Wood Avens	flowering plant	y	y	y
Glebionis segetum	Corn Marigold	flowering plant		y	
Glechoma hederacea	Ground-ivy	flowering plant	y	y	y
Glyceria declinata	Small Sweet-grass	flowering plant	y	y	
Glyceria fluitans	Floating Sweet-grass	flowering plant	y	y	y
Glyceria maxima	Reed Sweet-grass	flowering plant	y	y	y
Glyceria notata	Plicate Sweet-grass	flowering plant	y	y	y
Gnaphalium sylvaticum	Heath Cudweed	flowering plant		y	
Gnaphalium uliginosum	Marsh Cudweed	flowering plant		y	
Groenlandia densa	Opposite-leaved Pondweed	flowering plant		y	
Hedera helix	Ivy	flowering plant	y	y	y
Helianthus annuus	Sunflower	flowering plant		y	
Heracleum mantegazzianum	Giant Hogweed	flowering plant		y	
Heracleum sphondylium	Hogweed	flowering plant		y	
Hieracium sabaudum	Sharp-toothed Hawkweed	flowering plant		y	
Hieracium umbellatum	Hawkweed	flowering plant		y	
Holcus lanatus	Yorkshire-fog	flowering plant	y	y	y
Holcus mollis	Creeping Soft-grass	flowering plant	y	y	y
Hordeum murinum	Wall Barley	flowering plant		y	
Humulus lupulus	Hop	flowering plant	y	y	y
Hyacinthoides hispanica	Spanish Bluebell	flowering plant		y	
Hyacinthoides non-scripta	Bluebell	flowering plant	y	y	
Hyacinthoides non-scripta x hispanica = H. x massartiana	Bluebell	flowering plant		y	
Hydrocotyle vulgaris	Marsh Pennywort	flowering plant	y	y	y

Hypericum androsaemum	Tutsan	flowering plant		y			
Hypericum elodes	Marsh St John's-wort	flowering plant	y	y	y		
Hypericum humifusum	Trailing St John's-wort	flowering plant		y	y	y	
Hypericum perforatum	Perforate St John's-wort	flowering plant	y	y	y		
Hypericum pulchrum	Slender St John's-wort	flowering plant		y	y	y	
Hypericum tetrapterum	Square-stalked St John's-wort	flowering plant	y	y	y		
Hypochaeris glabra	Smooth Cat's-ear	flowering plant		y			
Hypochaeris radicata	Cat's-ear	flowering plant	y	y	y		
Ilex aquifolium	Holly	flowering plant	y	y	y		
Illecebrum verticillatum	Coral-necklace	flowering plant		y	y	y	
Impatiens capensis	Orange Balsam	flowering plant		y			
Impatiens glandulifera	Indian Balsam	flowering plant	y	y	y		
Iris foetidissima	Stinking Iris	flowering plant		y			
Iris pseudacorus	Yellow Iris	flowering plant	y	y	y		
Isolepis cernua	Slender Club-rush	flowering plant		y			
Isolepis setacea	Bristle Club-rush	flowering plant		y			
Jasione montana	Sheep's-bit	flowering plant	y	y	y		
Juncus acutiflorus	Sharp-flowered Rush	flowering plant	y	y	y		
Juncus articulatus	Jointed Rush	flowering plant	y	y	y		
Juncus bufonius	Toad Rush	flowering plant	y	y	y		
Juncus bulbosus	Bulbous Rush	flowering plant	y	y	y		
Juncus conglomeratus	Compact Rush	flowering plant	y	y	y		
Juncus effusus	Soft-rush	flowering plant	y	y	y		
Juncus inflexus	Hard Rush	flowering plant	y	y	y		
Juncus squarrosus	Heath Rush	flowering plant	y	y	y		
Juncus subnodulosus	Blunt-flowered Rush	flowering plant		y			
Juncus tenuis	Slender Rush	flowering plant	y	y	y		
Kerria japonica	Kerria	flowering plant		y			
Koeleria macrantha	Crested Hair-grass	flowering plant	y	y			
Lamiastrum galeobdolon	Yellow Archangel	flowering plant	y	y			
Lamium album	White Dead-nettle	flowering plant		y			

Lamium purpureum	Red Dead-nettle	flowering plant		y	
Lapsana communis	Nipplewort	flowering plant	y	y	y
Larix decidua	European Larch	flowering plant	y	y	
Lathyrus pratensis	Meadow Vetchling	flowering plant	y	y	
Lemna gibba	Fat Duckweed	flowering plant		y	
Lemna minor	Common Duckweed	flowering plant	y	y	y
Lemna minuta	Least Duckweed	flowering plant		y	
Leontodon autumnalis	Autumn Hawkbit	flowering plant	y	y	y
Leontodon hispidus	Rough Hawkbit	flowering plant		y	
Leontodon saxatilis	Lesser Hawkbit	flowering plant	y	y	y
Lepidium campestre	Field Pepperwort	flowering plant		y	
Leucanthemum vulgare	Oxeye Daisy	flowering plant	y	y	
Ligustrum ovalifolium	Garden Privet	flowering plant	y	y	
Ligustrum vulgare	Wild Privet	flowering plant	y	y	y
Linaria purpurea	Purple Toadflax	flowering plant		y	
Linum catharticum	Fairy Flax	flowering plant		y	
Listera ovata	Common Twayblade	flowering plant		y	
Lolium perenne	Perennial Rye-grass	flowering plant	y	y	y
Lonicera nitida	Wilson's Honeysuckle	flowering plant		y	
Lonicera periclymenum	Honeysuckle	flowering plant	y	y	y
Lotus corniculatus	Common Bird's-foot-trefoil	flowering plant	y	y	y
Lotus pedunculatus	Greater Bird's-foot-trefoil	flowering plant	y	y	y
Lotus subbiflorus	Hairy Bird's-foot-trefoil	flowering plant	y	y	
Lotus tenuis	Narrow-leaved Bird's-foot-trefoil	flowering plant		y	
Lupinus arboreus	Tree Lupin	flowering plant		y	
Luzula campestris	Field Wood-rush	flowering plant	y	y	y
Luzula multiflora	Heath Wood-rush	flowering plant	y	y	y
Luzula pilosa	Hairy Wood-rush	flowering plant		y	
Lychnis flos-cuculi	Ragged-Robin	flowering plant	y	y	y
Lycopus europaeus	Gypsywort	flowering plant	y	y	y

Lysimachia nemorum	Yellow Pimpernel	flowering plant	y	y			
Lysimachia nummularia	Creeping-Jenny	flowering plant		y	y	y	
Lysimachia vulgaris	Yellow Loosestrife	flowering plant	y	y	y		
Lythrum portula	Water-purslane	flowering plant		y	y	y	
Lythrum salicaria	Purple-loosestrife	flowering plant	y	y	y		
Malus pumila	Apple	flowering plant		y			
Malus sylvestris	Crab Apple	flowering plant	y	y			
Malva moschata	Musk-mallow	flowering plant		y			
Malva neglecta	Dwarf Mallow	flowering plant		y			
Malva sylvestris	Common Mallow	flowering plant		y			
Matricaria discoidea	Pineappleweed	flowering plant		y	y	y	
Medicago lupulina	Black Medick	flowering plant		y			
Medicago sativa subsp. sativa	Lucerne	flowering plant		y			
Melampyrum pratense	Common Cow-wheat	flowering plant		y			
Melilotus	flowering plant	flowering plant		y			
Mentha aquatica	Water Mint	flowering plant	y	y	y		
Mentha arvensis	Corn Mint	flowering plant		y			
Menyanthes trifoliata	Bogbean	flowering plant		y			
Mimulus guttatus	Monkeyflower	flowering plant		y			
Misopates orontium	Weasel's-snout	flowering plant	y	y	y		
Moehringia trinervia	Three-nerved Sandwort	flowering plant		y	y	y	
Moenchia erecta	Upright Chickweed	flowering plant		y			
Molinia caerulea	Purple Moor-grass	flowering plant	y	y	y		
Monotropa hypopitys	Yellow Bird's-nest	flowering plant		y			
Montia fontana	Blinks	flowering plant		y			
Muscari armeniacum	Garden Grape-hyacinth	flowering plant		y			
Myosotis arvensis	Field Forget-me-not	flowering plant	y	y	y		
Myosotis discolor	Changing Forget-me-not	flowering plant	y	y	y		
Myosotis laxa	Tufted Forget-me-not	flowering plant		y			
Myosotis ramosissima	Early Forget-me-not	flowering plant		y			
Myosotis scorpioides	Water Forget-me-not	flowering plant	y	y	y		

Myosotis secunda	Creeping Forget-me-not	flowering plant	y	y				
Myosotis sylvatica	Wood Forget-me-not	flowering plant	y					
Myosoton aquaticum	Water Chickweed	flowering plant	y	y				
Myrica gale	Bog-myrtle	flowering plant	y	y	y			
Myriophyllum alterniflorum	Alternate Water-milfoil	flowering plant		y				
Myriophyllum spicatum	Spiked Water-milfoil	flowering plant		y				
Narcissus	daffodils	flowering plant	y	y				
Nardus stricta	Mat-grass	flowering plant		y				
Narthecium ossifragum	Bog Asphodel	flowering plant		y	y	y		
Nuphar lutea	Yellow Water-lily	flowering plant	y	y	y			
Odontites vernus		flowering plant			y	y	y	
Oenanthe aquatica	Fine-leaved Water-dropwort	flowering plant		y				
Oenanthe crocata	Hemlock Water-dropwort	flowering plant	y	y	y			
Oenanthe fistulosa	Tubular Water-dropwort	flowering plant	y	y				
Oenanthe fluviatilis	River Water-dropwort	flowering plant		y				
Oenanthe pimpinelloides	Corky-fruited Water-dropwort	flowering plant	y	y	y			
Oenothera biennis	Common Evening-primrose	flowering plant		y				
Oenothera cambrica	Small-flowered Evening-primrose	flowering plant		y				
Oenothera glazioviana	Large-flowered Evening-primrose	flowering plant		y				
Ononis repens	Common Restharrow	flowering plant		y				
Onopordum acanthium	Cotton Thistle	flowering plant		y				
Orchis morio	Green-winged Orchid	flowering plant	y	y	y			
Ornithogalum angustifolium	Star-of-Bethlehem	flowering plant		y				
Ornithogalum umbellatum	Garden Star-of-Bethlehem	flowering plant		y				
Ornithopus perpusillus	Bird's-foot	flowering plant	y	y	y			
Oxalis articulata	Pink-sorrel	flowering plant		y				
Oxalis debilis	Large-flowered Pink-sorrel	flowering plant		y				
Paeonia mascula	Peony	flowering plant		y				
Papaver rhoeas	Common Poppy	flowering plant		y				

Parentucellia viscosa	Yellow Bartsia	flowering plant	y	y	y			
Pastinaca sativa	Wild Parsnip	flowering plant		y	y	y		
Pedicularis palustris	Marsh Lousewort	flowering plant		y				
Pedicularis sylvatica	Lousewort	flowering plant	y	y				
Pentaglottis sempervirens	Green Alkanet	flowering plant		y	y	y		
Persicaria amphibia	Amphibious Bistort	flowering plant		y				
Persicaria hydropiper	Water-pepper	flowering plant	y	y	y			
Persicaria lapathifolia	Pale Persicaria	flowering plant		y				
Persicaria maculosa	Redshank	flowering plant	y	y	y			
Persicaria mitis	Tasteless Water-pepper	flowering plant		y				
Phalaris arundinacea	Reed Canary-grass	flowering plant	y	y	y			
Philadelphus	Mock-Orange	flowering plant		y				
Phleum pratense	Timothy	flowering plant	y	y				
Phragmites australis	Common Reed	flowering plant	y	y	y			
Picea abies	Norway Spruce	flowering plant		y				
Picea omorika	Serbian Spruce	flowering plant			y	y	y	
Picris echioides	Bristly Oxtongue	flowering plant		y				
Pilosella aurantiaca	Fox-and-cubs	flowering plant		y				
Pilosella officinarum	Mouse-ear-hawkweed	flowering plant	y	y	y			
Pinus nigra	Corsican Pine	flowering plant	y	y	y			
Pinus pinaster	Maritime Pine	flowering plant	y	y				
Pinus sylvestris	Scots Pine	flowering plant	y	y	y			
Plantago coronopus	Buck's-horn Plantain	flowering plant	y	y	y			
Plantago lanceolata	Ribwort Plantain	flowering plant	y	y	y			
Plantago major	Greater Plantain	flowering plant	y	y				
Plantago media	Hoary Plantain	flowering plant	y	y				
Poa annua	Annual Meadow-grass	flowering plant	y	y	y			
Poa compressa	Flattened Meadow-grass	flowering plant		y				
Poa nemoralis	Wood Meadow-grass	flowering plant		y				
Poa pratensis	Smooth Meadow-Grass	flowering plant	y	y				
Poa trivialis	Rough Meadow-grass	flowering plant	y	y				

Polygala serpyllifolia	Heath Milkwort	flowering plant	y	y	y
Polygala vulgaris	Common Milkwort	flowering plant	y	y	
Polygonum aviculare	Knotgrass	flowering plant	y	y	y
Polypogon monspeliensis	Annual Beard-grass	flowering plant		y	
Populus	Poplar	flowering plant		y	
Populus nigra subsp. betulifolia	Black Poplar	flowering plant	y		
Populus nigra x deltoides = P. x canadensis	Hybrid Black-poplar	flowering plant		y	
Populus tremula	Aspen	flowering plant	y	y	
Potamogeton alpinus	Red Pondweed	flowering plant		y	
Potamogeton berchtoldii	Small Pondweed	flowering plant		y	
Potamogeton crispus	Curled Pondweed	flowering plant		y	
Potamogeton lucens	Shining Pondweed	flowering plant	y	y	Y
Potamogeton natans	Broad-leaved Pondweed	flowering plant	y	y	y
Potamogeton natans x lucens = P. x fluitans	Pondweed	flowering plant		y	
Potamogeton pectinatus	Fennel Pondweed	flowering plant		y	
Potamogeton perfoliatus	Perfoliate Pondweed	flowering plant		y	
Potamogeton polygonifolius	Bog Pondweed	flowering plant	y	y	y
Potentilla anglica	Trailing Tormentil	flowering plant	y	y	y
Potentilla anglica x reptans = P. x mixta	Hybrid Cinquefoil	flowering plant		y	
Potentilla anserina	Silverweed	flowering plant		y	
Potentilla argentea	Hoary Cinquefoil	flowering plant		y	
Potentilla erecta	Tormentil	flowering plant	y	y	y
Potentilla palustris	Marsh Cinquefoil	flowering plant	y	y	y
Potentilla reptans	Creeping Cinquefoil	flowering plant	y	y	y
Potentilla sterilis	Barren Strawberry	flowering plant		y	
Primula vulgaris	Primrose	flowering plant	y	y	
Prunella vulgaris	Selfheal	flowering plant	y	y	y
Prunus	Planted Cherry	flowering plant		y	
Prunus avium	Wild Cherry	flowering plant		y	
Prunus laurocerasus	Cherry Laurel	flowering plant		y	
Prunus padus	Bird Cherry	flowering plant		y	

Prunus serotina	Rum Cherry	flowering plant			y			
Prunus spinosa	Blackthorn	flowering plant		y	y			
Pseudotsuga menziesii	Douglas fir	flowering plant				y	y	y
Pulicaria dysenterica	Common Fleabane	flowering plant		y	y			
Pulicaria vulgaris	Small Fleabane	flowering plant			y			
Pyracantha coccinea	Firethorn	flowering plant			y			
Quercus cerris	Turkey Oak	flowering plant			y	y	y	
Quercus ilex	Holm oak	flowering plant				y	y	y
Quercus petraea	Sessile Oak	flowering plant		y	y			
Quercus robur	Pedunculate Oak	flowering plant		y	y	y		
Quercus rubra	Red Oak	flowering plant			y	y	y	
Ranunculus acris	Meadow Buttercup	flowering plant		y	y	y		
Ranunculus aquatilis	Water Crowfoot	flowering plant			y			
Ranunculus auricomus	Goldilocks Buttercup	flowering plant			y			
Ranunculus bulbosus	Bulbous Buttercup	flowering plant			y	y	y	
Ranunculus ficaria	Lesser Celandine	flowering plant			y			
Ranunculus ficaria subsp. bulbilifer	Lesser Celandine	flowering plant			y			
Ranunculus flammula	Lesser Spearwort	flowering plant		y	y	y		
Ranunculus fluitans	River Water-crowfoot	flowering plant			y			
Ranunculus hederaceus	Ivy-leaved Crowfoot	flowering plant			y			
Ranunculus lingua	Greater Spearwort	flowering plant			y			
Ranunculus omiophyllus	Round-leaved Crowfoot	flowering plant		y	y			
Ranunculus parviflorus	Small-flowered Buttercup	flowering plant			y			
Ranunculus penicillatus	Stream Water-crowfoot	flowering plant		y	y			
Ranunculus penicillatus subsp. pseudofluitans	Stream Water-Crowfoot	flowering plant			y			
Ranunculus repens	Creeping Buttercup	flowering plant		y	y	y		
Ranunculus sardous	Hairy Buttercup	flowering plant			y			
Ranunculus sceleratus	Celery-leaved Buttercup	flowering plant			y			
Raphanus raphanistrum	Radish	flowering plant			y			
Reseda luteola	Weld	flowering plant			y			
Rhamnus cathartica	Buckthorn	flowering plant		y	y	y		

Rhinanthus minor	Yellow-rattle	flowering plant	y	y			
Rhododendron ponticum	Rhododendron	flowering plant	y	y	y		
Rhus typhina	Stag's-horn Sumach	flowering plant		y			
Rhynchospora alba	White Beak-sedge	flowering plant		y	y	y	
Rhynchospora fusca	Brown Beak-sedge	flowering plant		y			
Ribes nigrum	Black Currant	flowering plant	y		y		
Ribes rubrum	Red Currant	flowering plant	y	y	y		
Ribes uva-crispa	Gooseberry	flowering plant		y			
Robinia pseudoacacia	False-acacia	flowering plant		y			
Rorippa nasturtium-aquaticum	Water-cress	flowering plant	y	y			
Rorippa sylvestris	Creeping Yellow-cress	flowering plant		y			
Rosa arvensis	Field-rose	flowering plant		y	y	y	
Rosa canina agg.	Dog Rose	flowering plant	y	y			
Rubus fruticosus agg.	Bramble	flowering plant	y	y	y		
Rumex acetosa	Common Sorrel	flowering plant	y	y	y		
Rumex acetosella	Sheep's Sorrel	flowering plant	y	y	y		
Rumex conglomeratus	Clustered Dock	flowering plant	y	y			
Rumex crispus	Curled Dock	flowering plant	y	y	y		
Rumex crispus x obtusifolius = R. x pratensis	Dock	flowering plant		y			
Rumex hydrolapathum	Water Dock	flowering plant	y	y			
Rumex obtusifolius	Broad-leaved Dock	flowering plant	y	y	y		
Rumex sanguineus	Wood Dock	flowering plant	y	y	y		
Ruscus aculeatus	Butcher's-broom	flowering plant	y				
Sagina apetala	Annual Pearlwort	flowering plant		y	y	y	
Sagina procumbens	Procumbent Pearlwort	flowering plant	y	y	y		
Sagina subulata	Heath Pearlwort	flowering plant	y	y	y		
Sagittaria sagittifolia	Arrowhead	flowering plant	y	y			
Salix alba	White Willow	flowering plant		y			
Salix caprea	Goat Willow	flowering plant	y	y			
Salix cinerea	Common Sallow	flowering plant	y	y			
Salix cinerea subsp. cinerea	Grey Willow	flowering plant		y			

Salix cinerea subsp. oleifolia	Rusty Willow	flowering plant	y	y	y		
Salix fragilis	Crack-willow	flowering plant	y	y			
Salix repens	Creeping Willow	flowering plant	y	y			
Salix viminalis	Osier	flowering plant		y			
Sambucus nigra	Elder	flowering plant	y	y			
Sanguisorba minor	Salad Burnet	flowering plant	y	y			
Saponaria officinalis	Soapwort	flowering plant		y			
Sasa	Bamboo	flowering plant		y			
Schoenoplectus lacustris	Common Club-rush	flowering plant	y	y	y		
Scirpus sylvaticus	Wood Club-rush	flowering plant		y			
Scleranthus annuus	Annual Knawel	flowering plant	y	y	y		
Scrophularia auriculata	Water Figwort	flowering plant		y	y	y	
Scrophularia nodosa	Common Figwort	flowering plant	y	y			
Scutellaria galericulata	Skullcap	flowering plant	y	y	y		
Scutellaria minor	Lesser Skullcap	flowering plant	y	y	y		
Sedum acre	Biting Stonecrop	flowering plant	y	y	y		
Sedum album	White Stonecrop	flowering plant		y			
Sedum anglicum	English Stonecrop	flowering plant		y			
Senecio aquaticus	Marsh Ragwort	flowering plant	y	y	y		
Senecio erucifolius	Hoary Ragwort	flowering plant		y			
Senecio jacobaea	Common Ragwort	flowering plant	y	y	y		
Senecio sylvaticus	Heath Groundsel	flowering plant		y	y	y	
Senecio vulgaris	Groundsel	flowering plant		y	y	y	
Serratula tinctoria	Saw-wort	flowering plant	y	y			
Sherardia arvensis	Field Madder	flowering plant	y	y	y		
Silaum silaus	Pepper-saxifrage	flowering plant	y				
Silene dioica	Red Campion	flowering plant		y			
Silene latifolia	White Campion	flowering plant		y			
Silene latifolia x dioica = S. x hampeana	Hybrid Campion	flowering plant		y			
Sinapis arvensis	Charlock	flowering plant		y			
Sisymbrium officinale	Hedge Mustard	flowering plant		y			

Solanum dulcamara	Bittersweet	flowering plant	y	y			
Solanum nigrum	Black Nightshade	flowering plant		y	y	y	
Solidago canadensis	Canadian Goldenrod	flowering plant		y			
Solidago virgaurea	Goldenrod	flowering plant		y			
Sonchus arvensis	Perennial Sow-thistle	flowering plant		y			
Sonchus asper	Prickly Sow-thistle	flowering plant		y	y	y	
Sonchus oleraceus	Smooth Sow-thistle	flowering plant		y			
Sorbus aucuparia	Rowan	flowering plant	y	y			
Sparganium emersum	Unbranched Bur-reed	flowering plant	y	y			
Sparganium erectum	Branched Bur-reed	flowering plant	y	y	y		
Spergula arvensis	Corn Spurrey	flowering plant	y	y	y		
Spergularia rubra	Sand Spurrey	flowering plant	y	y	y		
Spiranthes spiralis	Autumn Lady's-tresses	flowering plant		y			
Stachys palustris	Marsh Woundwort	flowering plant	y	y	y		
Stachys sylvatica	Hedge Woundwort	flowering plant	y	y	y		
Stellaria alsine	Bog Stitchwort	flowering plant	y	y			
Stellaria graminea	Lesser Stitchwort	flowering plant	y	y	y		
Stellaria holostea	Greater Stitchwort	flowering plant	y	y			
Stellaria media	Common Chickweed	flowering plant	y	y	y		
Stellaria neglecta	Greater Chickweed	flowering plant	y	y			
Stellaria pallida	Lesser Chickweed	flowering plant	y	y			
Stellaria palustris	Marsh Stitchwort	flowering plant		y			
Succisa pratensis	Devil's-bit Scabious	flowering plant	y	y	y		
Symphytum officinale	Common Comfrey	flowering plant	y	y	y		
Symphytum officinale x asperum = S. x uplandicum	Russian Comfrey	flowering plant		y			
Syringa vulgaris	Lilac	flowering plant		y			
Tanacetum parthenium	Feverfew	flowering plant		y			
Tanacetum vulgare	Tansy	flowering plant		y			
Taraxacum officinale agg.	Dandelion	flowering plant	y	y			
Taxus baccata	Yew	flowering plant		y			
Teesdalia nudicaulis	Shepherd's Cress	flowering plant		y			

Teucrium scorodonia	Wood Sage	flowering plant	y	y	y			
Thalictrum flavum	Common Meadow-rue	flowering plant	y	y	y			
Tilia	Lime	flowering plant		y				
Torilis japonica	Upright Hedge-parsley	flowering plant		y				
Tragopogon pratensis	Goat's-beard	flowering plant		y				
Trichophorum cespitosum	Deergrass	flowering plant	y	y	y			
Trifolium arvense	Hare's-foot Clover	flowering plant	y	y	y			
Trifolium campestre	Hop Trefoil	flowering plant		y	y	y		
Trifolium dubium	Lesser Trefoil	flowering plant	y	y	y			
Trifolium glomeratum	Clustered Clover	flowering plant		y				
Trifolium micranthum	Slender Trefoil	flowering plant	y	y	y			
Trifolium ornithopodioides	Bird's-foot Clover	flowering plant		y				
Trifolium pratense	Red Clover	flowering plant	y	y	y			
Trifolium repens	White Clover	flowering plant	y	y	y			
Trifolium striatum	Knotted Clover	flowering plant		y				
Trifolium subterraneum	Subterranean Clover	flowering plant		y				
Tripleurospermum inodorum	Scentless Mayweed	flowering plant		y				
Tripleurospermum maritimum subsp. maritimum	Scentless Mayweed	flowering plant		y				
Tsuga heterophylla	Western Hemlock-spruce	flowering plant	y	y	y			
Tussilago farfara	Colt's-foot	flowering plant		y				
Typha latifolia	Bulrush	flowering plant	y	y	y			
Ulex europaeus	Gorse	flowering plant	y	y	y			
Ulex gallii	Western Gorse	flowering plant		y				
Ulex minor	Dwarf Gorse	flowering plant	y	y	y			
Ulmus procera	English Elm	flowering plant		y				
Urtica dioica	Common Nettle	flowering plant	y	y	y			
Utricularia australis	Bladderwort	flowering plant	y	y	y			
Utricularia minor	Lesser Bladderwort	flowering plant		y				
Vaccinium myrtillus	Bilberry	flowering plant			y	y	y	
Valeriana dioica	Marsh Valerian	flowering plant	y	y	y			
Valeriana officinalis	Common Valerian	flowering plant	y	y	y			

Valerianella carinata	Keeled-fruited Cornsalad	flowering plant		y			
Verbascum nigrum	Dark Mullein	flowering plant	y				
Verbascum thapsus	Great Mullein	flowering plant		y	y	y	
Veronica agrestis	Green Field-speedwell	flowering plant	y	y			
Veronica anagallis-aquatica	Blue Water-Speedwell	flowering plant		y			
Veronica anagallis-aquatica x catenata = V. x lackschewitzii	Water Speedwell	flowering plant		y			
Veronica arvensis	Wall Speedwell	flowering plant	y	y	y		
Veronica beccabunga	Brooklime	flowering plant		y			
Veronica catenata	Pink Water-Speedwell	flowering plant		y			
Veronica chamaedrys	Germander Speedwell	flowering plant	y	y	y		
Veronica hederifolia	Ivy-leaved Speedwell	flowering plant		y			
Veronica montana	Wood Speedwell	flowering plant		y	y		
Veronica officinalis	Heath Speedwell	flowering plant	y	y	y		
Veronica persica	Common Field-speedwell	flowering plant		y			
Veronica scutellata	Marsh Speedwell	flowering plant		y			
Veronica serpyllifolia	Thyme-leaved Speedwell	flowering plant	y	y			
Viburnum opulus	Guelder-rose	flowering plant	y	y	y		
Vicia cracca	Tufted Vetch	flowering plant	y	y	y		
Vicia hirsuta	Hairy Tare	flowering plant		y			
Vicia sativa	Common Vetch	flowering plant	y	y			
Vicia sativa subsp. nigra	Narrow-leaved Vetch	flowering plant	y	y	y		
Vicia sativa subsp. sativa	Common Vetch	flowering plant	y	y			
Vicia tetrasperma	Smooth Tare	flowering plant	y	y	y		
Vinca major	Greater Periwinkle	flowering plant		y			
Vinca minor	Lesser Periwinkle	flowering plant		y			
Viola arvensis	Field Pansy	flowering plant		y			
Viola canina	Heath Dog-violet	flowering plant		y			
Viola odorata	Sweet Violet	flowering plant		y			
Viola palustris	Marsh Violet	flowering plant	y	y			
Viola reichenbachiana	Early Dog-violet	flowering plant		y			

Viola riviniana	Common Dog-violet	flowering plant	y	y	y			
Viola tricolor	Wild Pansy	flowering plant		y				
Vulpia bromoides	Squirreltail Fescue	flowering plant	y	y	y			
Vulpia myuros	Rat's-tail Fescue	flowering plant		y				
			326 species	**625 species**	**265 species**	**41 species**	**11 species**	

646 species

Summary of mollusc records (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest	New to buffer area
Ancylus fluviatilis	River limpets	mollusc		y			
Anisus (Disculifer) vortex	Whirlpool Ramshorn	mollusc		y			
Bithynia (Bithynia) tentaculata	Common Bithynia	mollusc		y			
Cepaea (Cepaea) hortensis	White-lipped Snail	mollusc		y			
Cochlicopa cf. lubrica	Slippery Moss Snail	mollusc	y				
Cornu aspersum	Common Garden Snail	mollusc		y			
Discus rotundatus	Rounded Snail	mollusc			y		
Galba (Galba) truncatula	Dwarf Pond Snail	mollusc	y				
Gyraulus (Armiger) crista	Nautilus Ramshorn	mollusc		y			
Gyraulus (Gyraulus) albus	White Ramshorn	mollusc		y			
Milax gagates	Smooth Jet Slug	mollusc		y			
Oxyloma (Oxyloma) elegans subsp. elegans	mollusc	mollusc	y				
Physa	Bladder snails	mollusc		y			
Pisidium amnicum	Pea & orb mussels	mollusc		y			
Pisidium casertanum	mollusc	mollusc		y			
Pisidium henslowanum	mollusc	mollusc		y			
Pisidium hibernicum	mollusc	mollusc		y			
Pisidium milium	mollusc	mollusc		y			
Pisidium nitidum	mollusc	mollusc		y			
Pisidium personatum	mollusc	mollusc		y			
Potamopyrgus antipodarum	Jenkins' Spire Snail	mollusc		y			
Radix balthica	Wandering Snail	mollusc		y			
Sphaerium corneum	mollusc	mollusc		y			
Succinea putris	mollusc	mollusc		y			
Valvata (Valvata) cristata	Flat Valve Snail	mollusc		y			
25 species			**3 species**	**21 species**	**1 species**	**1 species**	**1 species**

Summary of general invertebrates and allies records including 2013 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest	New to Forest and buffer
Abax parallelepipedus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Acalles ptinoides	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Acalypta parvula	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Acalypta platycheila	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Achalcus cinereus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Achalcus flavicollis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Acilius sulcatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Acrotrichis (Acrotrichis) atomaria	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Acrotrichis (Acrotrichis) henrici	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Actenicerus sjaelandicus	Marsh Click Beetle	insect - beetle (Coleoptera)		y			
Acupalpus dubius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Acupalpus flavicollis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Acupalpus parvulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Adalia bipunctata	2-spot Ladybird	insect - beetle (Coleoptera)		y			
Adalia decempunctata	10-spot Ladybird	insect - beetle (Coleoptera)		y			
Adelphocoris lineolatus	a mirid bug				y	y	y
Adicella reducta	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Adrastus pallens	click beetle				y	y	y
Aelia acuminata	a shieldbug				y	y	y
Aelurillus v-insignitus	spider (Araneae)	spider (Araneae)		y			
Aeshna cyanea	Southern Hawker	insect - dragonfly (Odonata)	y	y	y		
Aeshna grandis	Brown Hawker	insect - dragonfly (Odonata)	y	y			
Aeshna juncea	Common Hawker	insect - dragonfly (Odonata)	y	y			
Aeshna mixta	Migrant Hawker	insect - dragonfly (Odonata)	y	y			
Agabus (Acatodes) sturmii	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Agabus (Gaurodytes) affinis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				

Agabus (Gaurodytes) bipustulatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Agalenatea redii	spider (Araneae)	spider (Araneae)		y	y	y	
Agelastica alni	Alder Leaf Beetle	insect - beetle (Coleoptera)	y				
Agelena labyrinthica	Labyrinth Spider	spider (Araneae)	y	y	y		
Aglaostigma aucupariae	insect - hymenopteran	insect - hymenopteran		y			
Agonum (Agonum) emarginatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Agonum (Agonum) muelleri	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Agonum (Agonum) versutum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Agonum (Agonum) viduum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Agonum (Europhilus) fuliginosum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Agonum (Europhilus) micans	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Agraylea multipunctata	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Agraylea sexmaculata	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Agriotes obscurus	click beetle				y	y	y
Agroeca inopina	spider (Araneae)	spider (Araneae)		y			
Agroeca proxima	spider (Araneae)	spider (Araneae)	y	y			
Agrypnia varia	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Agyneta subtilis	spider (Araneae)	spider (Araneae)		y			
Alianta incana	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Alopecosa barbipes	spider (Araneae)	spider (Araneae)		y			
Alopecosa pulverulenta	spider (Araneae)	spider (Araneae)		y			
Alydus calcaratus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Amalorrhynchus melanarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Amara (Amara) aenea	Common Sun Beetle	insect - beetle (Coleoptera)		y			
Amara (Amara) familiaris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Amara (Percosia) equestris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Amara (Zezea) plebeja	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Amaurobius ferox	spider (Araneae)	spider (Araneae)		y			
Amaurobius similis	spider (Araneae)	spider (Araneae)		y			
Amischa analis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Amischa bifoveolata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				

Ammophila pubescens	Heath Sand Wasp	insect - hymenopteran		y			
Ammophila sabulosa	Red Banded Sand Wasp	insect - hymenopteran		y			
Ampedus balteatus	click beetle				y	y	y
Ampedus elongantulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Anabolia nervosa	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Anacaena bipustulata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Anacaena globulus	water beetle				y	y	y
Anacaena limbata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Anacaena lutescens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y	y		
Anapsis rufilabris	beetle				y	y	y
Anaspis (Anaspis) humeralis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Anaspis (Anaspis) maculata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y		
Anatis ocellata	Eyed Ladybird	insect - beetle (Coleoptera)		y			
Anax imperator	Emperor Dragonfly	insect - dragonfly (Odonata)	y	y			
Ancistrocerus antilope	insect - hymenopteran	insect - hymenopteran		y			
Ancistrocerus gazella	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Cnemidandrena) denticulata	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Cnemidandrena) fuscipes	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Leucandrena) argentata	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Margandrena) marginata	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Micrandrena) alfkenella	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Micrandrena) falsifica	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Micrandrena) proxima	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Plastandrena) bimaculata	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Plastandrena) pilipes	insect - hymenopteran	insect - hymenopteran		y			
Andrena (Simandrena) dorsata	insect - hymenopteran	insect - hymenopteran		y			
Andricus anthracina	Oyster Gall	insect - hymenopteran		y			
Andricus curvator f. sexual	Curved-leaf gall causer				y	y	y
Anelosimus aulicus					y	y	y
Anelosimus vittatus					y	y	y
Anepsiomyia flaviventris	insect - true fly (Diptera)	insect - true fly (Diptera)	y				

Aneugmenus padi	insect - hymenopteran	insect - hymenopteran	y	y	y			
Aneugmenus temporalis	insect - hymenopteran	insect - hymenopteran	y					
Aneurus avenius	a flat bug				y	y	y	
Aneurus laevis	a flat bug				y	y	y	
Anisostephus betulinus	gall midge				y	y	y	
Anoplius (Arachnophroctonus) viaticus	Black-banded Spider Wasp	insect - hymenopteran		y				
Anoplus plantaris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y		
Anotylus rugosus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y					
Anthicus antherinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Anthocoris confusus	an anthocorid bug				y	y	y	
Anthocoris nemorum	an anthocorid bug				y	y	y	
Anthonomus rubi	Weevil				y	y	y	
Anthophora (Dasymegilla) quadrimaculata	insect - hymenopteran	insect - hymenopteran		y				
Anyphaena accentuata	spider (Araneae)	spider (Araneae)	y	y	y			
Aphodius (Acrossus) rufipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y					
Aphropora alni	leaf hopper				y	y	y	
Aphthona euphorbiae	Large Flax Flea Beetle	insect - beetle (Coleoptera)	y					
Aphthona nonstriata	Iris Flea Beetle	insect - beetle (Coleoptera)	y					
Apis mellifera	Honey Bee	insect - hymenopteran		y	y	y		
Arachnospila (Anoplochares) minutula	insect - hymenopteran	insect - hymenopteran		y				
Aradus cinnamomeus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y				
Araeoncus humilis					y	y	y	
Araneus angulatus	spider (Araneae)	spider (Araneae)	y	y				
Araneus diadematus	Garden Orb-Web Spider	spider (Araneae)	y	y	y			
Araneus quadratus	spider (Araneae)	spider (Araneae)	y	y	y			
Araneus sturmi	spider (Araneae)	spider (Araneae)		y				
Araniella cucurbitina	spider (Araneae)	spider (Araneae)	y	y	y			
Arctosa leopardus	spider (Araneae)	spider (Araneae)		y				
Arctosa perita	spider (Araneae)	spider (Araneae)		y				
Arge nigripes	a sawfly				y	y	y	

Argiope bruennichi	spider (Araneae)	spider (Araneae)	y	y	y			
Argyroneta aquatica	Water Spider	spider (Araneae)		y				
Arhopalus rusticus	longhorn beetle				y	y	y	
Armadillidium vulgare	Pill Woodlouse				y	y	y	
Asaphidion flavipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Asilus crabroniformis	Hornet Robberfly	insect - true fly (Diptera)		y				
Astata boops	insect - hymenopteran	insect - hymenopteran		y				
Athalia bicolor	insect - hymenopteran	insect - hymenopteran		y				
Athalia circularis	insect - hymenopteran	insect - hymenopteran	y					
Athalia lugens	insect - hymenopteran	insect - hymenopteran		y				
Athous (Athous) haemorrhoidalis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y		
Athous subfuscus ?	click beetle				y	y	y	
Athripsodes albifrons	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y		
Atlantoraphidia maculicollis	Snake Fly	insect - snakefly (Raphidioptera)	y					
Atypus affinis	Purse Web Spider	spider (Araneae)		y				
Aulogastromyia anisodactyla	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Austrolimnophila ochracea	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Baccha	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Baetis rhodani	insect - mayfly (Ephemeroptera)	insect - mayfly (Ephemeroptera)		y				
Baetis scambus	insect - mayfly (Ephemeroptera)	insect - mayfly (Ephemeroptera)		y				
Baetis vernus	insect - mayfly (Ephemeroptera)	insect - mayfly (Ephemeroptera)		y				
Bathyphantes gracilis	spider (Araneae)	spider (Araneae)		y				
Bembidion (Bembidion) quadrimaculatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y			
Bembidion (Eupetedromus) dentellum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				
Bembidion (Neja) nigricorne	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Bembidion (Philochthus) biguttatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				
Bembidion (Philochthus) guttula	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				
Bembidion (Philochthus) lunulatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				

Bembidion (Philochthus) mannerheimii	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y		
Bembidion (Trepanedoris) doris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Beosus maritimus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Beris chalybata	Murky-legged Black Legionnaire	insect - true fly (Diptera)		y			
Beris morrisii	Yellow-legged Black Legionnaire	insect - true fly (Diptera)		y			
Beris vallata	Common Orange Legionnaire	insect - true fly (Diptera)	y	y			
Betulapion simile	Weevil				y	y	y
Bibio marci	St Marks Fly	insect - true fly (Diptera)		y			
Bicellaria vana	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Birka cinereipes	insect - hymenopteran	insect - hymenopteran	y				
Blennocampa phyllocolpa	insect - hymenopteran	insect - hymenopteran	y				
Blondelia nigripes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Bombus (Bombus) lucorum	White-Tailed Bumble Bee	insect - hymenopteran		y			
Bombus (Bombus) terrestris	Buff-Tailed Bumble Bee	insect - hymenopteran		y			
Bombus (Melanobombus) lapidarius	Large Red Tailed Bumble Bee	insect - hymenopteran		y	y	y	
Bombus (Psithyrus) campestris	Field Cuckoo Bee	insect - hymenopteran		y			
Bombus (Psithyrus) sylvestris	Four Coloured Cuckoo Bee	insect - hymenopteran		y			
Bombus (Psithyrus) vestalis	Vestal Cuckoo Bee	insect - hymenopteran		y			
Bombus (Pyrobombus) jonellus	Heath Bumble Bee	insect - hymenopteran		y			
Bombus (Pyrobombus) pratorum	Early Bumble Bee	insect - hymenopteran		y			
Bombus (Thoracobombus) pascuorum	Common Carder Bee	insect - hymenopteran	y	y	y		
Brachygluta fossulata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Brachypterus glaber	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Brachysteles parvicornis	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Brachytron pratense	Hairy Dragonfly	insect - dragonfly (Odonata)	y	y			
Bradycellus harpalinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Bradycellus ruficollis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Brevicornu griseicolle	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Byrrhus pilula	Pill Beetle	insect - beetle (Coleoptera)		y			
Calathus (Calathus) fuscipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			

Calathus melanocephalus agg.	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Calathus rotundicollis	ground beetle				y	y	y
Caliroa annulipes	a sawfly				y	y	y
Callicorixa praeusta	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Calliopum elisae	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Calliopum simillimum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Calomicrus circumfusus	leaf beetle				y	y	y
Calopteryx splendens	Banded Demoiselle	insect - dragonfly (Odonata)	y	y			
Calopteryx virgo	Beautiful Demoiselle	insect - dragonfly (Odonata)	y	y			
Calvia quattuordecimguttata	Cream-spot Ladybird	insect - beetle (Coleoptera)	y	y			
Campsicnemus curvipes	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Campsicnemus scambus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Cantharis cryptica	soldier beetle				y	y	y
Cantharis decipiens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cantharis livida	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Cantharis nigra	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Cantharis pellucida	soldier beetle				y	y	y
Cantharis rufa	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cantharis rustica	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Capsus ater	a mirid bug				y	y	y
Carabus (Carabus) granulatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carabus (Hemicarabus) nitens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carabus (Megodontus) violaceus	Violet Ground Beetle	insect - beetle (Coleoptera)		y			
Carabus (Mesocarabus) problematicus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carpelimus bilineatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carpelimus corticinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carpelimus elongatulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Carpelimus impressus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Cassida viridis	Green Tortoise Beetle	insect - beetle (Coleoptera)	y				
Cephennium gallicum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ceraclea albimacula	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	

Ceraclea dissimilis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Ceratinella scabrosa	spider (Araneae)	spider (Araneae)		y			
Cerceris arenaria	Sand Tailed Digger Wasp	insect - hymenopteran	y	y			
Cerceris ruficornis	insect - hymenopteran	insect - hymenopteran		y			
Cerceris rybyensis	Ornate Tailed Digger Wasp	insect - hymenopteran		y			
Cercopis vulnerata	leaf hopper				y	y	y
Cercyon (Cercyon) convexiusculus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cercyon (Cercyon) melanocephalus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ceriagrion tenellum	Small Red Damselfly	insect - dragonfly (Odonata)	y	y			
Ceromya bicolor	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Ceropales variegata	insect - hymenopteran	insect - hymenopteran		y			
Ceroxys urticae	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Chaetocnema hortensis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Chaetocnema subcoerulea	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Chalcosyrphus nemorum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Cheilosia antiqua	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Cheilosia mutabilis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Cheilosia pagana	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Cheilosia proxima	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Cheilosia vernalis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Cheilosia vulpina	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Cheiracanthium erraticum	spider (Araneae)	spider (Araneae)		y	y	y	
Cheiracanthium virescens	spider (Araneae)	spider (Araneae)		y	y	y	
Cheumatopsyche lepida	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Chilocorus bipustulatus	Heather Ladybird	insect - beetle (Coleoptera)		y			
Chirosia grossicauda	insect - true fly (Diptera)				y	y	y
Chirosia histricina	insect - true fly (Diptera)	insect - true fly (Diptera)		y	y	y	
Chloromyia formosa	Broad Centurion	insect - true fly (Diptera)	y				
Chorisops tibialis	Dull Four-spined Legionnaire	insect - true fly (Diptera)	y				
Chorthippus albomarginatus	Lesser Marsh Grasshopper	insect - orthopteran	y	y			
Chorthippus brunneus	Field Grasshopper	insect - orthopteran	y	y	y		

Chorthippus parallelus	Meadow Grasshopper	insect - orthopteran	y	y	y			
Chorthippus vagans	Heath Grasshopper	insect - orthopteran	y	y				
Chrysolina herbacea	Mint Leaf Beetle	insect - beetle (Coleoptera)	y	y				
Chrysolina hyperici	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y					
Chrysolina polita	Knotgrass Leaf Beetle	insect - beetle (Coleoptera)	y	y				
Chrysomela populi	Red Poplar Leaf Beetle	insect - beetle (Coleoptera)	y	y	y			
Chrysopa perla	a lacewing				y	y	y	
Chrysoperla carnea group	insect - lacewing (Neuroptera)	insect - lacewing (Neuroptera)	y					
Chrysopilus cristatus	Black Snipefly	insect - true fly (Diptera)	y	y				
Chrysotimus molliculus	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Chrysotus cilipes	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Chrysotus gramineus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Chrysotus neglectus	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Cicadella viridis	leaf hopper				y	y	y	
Cicindela campestris	Green Tiger Beetle	insect - beetle (Coleoptera)		y				
Cicindela sylvatica	Wood Tiger Beetle	insect - beetle (Coleoptera)		y				
Cimbex femoratus	insect - hymenopteran	insect - hymenopteran		y				
Cinara pinea	Pine Aphid				y	y	y	
Cionus hortulanus	Weevil				y	y	y	
Cionus tuberculosus	Weevil				y	y	y	
Cixius similis	a leaf hopper				y	y	y	
Cladius (Priophorus) pallipes	insect - hymenopteran	insect - hymenopteran		y				
Cleigastra apicalis	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Cleptes nitidulus	insect - hymenopteran	insect - hymenopteran		y				
Clinocera nigra	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Clivina fossor	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				
Clubiona brevipes	spider (Araneae)	spider (Araneae)		y				
Clubiona comta	spider (Araneae)	spider (Araneae)		y	y	y		
Clubiona diversa	spider (Araneae)	spider (Araneae)		y				
Clubiona lutescens	spider (Araneae)	spider (Araneae)	y	y				
Clubiona reclusa	spider (Araneae)	spider (Araneae)	y		y			

Clubiona stagnatilis	spider (Araneae)	spider (Araneae)		y			
Clubiona terrestris	spider (Araneae)	spider (Araneae)		y			
Clubiona trivialis	spider (Araneae)	spider (Araneae)		y			
Cnephalocotes obscurus	spider (Araneae)	spider (Araneae)	y	y			
Coccidula rufa	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Coccinella septempunctata	7-spot Ladybird	insect - beetle (Coleoptera)	y	y	y		
Coccinella undecimpunctata	11-spot Ladybird	insect - beetle (Coleoptera)		y			
Coelioxys (Coelioxys) conoidea	insect - hymenopteran	insect - hymenopteran	y				
Coelioxys (Coelioxys) quadridentata	insect - hymenopteran	insect - hymenopteran		y			
Coelosia flava	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Coelostoma orbiculare	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Coenagrion mercuriale	Southern Damselfly	insect - dragonfly (Odonata)	y	y			
Coenagrion puella	Azure Damselfly	insect - dragonfly (Odonata)	y	y			
Coenosia albicornis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Coenosia femoralis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Coenosia pumila	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Coenosia testacea	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Coenosia tigrina	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Colletes (Colletes) succinctus	insect - hymenopteran	insect - hymenopteran		y			
Colymbetes fuscus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Conocephalus discolor	Long-winged Conehead				y	y	y
Conocephalus dorsalis	Short-winged Cone-head	insect - orthopteran	y	y			
Conocephalus fuscus	Long-winged Cone-head	insect - orthopteran	y	y			
Conocephalus sp. Indet. (nymph)	a conehead				y	y	y
Conops flavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Copromyza equina	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Coranus (Coranus) subapterus	Heath Assassin Bug	insect - true bug (Hemiptera)	y	y			
Cordulegaster boltonii	Golden-ringed Dragonfly	insect - dragonfly (Odonata)	y	y	y		
Cordulia aenea	Downy Emerald	insect - dragonfly (Odonata)		y			
Cordyla semiflava	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Cordylepherus viridis	Malachite Beetle				y	y	y

Coreus marginatus	Dock Bug	insect - true bug (Hemiptera)	y	y			
Corticarina fuscula	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Cortinicara gibbosa	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Crabro peltarius	insect - hymenopteran	insect - hymenopteran		y			
Crabro scutellatus	insect - hymenopteran	insect - hymenopteran		y	y	y	
Crepidodera aurata	Willow Flea Beetle	insect - beetle (Coleoptera)	y		y		
Crepidodera aurea	leaf beetle				y	y	y
Crepidodera fulvicornis	leaf beetle				y	y	y
Crepidodera plutus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y		
Criorhina ranunculi	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Crossocerus (Acanthocrabro) vagabundus	insect - hymenopteran	insect - hymenopteran		y			
Crossocerus (Blepharipus) walkeri	insect - hymenopteran	insect - hymenopteran		y			
Crossocerus (Crossocerus) palmipes	insect - hymenopteran	insect - hymenopteran		y			
Crossocerus (Crossocerus) wesmaeli	Wesmael's Digger Wasp	insect - hymenopteran		y			
Crossocerus (Hoplocrabro) quadrimaculatus	4-Spotted Digger Wasp	insect - hymenopteran		y			
Crustulina guttata	spider (Araneae)	spider (Araneae)	y				
Cryptocephalus biguttatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cryptocephalus bipunctatus	leaf beetle				y	y	y
Cryptocephalus labiatus	leaf beetle				y	y	y
Cryptocephalus parvulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Cryptophagus (Cryptophagus) setulosus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cyclosa conica	spider (Araneae)	spider (Araneae)		y			
Cylindroiulus punctatus	Blunt-tailed Snake Millipede	millipede	y	y			
Cymus claviculus	a ground bug				y	y	y
Cymus melanocephalus	a ground bug				y	y	y
Cynips longiventris f. agamic	Striped-pea gall causer				y	y	y
Cynips quercusfolii f. agamic	Cherry gall causer				y	y	y
Cypha longicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cyphon coarctatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Cyphon hilaris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			

Cyphon ochraceus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Cyphon pubescens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Cyrnus trimaculatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Dalopius marginatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Datonychus melanostictus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Demetrias (Demetrias) atricapillus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Denticollis linearis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Deporaus (Deporaus) betulae	Birch Leaf Roller	insect - beetle (Coleoptera)		y	y	y	
Dexiosoma caninum	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Diaea dorsata	spider (Araneae)	spider (Araneae)		y	y		
Diaperis boleti	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Diaphorus nigricans	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Diastata costata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Dichochrysa flavifrons	a lacewing				y	y	y
Dicranomyia modesta	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Dicranopalpus ramosus	harvestman (Opiliones)				y	y	
Dicranotropis hamata	a leaf hopper				y	y	y
Dictyna arundinacea	spider (Araneae)	spider (Araneae)		y	y	y	
Dictyna latens	spider (Araneae)	spider (Araneae)	y	y	y		
Dictyna uncinata	spider (Araneae)	spider (Araneae)		y			
Dilophus febrilis	Fever Fly				y	y	y
Dilta hibernica	insect - bristletail (Archaeognatha)				y	y	y
Dilta littoralis	insect - bristletail (Archaeognatha)	insect - bristletail (Archaeognatha)		y			
Dinarda dentata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Dioctria atricapilla	Violet Black-legged	insect - true fly (Diptera)		y			
Dioctria baumhaueri	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dioctria linearis	Small Yellow-legged Robberfly	insect - true fly (Diptera)	y	y			
Dioctria rufipes	Common Red-legged Robberfly	insect - true fly (Diptera)	y				
Ditrichophora calceata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Ditrichophora fuscella	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			

Ditropis pteridis	a leaf hopper				y	y	y
Dolerus (Poodolerus) haematodes	insect - hymenopteran	insect - hymenopteran	y				
Dolichocephala oblongoguttata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dolichopus griseipennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Dolichopus longicornis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Dolichopus pennatus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Dolichopus plumipes	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dolichopus popularis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dolichopus trivialis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Dolichopus ungulatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dolichopus urbanus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Dolichopus vitripennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Dolichopus wahlbergi	insect - true fly (Diptera)				y	y	y
Dolichovespula (Dolichovespula) media	insect - hymenopteran	insect - hymenopteran		y			
Dolichovespula (Pseudovespula) norwegica	Norwegian Wasp	insect - hymenopteran		y			
Dolomedes fimbriatus	Raft Spider	spider (Araneae)	y	y	y		
Dolycoris baccarum	Sloe Shieldbug	insect - true bug (Hemiptera)		y			
Donacia bicolora	Two-tone Reed Beetle	insect - beetle (Coleoptera)	y	y			
Donacia semicuprea	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Donacia simplex	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Dorcus parallelipipedus	Lesser Stag Beetle	insect - beetle (Coleoptera)		y			
Dorytomus taeniatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Drapetis ephippiata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Drapetisca socialis	spider (Araneae)	spider (Araneae)	y	y			
Drassodes cupreus	spider (Araneae)	spider (Araneae)		y	y	y	
Drassodes lapidosus	spider (Araneae)	spider (Araneae)		y			
Drassodes pubescens	spider (Araneae)	spider (Araneae)		y			
Dromius linearis	ground beetle				y	y	y
Drosophila phalerata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Drusus annulatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y				

Drymus (Drymus) pilipes	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Dryops (Dryops) striatellus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Dufourea minuta	insect - hymenopteran	insect - hymenopteran		y			
Dyschirius (Dyschiriodes) globosus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Dysdera crocata	Woodlouse Spider	spider (Araneae)		y			
Dysdera erythrina	Woodlouse Spider	spider (Araneae)		y			
Dysmachus trigonus	Fan-bristled Robberfly	insect - true fly (Diptera)		y			
Dytiscus semisulcatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ectobius lapponicus	Dusky Cockroach	insect - cockroach (Dictyoptera)	y	y			
Ectobius pallidus	Tawny Cockroach	insect - cockroach (Dictyoptera)	y	y	y		
Ectobius panzeri	Lesser Cockroach	insect - cockroach (Dictyoptera)	y	y			
Ectopsocus petersi	a barkfly				y	y	y
Elampus panzeri	insect - hymenopteran	insect - hymenopteran	y	y			
Elaphrus (Elaphrus) cupreus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Elasmostethus interstinctus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y	y		
Ematurga atomaria	Common Heath				y	y	y
Empicoris vagabundus	a reduviid bug				y	y	y
Empis albinervis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Empis femorata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Empis livida	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Empis nigripes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Empis nuntia	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Empis praevia	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Empis stercorea	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Empis tessellata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Empis volucris	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Emus hirtus	Hairy Rove-Beetle	insect - beetle (Coleoptera)		y			
Enallagma cyathigerum	Common Blue Damselfly	insect - dragonfly (Odonata)	y	y			
Enochrus affinis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Enoplognatha ovata	spider (Araneae)	spider (Araneae)	y	y	y		
Enoplognatha thoracica	spider (Araneae)	spider (Araneae)		y			

Epeolus cruciger	insect - hymenopteran	insect - hymenopteran		y			
Episinus angulatus	spider (Araneae)	spider (Araneae)		y			
Episinus truncatus	spider (Araneae)	spider (Araneae)		y	y		
Episyrphus balteatus	Marmalade Hoverfly	insect - true fly (Diptera)	y	y			
Epitrix pubescens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Eresus cinnaberinus	Ladybird Spider	spider (Araneae)		y			
Erichsonius cinerascens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Erigone atra					y	y	y
Erigone dentipalpis					y	y	y
Eriophyes sorbi	acarine (Acari)	acarine (Acari)		y			
Erioptera fuscipennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eristalinus sepulchralis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Eristalis arbustorum	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eristalis horticola	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Eristalis intricarius	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eristalis pertinax	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eristalis tenax	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Ero aphana	spider (Araneae)	spider (Araneae)		y			
Ero tuberculata	spider (Araneae)	spider (Araneae)	y	y			
Euaesthetus laeviusculus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Euaesthetus ruficapillus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Euconnus (Euconnus) fimetarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Eudasyphora cyanicolor	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Euleia heraclei	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Eumenes coarctatus	Heath Potter Wasp	insect - hymenopteran		y	y	y	
Eumerus funeralis	Lesser Bulb-Fly	insect - true fly (Diptera)	y				
Euophrys frontalis	spider (Araneae)	spider (Araneae)		y			
Eupeodes corollae	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eupeodes luniger	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Eurygaster testudinaria	a shieldbug				y	y	y
Euscelis incisus	leaf hopper				y	y	y

Euthyneura myrtilli	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Eutolmus rufibarbis	Golden-tabbed Robberfly	insect - true fly (Diptera)	y	y			
Eutomostethus ephippium	insect - hymenopteran	insect - hymenopteran		y			
Evagetes dubius	insect - hymenopteran	insect - hymenopteran		y			
Evarcha arcuata	spider (Araneae)	spider (Araneae)	y	y	y		
Evarcha falcata	spider (Araneae)	spider (Araneae)	y	y	y		
Exapion (Exapion) difficile	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Exapion ulicis	Weevil				y	y	y
Exochomus quadripustulatus	Pine Ladybird	insect - beetle (Coleoptera)		y			
Fagniezia impressus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Fannia postica	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Fannia serena	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Fannia similis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Floronia bucculenta	spider (Araneae)	spider (Araneae)		y			
Forficula auricularia	Common earwig				y	y	y
Formica fusca	Negro Ant	insect - hymenopteran	y		y		
Formica rufa	Red Wood Ant	insect - hymenopteran		y			
Formica sanguinea	Slaver Ant	insect - hymenopteran		y	y	y	
Gabrius breviventer	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Gabrius trossulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Gastrodes grossipes	Pine Cone Bug	insect - true bug (Hemiptera)		y			
Gastrophysa viridula	Green Dock Beetle	insect - beetle (Coleoptera)	y	y	y		
Gerris (Gerris) gibbifer	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Gerris (Gerris) lacustris	Common Pondskater	insect - true bug (Hemiptera)		y			
Gibbaranea gibbosa	spider (Araneae)	spider (Araneae)		y			
Glocianus distinctus	Weevil				y	y	y
Glomeris marginata	Pill millipede				y	y	y
Glyphotaelius pellucidus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Goera pilosa	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Gonatium rubens	spider (Araneae)	spider (Araneae)		y			
Gonioctena viminalis	leaf beetle				y	y	y

Grammotaulius nigropunctatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Graphocephala fennahi	Rhododendron Leafhopper	insect - true bug (Hemiptera)		y			
Gymnusa brevicollis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Gyrinus substriatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Gyrinus urinator	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Haematopota pluvialis	Notch-horned Cleg	insect - true fly (Diptera)		y	y	y	
Halesus radiatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Halictus (Seladonia) confusus	insect - hymenopteran	insect - hymenopteran		y			
Halyzia sedecimguttata	Orange Ladybird	insect - beetle (Coleoptera)		y	y	y	
Haplodrassus signifer	spider (Araneae)	spider (Araneae)		y			
Harmonia axyridis	Harlequin ladybird				y	y	y
Harmonia quadripunctata	Cream-streaked Ladybird	insect - beetle (Coleoptera)		y			
Harpactea hombergi	spider (Araneae)	spider (Araneae)		y	y	y	
Harpalus (Harpalus) affinis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Harpalus (Harpalus) attenuatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Harpalus (Harpalus) rufipalpis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Harpocera thoracica	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Hebecnema fumosa	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Heleodromia immaculata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Helina reversio	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Heliophanus cupreus	spider (Araneae)	spider (Araneae)		y			
Heliophanus flavipes	spider (Araneae)	spider (Araneae)		y			
Helochares lividus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Helochares punctatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Helophilus pendulus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Helophora insignis	spider (Araneae)	spider (Araneae)	y				
Helophorus (Atracthelophorus) brevipalpis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Helophorus (Helophorus) flavipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Helophorus (Helophorus) minutus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Helophorus (Helophorus) obscurus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			

Helophorus (Megahelophorus) aequalis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Helophorus (Megahelophorus) grandis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Hemerobius stigma	a lacewing				y	y	y
Hemichroa australis	insect - hymenopteran	insect - hymenopteran	y	y			
Hercostomus aerosus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hercostomus celer	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hercostomus cupreus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hercostomus metallicus	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Hercostomus nigripennis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Heterarthrus aceris	insect - hymenopteran	insect - hymenopteran		y			
Heterogaster urticae	Nettle Groundbug	insect - true bug (Hemiptera)		y			
Heteromyza rotundicornis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara canescens	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara chorica	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hilara flavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara fuscipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara interstincta	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara lurida	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara maura	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara monedula	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hilara nigrina	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hilara quadrivittata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Himacerus apterus	a nabid bug				y	y	y
Himacerus mirmicoides	a nabid bug				y	y	y
Holobus apicatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Hoplia philanthus	Welsh chafer				y	y	y
Hoplitis (Anthocopa) spinulosa	insect - hymenopteran	insect - hymenopteran		y			
Hybomitra bimaculata	horse fly				y	y	y
Hybos culiciformis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hybos femoratus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hydraena riparia	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			

Hydrellia griseola	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hydrellia maura	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Hydrellia thoracica	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hydrobius fuscipes	water beetle				y	y	y
Hydrometra stagnorum	Water Measurer	insect - true bug (Hemiptera)		y			
Hydrophorus nebulosus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hydroporus angustatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Hydroporus erythrocephalus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hydroporus gyllenhalii	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hydroporus melanarius	water beetle				y	y	
Hydroporus memnonius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Hydroporus neglectus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Hydroporus obscurus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hydroporus pubescens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hydroporus tristis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Hydroporus umbrosus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hydropsyche contubernalis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Hydropsyche instabilis	a caddisfly				y	y	y
Hydropsyche pellucidula	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Hydropsyche siltalai	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Hydroptila sparsa	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Hydrotaea meteorica	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Hydrothassa marginella	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Hygrolycosa rubrofasciata	spider (Araneae)	spider (Araneae)		y			
Hylaeus (Hylaeus) communis	Common Yellow Face Bee	insect - hymenopteran		y			
Hylaeus (Prosopis) gibbus	insect - hymenopteran	insect - hymenopteran		y			
Hylastes attenuatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Hylastes opacus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Hylobius (Callirus) abietis	Pine Weevil	insect - beetle (Coleoptera)		y			
Hypera (Eririnomorphus) rumicis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Hypera plantaginis	Weevil				y	y	y

Hypnoidus riparius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Hypomma cornutum					y	y	y
Hypsosinga albovittata					y	y	y
Hypsosinga pygmaea	spider (Araneae)	spider (Araneae)		y			
Ilybius montanus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Ilybus ater	water beetle				y	y	y
Ilythea spilota	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Ischnura elegans	Blue-tailed Damselfly	insect - dragonfly (Odonata)	y	y			
Ischnura pumilio	Scarce Blue-tailed Damselfly	insect - dragonfly (Odonata)	y	y			
Issus coleoptratus	a leaf hopper				y	y	y
Ithytrichia lamellaris	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Ixodes ricinus	Deer tick				y	y	y
Javesella dubia	a leaf hopper				y	y	y
Javesella obscurella	a leaf hopper				y	y	y
Julus scandinavius	millipede	millipede	y	y			
Kleidocerys ericae	a ground bug				y	y	y
Kleidocerys resedae	a ground bug				y	y	y
Kleidocerys truncatulus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Kochiura aulica	spider (Araneae)	spider (Araneae)		y			
Labulla thoracica	spider (Araneae)	spider (Araneae)		y			
Lagria hirta	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Lampyris noctiluca	Glow-worm	insect - beetle (Coleoptera)		y	y	y	
Larinioides cornutus	spider (Araneae)	spider (Araneae)	y		y		
Lasaeola tristis	spider (Araneae)	spider (Araneae)		y			
Lasioglossum (Evylaeus) albipes	insect - hymenopteran	insect - hymenopteran		y			
Lasioglossum (Evylaeus) calceatum	Slender Mining Bee	insect - hymenopteran		y			
Lasioglossum (Evylaeus) parvulum	insect - hymenopteran	insect - hymenopteran		y			
Lasioglossum (Evylaeus) villosulum	Shaggy Mining Bee	insect - hymenopteran		y			
Lasioglossum (Lasioglossum) leucozonium	insect - hymenopteran	insect - hymenopteran		y			
Lasioglossum (Lasioglossum) prasinum	insect - hymenopteran	insect - hymenopteran		y			
Lasius alienus	insect - hymenopteran	insect - hymenopteran	y				

Lasius flavus	an ant				y	y	y
Lasius niger	Small Black Ant	insect - hymenopteran	y		y		
Lasius platythorax	an ant				y	y	y
Lathrobium (Lathrobium) brunnipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Lathrobium (Lathrobium) elongatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Lathrobium (Tetartopeus) terminatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Lathys humilis	spider (Araneae)	spider (Araneae)	y	y	y		
Leiobunum blackwalli	harvestman (Opiliones)	harvestman (Opiliones)	y	y			
Leiobunum rotundum	harvestman (Opiliones)				y	y	y
Leiophora innoxia	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Lepidostoma hirtum	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Lepthyphantes minutus	spider (Araneae)	spider (Araneae)	y	y	y		
Lepthyphantes tenuis					y	y	
Leptocerus tineiformis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Leptogaster cylindrica	Striped Slender Robberfly	insect - true fly (Diptera)	y				
Leptopeza flavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Leptophyes punctatissima	Speckled Bush-cricket	insect - orthopteran	y	y	y		
Leptopterna dolabrata	a mirid bug				y	y	y
Leptopterna ferrugata	a mirid bug				y	y	y
Leptosciarella trochanterata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Leptothorax acervorum	an ant				y	y	y
Lestes sponsa	Emerald Damselfly	insect - dragonfly (Odonata)	y	y			
Lesteva sicula	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Leuctra geniculata	insect - stonefly (Plecoptera)	insect - stonefly (Plecoptera)		y			
Libellula depressa	Broad-bodied Chaser	insect - dragonfly (Odonata)	y	y			
Libellula fulva	Scarce Chaser	insect - dragonfly (Odonata)	y	y	y		
Libellula quadrimaculata	Four-spotted Chaser	insect - dragonfly (Odonata)	y	y			
Limnephilus affinis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus auricula	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus binotatus	a caddisfly				y	y	y
Limnephilus centralis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			

Limnephilus elegans	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Limnephilus extricatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y				
Limnephilus flavicornis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Limnephilus griseus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus lunatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus luridus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus marmoratus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus rhombicus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus sparsus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Limnephilus vittatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Limnophila pulchella	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Limonia autumnalis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Limonia chorea	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Limonia macrostigma	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Limonia quadrimaculata	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Linnaemya vulpina	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Linyphia triangularis	spider (Araneae)	spider (Araneae)	y	y	y		
Liopterus haemorrhoidalis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Lithobius (Lithobius) variegatus	centipede	centipede	y	y	y		
Lochmaea caprea	willow leaf beetle				y	y	y
Lochmaea crataegi	Hawthorn leaf beetle				y	y	y
Lochmaea suturalis	Heather Beetle	insect - beetle (Coleoptera)		y	y		
Loewia submetallica	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Lonchoptera bifurcata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Lonchoptera lutea	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Lonchoptera scutellata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Longitarsus nigerrimus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Longitarsus parvulus	Flax Flea Beetle	insect - beetle (Coleoptera)	y	y			
Lordithon exoletus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Loricera pilicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Lucilia caesar	insect - true fly (Diptera)	insect - true fly (Diptera)	y				

Luperus longicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Lygocoris rugicollis	a mirid bug				y	y	
Lygus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Lype phaeopa	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Machimus atricapillus	Kite-tailed Robberfly	insect - true fly (Diptera)	y	y			
Macrocera phalerata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Macrocera stigma	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Macrodema micropterum	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y	y		
Macropis europaea	insect - hymenopteran	insect - hymenopteran		y			
Macrorrhyncha flava	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Malachius bipustulatus	Malachite Beetle	insect - beetle (Coleoptera)	y				
Malthinus flaveolus	soldier beetle				y	y	y
Malthodes minimus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Malthonica silvestris	spider (Araneae)	spider (Araneae)	y	y			
Mangora acalypha	spider (Araneae)	spider (Araneae)	y	y	y		
Maro sublestus	spider (Araneae)	spider (Araneae)		y			
Meconema thalassinum	Oak Bush Cricket				y	y	
Medetera saxatilis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Megalepthyphantes nebulosus	spider (Araneae)	spider (Araneae)	y	y			
Meioneta beata	spider (Araneae)				y	y	y
Meiosimyza decipiens	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Meiosimyza rorida	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Meiosimyza subfasciata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Melanochaeta pubescens	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Melanogaster hirtella	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Melanomya nana	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Melanostoma mellinum	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Melanostoma scalare	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Melanotus castanipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Melieria crassipennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Meliscaeva auricollis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			

Meliscaeva cinctella	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Merodon equestris	Greater Bulb-Fly	insect - true fly (Diptera)		y				
Metasyrphus latifasciatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Metellina mengei	spider (Araneae)	spider (Araneae)	y	y	y			
Metellina segmentata	spider (Araneae)	spider (Araneae)	y		y			
Metopia argyrocephala	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Metrioptera brachyptera	Bog Bush-cricket	insect - orthopteran	y	y	y			
Metrioptera roeselii	Roesel's Bush-cricket	insect - orthopteran		y	y	y		
Metylophorus nebulosus	a barkfly				y	y	y	
Micracanthia marginalis	a shore bug				y	y	y	
Micrelus ericae	Small Heather Weevil	insect - beetle (Coleoptera)		y	y	y		
Microcara testacea	marsh beetle				y	y	y	
Microchrysa polita	Black-horned Gem	insect - true fly (Diptera)	y					
Microlinyphia pusilla	spider (Araneae)	spider (Araneae)	y	y	y			
Micropterna lateralis	Caddis				y	y	y	
Mimesa equestris	insect - hymenopteran	insect - hymenopteran		y				
Mimumesa spooneri	insect - hymenopteran	insect - hymenopteran		y				
Minettia fasciata	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Minettia filia	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Minettia rivosa	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Minyriolus pusillus	spider (Araneae)	spider (Araneae)	y					
Misumena vatia	spider (Araneae)	spider (Araneae)		y	y	y		
Mitopus morio	harvestman (Opiliones)				y	y	y	
Mocyta fungi	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y				
Molanna angustata	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y			
Molophilus appendiculatus	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Molophilus medius	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Molophilus ochraceus	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Monocephalus fuscipes	spider (Araneae)	spider (Araneae)		y				
Monostegia abdominalis	a sawfly				y	y	y	
Mutilla europaea	Large Velvet Ant	insect - hymenopteran		y				

Myathropa florea	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Mycetophila forcipata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Mycetophila fungorum	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Mycomya cinerascens	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Myllaena gracilis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Myllaena infuscata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Myllaena intermedia	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Myllaena kraatzi	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Myopa fasciata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Myrmecoris gracilis	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Myrmedobia exilis	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Myrmeleotettix maculatus	Mottled Grasshopper	insect - orthopteran	y	y	y		
Myrmica karavajevi	insect - hymenopteran	insect - hymenopteran		y			
Myrmica ruginodis	insect - hymenopteran	insect - hymenopteran	y		y		
Myrmica sabuleti	insect - hymenopteran	insect - hymenopteran	y		y		
Myrmica scabrinodis	insect - hymenopteran	insect - hymenopteran	y		y		
Myrmus miriformis	a rhopalid bug				y	y	y
Mystacides azurea	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Mystacides longicornis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Mystacides longicornis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Myzia oblongoguttata	Striped Ladybird	insect - beetle (Coleoptera)		y	y	y	
Nabis (Nabicula) flavomarginatus	Broad Damselbug	insect - true bug (Hemiptera)		y			
Nabis (Nabis) ericetorum	Heath Damselbug	insect - true bug (Hemiptera)	y	y	y		
Nabis lineatus	a nabid bug				y	y	
Nabis rugosus	a nabid bug				y	y	
Nalassus laevioctostriatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Nanophyes marmoratus	Loosestrife Weevil	insect - beetle (Coleoptera)		y			
Nebria (Nebria) salina	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Nebria brevicollis	ground beetle				y	y	y
Nedyus quadrimaculatus	Small Nettle Weevil	insect - beetle (Coleoptera)	y	y	y		
Neliocarus sus	Heather Weevil	insect - beetle (Coleoptera)		y	y	y	

Nemastoma bimaculatum	harvestman (Opiliones)	harvestman (Opiliones)	y	y				
Nematinus acuminatus	insect - hymenopteran	insect - hymenopteran	y					
Nematinus luteus	insect - hymenopteran	insect - hymenopteran		y				
Nematus (Pteronidea) poecilonotus	insect - hymenopteran	insect - hymenopteran	y					
Nematus (Pteronidea) viridis	insect - hymenopteran	insect - hymenopteran	y					
Nemobius sylvestris	Wood Cricket	insect - orthopteran		y				
Nemoura cinerea	a stonefly				y	y	y	
Neoascia podagrica	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Neocoenorrhinus aeneovirens	Weevil				y	y	y	
Neocrepidodera ferruginea	leaf beetle				y	y	y	
Neoitamus cyanurus	Common Awl Robberfly	insect - true fly (Diptera)		y				
Neolimonia dumetorum	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Neophilaenus lineatus	leaf hopper				y	y	y	
Neoplatyura nigricauda	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Neottiglossa pusilla	a shieldbug				y	y		
Neottiura bimaculata	spider (Araneae)	spider (Araneae)		y	y	y		
Nephrotoma analis	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Nephrotoma scurra	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Nephrotoma submaculosa	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Neria cibaria	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Neriene clathrata	spider (Araneae)	spider (Araneae)	y	y				
Neriene furtiva	spider (Araneae)	spider (Araneae)		y				
Neriene montana	spider (Araneae)	spider (Araneae)	y					
Neriene peltata	spider (Araneae)	spider (Araneae)		y	y	y		
Nesoselandria morio	insect - hymenopteran	insect - hymenopteran	y					
Neurigona quadrifasciata	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Neuroterus anthracinus f. agamic	Oyster-gall causer				y	y	y	
Neuroterus numismalis f. agamic	Silk-button causer				y	y	y	
Neuroterus quercusbaccarum	Common Spangle Gall	insect - hymenopteran		y	y	y		

Neuroterus quercusbaccarum f. agamic	Common spangle causer				y	y	y
Neuroterus quercusbaccarum f. sexual	Currant gall causer				y	y	y
Nigma puella	spider (Araneae)	spider (Araneae)		y			
Nomada baccata	insect - hymenopteran	insect - hymenopteran		y			
Nomada fucata	insect - hymenopteran	insect - hymenopteran		y			
Nomada roberjeotiana	insect - hymenopteran	insect - hymenopteran		y			
Nomada rufipes	Golden-Rod Nomad Bee	insect - hymenopteran		y			
Norellia spinipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Norellisoma spinimanum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Notaris acridulus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Noterus clavicornis	Larger Noterus	insect - beetle (Coleoptera)	y				
Notiophilus aquaticus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Notiophilus germinyi	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Notiophilus substriatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Notiphila maculata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Notiphila riparia	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Notonecta (Notonecta) maculata	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y				
Notostira elongata	a mirid bug				y	y	y
Nuctenea umbratica	Walnut Orb-Weaver Spider	spider (Araneae)	y	y			
Obscuriphantes obscurus	spider (Araneae)	spider (Araneae)		y			
Ochthebius (Homalochthebius) minimus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ochthera mantis	Mantis Fly	insect - true fly (Diptera)		y			
Ocydromia glabricula	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Ocypus (Ocypus) olens	Devil's Coach-horse	insect - beetle (Coleoptera)		y			
Ocys harpaloides	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ocyusa maura	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Oecetis lacustris	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Oecetis ochracea	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Oecetis testacea	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			

Oedalea apicalis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Oedalea flavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Oedalea holmgreni	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Oedalea stigmatella	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Oedemera (Oedemera) lurida	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Olibrus affinis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Olisthopus rotundatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Ommatoiulus sabulosus	Striped Millipede	millipede	y	y			
Omocestus rufipes	Woodland Grasshopper	insect - orthopteran	y	y			
Omocestus viridulus	Common Green Grasshopper	insect - orthopteran	y	y			
Oncopsis flavicollis	a leaf hopper				y	y	y
Oniscus asellus	Shiny Woodlouse				y	y	y
Onthophagus (Paleonthophagus) fracticornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Opomyza florum	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Opomyza germinationis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Opomyza petrei	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Orchestes rusci	Weevil				y	y	y
Orfelia fasciata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Oropezella sphenoptera	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Orthetrum cancellatum	Black-tailed Skimmer	insect - dragonfly (Odonata)	y	y			
Orthetrum coerulescens	Keeled Skimmer	insect - dragonfly (Odonata)	y	y			
Orthotylus (Litocoris) ericetorum	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y	y		
Osmia (Neosmia) bicolor	Two-coloured Mason Bee	insect - hymenopteran		y			
Othius punctulatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Oulema sp	leaf beetle				y	y	y
Oulimnius tuberculatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Oxybelus mandibularis	Pale Jawed Spiny Digger Wasp	insect - hymenopteran		y			
Oxygastra curtisii	Orange-spotted Emerald	insect - dragonfly (Odonata)	y	y			
Oxypoda annularis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Oxypoda elongatula	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				

Oxypselaphus obscurus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Ozyptila atomaria	spider (Araneae)	spider (Araneae)		y			
Ozyptila trux	spider (Araneae)	spider (Araneae)		y			
Pachygnatha clercki	spider (Araneae)	spider (Araneae)	y		y		
Paederus caligatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Paederus fuscipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Paederus littoralis	rove beetle				y	y	y
Paederus riparius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Paidiscura pallens	spider (Araneae)	spider (Araneae)	y	y	y		
Palliduphantes ericaeus	spider (Araneae)	spider (Araneae)		y			
Palloptera muliebris	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Palpomyia flavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Panorpa communis	a scorpion fly				y	y	y
Panorpa germanica	insect - scorpion fly (Mecoptera)	insect - scorpion fly (Mecoptera)	y				
Paragus haemorrhous	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Paragus tibialis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Paraleptophlebia werneri	insect - mayfly (Ephemeroptera)	insect - mayfly (Ephemeroptera)	y				
Paranchus albipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Paranthomyza nitida	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Parasteatoda lunata	spider (Araneae)	spider (Araneae)	y	y			
Parasyrphus punctulatus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pardosa amentata	spider (Araneae)	spider (Araneae)	y	y			
Pardosa hortensis	spider (Araneae)	spider (Araneae)		y			
Pardosa lugubris	spider (Araneae)	spider (Araneae)	y	y			
Pardosa monticola	spider (Araneae)	spider (Araneae)		y			
Pardosa nigriceps	spider (Araneae)	spider (Araneae)		y	y	y	
Pardosa palustris	spider (Araneae)	spider (Araneae)		y			
Pardosa prativaga	spider (Araneae)	spider (Araneae)	y	y			
Pardosa proxima	spider (Araneae)	spider (Araneae)		y			
Pardosa pullata	spider (Araneae)	spider (Araneae)		y			

Pardosa saltans					y	y	y
Parocyusa longitarsis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Paroligolophus agrestis	harvestman (Opiliones)	harvestman (Opiliones)	y	y			
Parydra coarctata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Pegomya winthemi	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pelecocera tricincta	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pelenomus waltoni	Beetles (Weevils)	insect - beetle (Coleoptera)		y			
Pentatoma rufipes	Forest Bug	insect - true bug (Hemiptera)	y	y			
Peplomyza litura	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Peponocranium ludicrum	spider (Araneae)	spider (Araneae)		y			
Perapion curtirostre	Weevil				y	y	y
Perapion marchicum	Weevil				y	y	y
Perapion violaceum	Weevil				y	y	y
Phalangium opilio	harvestman (Opiliones)	harvestman (Opiliones)	y	y			
Phaonia trimaculata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Phasia pusilla	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pherbellia schoenherri	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Pherbellia ventralis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pherbina coryleti	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Philaenus spumarius	leaf hopper				y	y	y
Philanthus triangulum	Bee Wolf	insect - hymenopteran		y			
Philhygra gyllenhalii	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Philhygra melanocera	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Philodromus albidus	spider (Araneae)	spider (Araneae)		y	y	y	
Philodromus aureolus	spider (Araneae)	spider (Araneae)		y			
Philodromus cespitum	spider (Araneae)	spider (Araneae)		y	y	y	
Philodromus collinus	spider (Araneae)	spider (Araneae)	y				
Philodromus dispar	spider (Araneae)	spider (Araneae)	y	y			
Philodromus emarginatus	spider (Araneae)	spider (Araneae)		y			
Philodromus histrio	spider (Araneae)	spider (Araneae)		y			
Philonthus carbonarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			

Philonthus cognatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Philophylla caesio	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Philorhizus melanocephalus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Philoscia muscorum	Striped Woodlouse				y	y	y
Pholidoptera griseoaptera	Dark Bush-cricket	insect - orthopteran	y	y			
Phratora vitellinae	leaf beetle				y	y	y
Phronia humeralis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Phrurolithus festivus	spider (Araneae)	spider (Araneae)		y			
Phryganea grandis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y	y	y	
Phycosoma inornatum	Silky Gallows-spider	spider (Araneae)		y			
Phylidorea fulvonervosa	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Phyllobius (Metaphyllobius) pomaceus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Phyllobius (Phyllobius) pyri	Common Leaf Weevil	insect - beetle (Coleoptera)		y	y	y	
Phyllobius glaucus	Weevil				y	y	y
Phyllocoptes sorbeus	acarine (Acari)	acarine (Acari)		y			
Phyllodromia melanocephala	flies	insect - true fly (Diptera)		y			
Phylloneta sisyphia	spider (Araneae)	spider (Araneae)		y			
Phyllopertha horticola	Garden Chafer	insect - beetle (Coleoptera)	y	y			
Phyllotreta nigripes	Turnip Flea Beetle	insect - beetle (Coleoptera)		y			
Phytocoris varipes	a mirid bug				y	y	y
Phytomyza ilicis	fly				y	y	y
Picromerus bidens	a shieldbug				y	y	y
Pipizella viduata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Pirata hygrophilus	spider (Araneae)	spider (Araneae)	y	y			
Pirata latitans	spider (Araneae)	spider (Araneae)		y			
Pirata tenuitarsis	spider (Araneae)	spider (Araneae)		y			
Pirata uliginosus					y	y	y
Pisaura mirabilis	Nursery-Web Spider	spider (Araneae)	y	y	y		
Pissodes castaneus	Weevil				y	y	y
Plagiognathus arbustorum	a mirid bug				y	y	y
Platybunus triangularis	harvestman (Opiliones)	harvestman (Opiliones)	y	y	y		

Platycheirus albimanus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Platycheirus angustatus	insect - true fly (Diptera)				y	y	y
Platycheirus clypeatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Platycheirus fulviventris	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platycheirus granditarsus	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platycheirus peltatus agg.	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platycheirus rosarum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platycheirus scutatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platycnemis pennipes	White-legged Damselfly	insect - dragonfly (Odonata)	y	y			
Platypalpus cryptospina	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platypalpus cursitans	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Platypalpus longicornis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Platypalpus strigifrons	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Platystethus (Platystethus) arenarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Pocadicnemis juncea	spider (Araneae)				y	y	y
Poecilobothrus nobilitatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Poecilus cupreus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Poecilus kugelanni	KugelannÆs Green Clock	insect - beetle (Coleoptera)		y			
Pollenia rudis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Polycentropus flavomaculatus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y		
Polycentropus irroratus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y		y		
Polydesmus angustus	flat-backed millipede				y	y	y
Polydrusus (Neoeustolus) cervinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Polydrusus confluens	Weevil				y	y	y
Polymerus (Poeciloscytus) unifasciatus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Polyxenus lagurus	Bristly Millipede	millipede	y	y			
Porcinolus murinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Porrhomma campbelli	spider (Araneae)	spider (Araneae)		y			
Potamiphylax cingulatus / latipennis	Caddis				y	y	y
Priocnemis (Priocnemis) schioedtei	insect - hymenopteran	insect - hymenopteran		y			
Pristiphora (Pristiphora) geniculata	insect - hymenopteran	insect - hymenopteran	y				

Pristiphora (Pristiphora) ruficornis	insect - hymenopteran	insect - hymenopteran	y	y			
Propylea quattuordecimpunctata	14-spot Ladybird	insect - beetle (Coleoptera)	y	y			
Prosena siberita	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Protapion assimile	Weevil				y	y	y
Protapion fulvipes	White Clover Seed Weevil	insect - beetle (Coleoptera)	y				
Proteroiulus fuscus	Snake Millipede	millipede	y	y			
Protopirapion atratulum	Weevil				y	y	y
Pseudolyciella pallidiventris	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Pseudovadonia livida	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Psila fimetaria	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Psilopa nigritella	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Psychomyia pusilla	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Psylliodes affinis	Potato Flea Beetle	insect - beetle (Coleoptera)	y				
Psyllobora vigintiduopunctata	22-spot Ladybird	insect - beetle (Coleoptera)		y			
Ptenidium (Gillmeisterium) nitidum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Ptenidium (Ptenidium) longicorne	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Ptenidium (Wankowizium) intermedium	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Pterostichus (Argutor) diligens	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Pterostichus (Argutor) strenuus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y		
Pterostichus (Lagarus) vernalis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Pterostichus (Pseudomaseus) minor	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Pterostichus (Pseudomaseus) nigrita	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Pterostichus (Pseudomaseus) rhaeticus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y		y		
Pyrochroa serraticornis	Red-headed Cardinal Beetle	insect - beetle (Coleoptera)	y				
Pyrrhosoma nymphula	Large Red Damselfly	insect - dragonfly (Odonata)	y	y	y		
Quedius (Quedius) fuliginosus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Quedius (Quedius) molochinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Quedius (Raphirus) persimilis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Quedius curtipennis	rove beetle				y	y	y
Quedius lateralis	rove beetle				y	y	y
Ramonda spathulata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			

Reichenbachia juncorum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Rhacognathus punctatus	Heather Bug	insect - true bug (Hemiptera)	y	y			
Rhagio lineola	Small Fleck-winged Snipefly	insect - true fly (Diptera)	y	y			
Rhagio scolopaceus	Downlooker Snipefly	insect - true fly (Diptera)	y	y	y		
Rhagio tringarius	Marsh Snipefly	insect - true fly (Diptera)	y	y			
Rhagium (Hagrium) bifasciatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Rhagonycha fulva	Common Red Soldier Beetle	insect - beetle (Coleoptera)	y	y			
Rhagonycha lignosa	soldier beetle				y	y	y
Rhagonycha limbata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Rhagonycha testacea	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Rhamphomyia barbata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Rhamphomyia crassirostris	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Rhamphomyia geniculata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Rhamphomyia longipes	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Rhamphomyia nigripennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Rhamphomyia sulcatella	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Rhamphomyia tibiella	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Rhamphus pulicarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Rhingia campestris	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Rhinoncus pericarpius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Rhinoncus perpendicularis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Rhizophagus (Rhizophagus) ferrugineus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Rhogogaster chlorosoma	a sawfly				y	y	y
Rhogogaster viridis	insect - hymenopteran	insect - hymenopteran	y				
Rhopalus (Aeschyntelus) maculatus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Rhopalus maculatus	a rhopalid bug				y	y	y
Rhyacophila dorsalis	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Rhyparochromus pini	a ground bug				y	y	y
Rivellia syngenesiae	insect - true fly (Diptera)	insect - true fly (Diptera)	y		y		
Robertus lividus	spider (Araneae)	spider (Araneae)		y			
Rutpela maculata	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			

Rybaxis longicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Saldula saltatoria	Common Shorebug	insect - true bug (Hemiptera)	y	y			
Salticus scenicus					y	y	y
Sarcophaga albiceps	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Sarcophaga subulata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Scaeva pyrastri	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Scaeva selenitica	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Scathophaga furcata	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Scathophaga stercoraria	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Scathophaga suilla	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Sciapus maritimus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Sciapus platypterus	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Scolioneura betuleti	insect - hymenopteran	insect - hymenopteran		y			
Scolopostethus decoratus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y	y		
Scymnus (Pullus) suturalis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Sehirus luctuosus	Forget-me-not Shieldbug	insect - true bug (Hemiptera)		y			
Selandria serva	insect - hymenopteran	insect - hymenopteran	y	y			
Selimus vittatus	spider (Araneae)	spider (Araneae)	y	y			
Senotainia conica	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Sepedon sphegea	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Sepedophilus pedicularius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Sepsis cynipsea	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Sepsis flavimana	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Sepsis punctum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Sepsis violacea	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Serica brunnea	Brown chafer				y	y	y
Sericostoma personatum	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Serratella ignita	Blue-winged Olive	insect - mayfly (Ephemeroptera)	y	y			
Sialis lutaria	Alder Fly	insect - alderfly (Megaloptera)		y			
Sibinia pyrrhodactyla	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			

Sicus ferrugineus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Sigara (Sigara) dorsalis	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Sigara (Subsigara) distincta	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y			
Sigara (Subsigara) falleni	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y				
Silpha atrata	Black Snail Beetle	insect - beetle (Coleoptera)	y	y	y		
Silpha tristis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Simitidion simile	spider (Araneae)	spider (Araneae)		y	y	y	
Sintula corniger	spider (Araneae)	spider (Araneae)		y			
Sitona (Sitona) humeralis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Sitona striatellus	Weevil				y	y	y
Smicromyrme rufipes	Small Velvet Ant	insect - hymenopteran		y			
Sphaerophoria batava	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Sphaerophoria fatarum	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Sphaerophoria scripta	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Sphecodes crassus	insect - hymenopteran	insect - hymenopteran		y			
Sphecodes ephippius	insect - hymenopteran	insect - hymenopteran		y			
Sphecodes gibbus	insect - hymenopteran	insect - hymenopteran		y			
Sphecodes pellucidus	insect - hymenopteran	insect - hymenopteran		y			
Sphecodes reticulatus	insect - hymenopteran	insect - hymenopteran		y			
Stemonyphantes lineatus	spider (Araneae)	spider (Araneae)		y			
Stenobothrus lineatus	Stripe-winged Grasshopper	insect - orthopteran	y	y			
Stenodema calcarata	a mirid bug				y	y	y
Stenodema laevigata	a mirid bug				y	y	y
Stenopelmus rufinasus	Azolla Weevil	insect - beetle (Coleoptera)		y			
Stenophylax permistus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y			
Stenotus binotatus	a mirid bug				y	y	y
Stenurella melanura	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Stenus (Hemistenus) geniculatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Hemistenus) impressus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Stenus (Hemistenus) ossium	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Hypostenus) cicindeloides	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y	y		

Stenus (Hypostenus) fulvicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Metatesnus) brevipennis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Stenus (Metatesnus) flavipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Stenus (Metatesnus) nitidiusculus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	
Stenus (Metatesnus) niveus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Stenus (Metatesnus) pallitarsis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Stenus (Metatesnus) picipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Stenus) argus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Stenus) bimaculatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stenus (Stenus) boops	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Stenus (Stenus) clavicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Stenus (Stenus) europaeus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Stenus (Stenus) juno	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Stenus (Stenus) melanarius	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Stenus (Stenus) providus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y	y		
Stenus (Tesnus) brunnipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Stictopleurus crassicornis	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Stromboceros delicatulus	insect - hymenopteran	insect - hymenopteran	y	y			
Strongylogaster lineata	a sawfly				y	y	y
Strongylogaster multifasciata	insect - hymenopteran	insect - hymenopteran	y				
Strophingia ericae	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Strophosoma capitatum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Strophosoma fulvicorne	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Strophosoma melanogrammum	Nut Leaf Weevil	insect - beetle (Coleoptera)		y	y	y	
Stygnocoris rusticus	a ground bug				y	y	y
Sympetrum danae	Black Darter	insect - dragonfly (Odonata)	y	y			
Sympetrum flaveolum	Yellow-winged Darter	insect - dragonfly (Odonata)		y			
Sympetrum sanguineum	Ruddy Darter	insect - dragonfly (Odonata)	y	y			
Sympetrum striolatum	Common Darter	insect - dragonfly (Odonata)	y	y			
Sympycnus desoutteri	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Syntomus foveatus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y	y	y	

Syntormon bicolorellum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Syritta pipiens	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Syromastus rhombeus	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)		y			
Syrphus ribesii	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Syrphus torvus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Syrphus vitripennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Tabanus bromius	Band-eyed Brown Horsefly	insect - true fly (Diptera)		y			
Tabanus sudeticus	horse fly				y	y	y
Tachinus rufipes	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Tachycixius pilosus	a leaf hopper				y	y	y
Tachypodoiulus niger	White-legged Snake Millipede	millipede	y	y	y		
Tachyporus chrysomelinus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Tachyporus dispar	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Tachyporus hypnorum	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Tachyporus obtusus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Tachyporus pallidus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Tachysphex pompiliformis	insect - hymenopteran	insect - hymenopteran		y			
Tachysphex unicolor	insect - hymenopteran	insect - hymenopteran		y			
Tachyusa constricta	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Tasgius (Tasgius) pedator	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Tasgius morsitans	rove beetle				y	y	y
Tegenaria agrestis	spider (Araneae)	spider (Araneae)		y			
Tenthredo (Eurogaster) mesomela	insect - hymenopteran	insect - hymenopteran		y			
Tenthredo (Zonuledo) distinguenda	insect - hymenopteran	insect - hymenopteran		y			
Tenthredopsis litterata	insect - hymenopteran	insect - hymenopteran		y			
Tenuiphantes alacris	spider (Araneae)	spider (Araneae)		y			
Tenuiphantes mengei	spider (Araneae)	spider (Araneae)		y			
Tenuiphantes tenuis	spider (Araneae)	spider (Araneae)		y			
Tenuiphantes zimmermanni	spider (Araneae)	spider (Araneae)	y	y			
Tephritis bardanae	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Tephritis vespertina	insect - true fly (Diptera)	insect - true fly (Diptera)		y			

Terellia serratulae	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Terellia tussilaginis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Tetanocera arrogans	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Tetanocera elata	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Tetanocera hyalipennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Tetragnatha extensa	spider (Araneae)	spider (Araneae)	y	y	y		
Tetragnatha montana	spider (Araneae)	spider (Araneae)	y	y	y		
Tetragnatha nigrita	spider (Araneae)	spider (Araneae)	y				
Tetragnatha obtusa	spider (Araneae)	spider (Araneae)		y			
Tetragnatha pinicola	spider (Araneae)	spider (Araneae)	y	y			
Tetramorium caespitum	Turf Ant	insect - hymenopteran	y		y		
Tetrix subulata	Slender Ground-hopper	insect - orthopteran	y	y			
Tetrix undulata	Common Ground-hopper	insect - orthopteran		y	y	y	
Thanasimus formicarius	Ant Beetle	insect - beetle (Coleoptera)		y			
Thelaira nigripes	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Themira annulipes	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Thereva annulata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Thereva bipunctata	Twin-spot Stiletto	insect - true fly (Diptera)		y			
Thereva nobilitata	Common Stiletto	insect - true fly (Diptera)	y	y			
Thereva plebeja	Crochet-hooked Stiletto	insect - true fly (Diptera)	y				
Theridion mystaceum	spider (Araneae)	spider (Araneae)		y			
Theridion pictum	spider (Araneae)	spider (Araneae)		y			
Theridion sisyphium					y	y	y
Theridion tinctum					y	y	y
Theridion varians	spider (Araneae)	spider (Araneae)		y			
Theridiosoma gemmosum					y	y	y
Thomisus onustus	spider (Araneae)	spider (Araneae)		y	y	y	
Thyridanthrax fenestratus	Mottled Bee-fly	insect - true fly (Diptera)		y			
Tibellus oblongus	spider (Araneae)	spider (Araneae)		y	y	y	
Tinodes waeneri	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Tipula cava	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		

Tipula fascipennis	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Tipula helvola	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Tipula lateralis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y				
Tipula oleracea	insect - true fly (Diptera)				y	y	y	
Tipula scripta	insect - true fly (Diptera)				y	y	y	
Tipula unca	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Trechus secalis	ground beetle				y	y	y	
Trichina clavipes	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Trichina elongata	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Tricholauxania praeusta	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Trichophya pilicornis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Trichosia morio	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Trichosia splendens	insect - true fly (Diptera)	insect - true fly (Diptera)		y				
Trichosirocalus troglodytes	Weevil				y	y	y	
Trichostegia minor	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)	y	y	y			
Trigonotylus ruficornis	a mirid bug				y	y	y	
Tritomegas bicolor	Pied Shieldbug	insect - true bug (Hemiptera)		y				
Trixagus dermestoides	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Trixagus obtusus	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y					
Trochosa ruricola	spider (Araneae)	spider (Araneae)		y				
Trochosa terricola	spider (Araneae)	spider (Araneae)		y				
Troilus luridus	a shieldbug				y	y	y	
Tropidia scita	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Trypetoptera punctulata	insect - true fly (Diptera)	insect - true fly (Diptera)		y	y	y		
Tychius picirostris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y				
Typhaeus typhoeus	Minotaur Beetle	insect - beetle (Coleoptera)		y				
Tytthaspis sedecimpunctata	16-spot Ladybird	insect - beetle (Coleoptera)	y	y				
Ula sylvatica	insect - true fly (Diptera)	insect - true fly (Diptera)	y					
Uloborus walckenaerius	Spider	spider (Araneae)		y				
Ulopa reticulata	a leaf hopper							
Ulopa reticulata	insect - true bug (Hemiptera)	insect - true bug (Hemiptera)	y	y				

Urophora cardui	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Velia (Plesiovelia) caprai	Water Cricket	insect - true bug (Hemiptera)		y			
Vespa crabro	Hornet	insect - hymenopteran	y	y			
Vespula (Vespula) rufa	Red Wasp	insect - hymenopteran		y			
Vibrissina debilitata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Volucella bombylans	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Volucella inanis	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Volucella inflata	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Volucella pellucens	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Volucella zonaria	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Walckenaeria acuminata	spider (Araneae)	spider (Araneae)		y			
Walckenaeria cucullata	spider (Araneae)	spider (Araneae)		y			
Walckenaeria cuspidata	spider (Araneae)	spider (Araneae)		y			
Walckenaeria dysderoides	spider (Araneae)	spider (Araneae)		y			
Walckenaeria furcillata	spider (Araneae)	spider (Araneae)		y			
Xanthandrus comtus	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y			
Xanthochlorus ornatus	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Xanthochlorus tenellus	insect - true fly (Diptera)	insect - true fly (Diptera)		y			
Xanthogramma pedissequum	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Xantholinus (Xantholinus) linearis	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)		y			
Xantholinus (Xantholinus) longiventris	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y	y			
Xerolycosa nemoralis	spider (Araneae)	spider (Araneae)		y	y	y	
Xiphydria camelus	Alder Wood-Wasp	insect - hymenopteran		y			
Xylota florum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Xylota segnis	insect - true fly (Diptera)	insect - true fly (Diptera)	y	y	y		
Xylota sylvarum	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Xyphosia miliaria	insect - true fly (Diptera)	insect - true fly (Diptera)	y				
Xysticus audax	spider (Araneae)	spider (Araneae)		y			
Xysticus cristatus	spider (Araneae)	spider (Araneae)	y	y	y		
Xysticus lanio	spider (Araneae)	spider (Araneae)		y			
Xysticus robustus	spider (Araneae)	spider (Araneae)		y			

Xysticus sabulosus	spider (Araneae)	spider (Araneae)		y			
Xysticus ulmi					y	y	y
Ylodes conspersus	insect - caddis fly (Trichoptera)	insect - caddis fly (Trichoptera)		y			
Zelotes electus	spider (Araneae)	spider (Araneae)		y			
Zelotes latreillei	spider (Araneae)	spider (Araneae)		y			
Zelotes sp juv					y		
Zeugophora subspinosa	insect - beetle (Coleoptera)	insect - beetle (Coleoptera)	y				
Zilla diodia	spider (Araneae)	spider (Araneae)	y	y			
Zora spinimana	spider (Araneae)	spider (Araneae)	y	y			
Zygiella atrica	spider (Araneae)	spider (Araneae)		y			
1260 species			**518 species**	**898 species**	**333 species**	**235 species**	**167 species**

Summary of butterfly records including 2013 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest	New to Forest and buffer
Aglais urticae	Small Tortoiseshell	insect - butterfly	y	y	y		
Anthocharis cardamines	Orange-tip	insect - butterfly	y	y			
Aphantopus hyperantus	Ringlet	insect - butterfly	y	y	y		
Argynnis aglaja	Dark Green Fritillary	insect - butterfly		y			
Argynnis paphia	Silver-washed Fritillary	insect - butterfly	y	y			
Aricia agestis	Brown Argus	insect - butterfly	y	y	y		
Callophrys rubi	Green Hairstreak	insect - butterfly	y	y	y		
Celastrina argiolus	Holly Blue	insect - butterfly	y	y	y		
Coenonympha pamphilus	Small Heath	insect - butterfly	y	y	y		
Colias croceus	Clouded Yellow	insect - butterfly	y	y	y		
Erynnis tages	Dingy Skipper	insect - butterfly		y			
Euphydryas aurinia	Marsh Fritillary		y				
Gonepteryx rhamni	Brimstone	insect - butterfly	y	y	y		
Hipparchia semele	Grayling	insect - butterfly	y	y	y		
Inachis io	Peacock	insect - butterfly	y	y	y		
Lasiommata megera	Wall	insect - butterfly		y			
Leptidea sinapis	Wood White	insect - butterfly		y			
Limenitis camilla	White Admiral	insect - butterfly	y	y			
Lycaena phlaeas	Small Copper	insect - butterfly	y	y	y		
Maniola jurtina	Meadow Brown	insect - butterfly	y	y	y		
Melanargia galathea	Marbled White	insect - butterfly	y	y	y		
Neozephyrus quercus	Purple Hairstreak	insect - butterfly	y	y			
Ochlodes sylvanus	Large Skipper	insect - butterfly	y	y	y		
Pararge aegeria	Speckled Wood	insect - butterfly	y	y	y		

Pieris brassicae	Large White	insect - butterfly	y	y	y		
Pieris napi	Green-veined White	insect - butterfly	y	y	y		
Pieris rapae	Small White	insect - butterfly	y	y	y		
Plebejus argus	Silver-studded Blue	insect - butterfly	y	y	y		
Polygonia c-album	Comma	insect - butterfly	y	y	y		
Polyommatus icarus	Common Blue	insect - butterfly	y	y	y		
Pyrgus malvae	Grizzled Skipper	insect - butterfly		y			
Pyronia tithonus	Hedge Brown	insect - butterfly	y	y	y		
Thymelicus acteon	Lulworth Skipper		y				
Thymelicus lineola	Essex Skipper	insect - butterfly	y	y			
Thymelicus sylvestris	Small Skipper	insect - butterfly	y	y	y		
Vanessa atalanta	Red Admiral	insect - butterfly	y	y	y		
Vanessa cardui	Painted Lady	insect - butterfly	y	y	y		
37 species			**32 species**	**35 species**	**25 species**	**0 species**	**0 species**

Summary of moth records including 2013 surveys (data provided by DERC)

Species	Common Name	DERC DATA Hurn Forest	DERC DATA Buffer zone	Moors Close Mike Jeffes	All records 2010-13	New to Hurn Forest (recorded 2010-13)	New to Forest and buffer (DERC buffer data only)	New to Forest and buffer (DERC & Moors Close buffer data)
Abraxas grossulariata	Magpie Moth			y				
Abrostola tripartita	Spectacle	y	y	y	y			
Abrostola triplasia	Dark Spectacle		y	y				
Acasis viretata	Yellow-barred Brindle			y				
Acentria ephemerella	Water Veneer	y	y	y	y			
Achlya flavicornis	Yellow Horned			y	y	y	y	
Achroia grisella	Lesser Wax Moth			y				
Acleris aspersana	Ginger Button		y					
Acleris comariana	Strawberry Tortrix			y				
Acleris cristana				y				
Acleris emargana	Notch-wing Button	y		y	y			
Acleris ferrugana	Rusty Oak Button	y		y	y			
Acleris forsskaleana	Maple Button	y		y				
Acleris hastiana	Sallow Button	y		y	y			
Acleris hyemana	Heath Button	y	y	y				
Acleris laterana	Dark-triangle Button	y		y				
Acleris laterana/comariana				y				
Acleris literana				y				
Acleris logiana	Grey Birch Button	y		y	y			
Acleris notana	Rusty Birch Button	y	y	y				

Acleris rhombana	Rhomboid Tortrix			y		
Acleris sparsana	Ashy Button	y		y		
Acleris variegana	Garden Rose Tortrix	y		y		
Acrobasis consociella	Broad-barred Knot-horn	y		y		
Acrobasis repandana	Warted Knot-horn	y				
Acrolepiopsis assectella	Leek Moth			y		
Acronicta aceris	Sycamore	y	y	y		
Acronicta alni	Alder Moth	y		y	y	
Acronicta leporina	Miller		y	y		
Acronicta megacephala	Poplar Grey	y	y	y	y	
Acronicta psi	Grey Dagger	y	y	y	y	
Acronicta rumicis	Knot Grass	y	y	y	y	
Acronicta tridens	Dark Dagger			y		
Adaina microdactyla				y		
Adela croesella	Small Barred Long-horn		y			
Adela cuprella	Early Long-horn		y			
Adela reaumurella	Green Long-horn	y	y	y		
Aethalura punctulata	Grey Birch	y	y	y	y	
Aethes cnicana	Thistle Conch	y	y		y	
Aethes rubigana	Burdock Conch	y		y	y	
Aethes smeathmanniana	Yarrow Conch	y		y		
Agapeta hamana	Common Yellow Conch	y		y	y	
Agapeta zoegana				y		
Aglossa pinguinalis	Large Tabby			y		
Agonopterix alstromeriana	Brown-spot Flat-body	y		y		
Agonopterix arenella	Brindled Flat-body	y		y	y	
Agonopterix assimilella	Dusted Flat-body	y				
Agonopterix conterminella	Sallow Flat-body	y		y		
Agonopterix heracliana	Common Flat-body	y		y	y	
Agonopterix nervosa	Dark-fringed Flat-body	y				
Agonopterix ocellana	Red-letter Flat-body	y		y		

Agonopterix umbellana	Gorse Flat-body	y		y				
Agonopterix yeatiana	Coastal Flat-body	y		y	y			
Agriopis aurantiaria	Scarce Umber			y	y	y	y	
Agriopis leucophaearia	Spring Usher	y		y	y			
Agriopis marginaria	Dotted Border			y	y	y	y	
Agriopis marginaria ab. fuscata	Dotted Border (melanic ab. fuscata)			y				
Agriphila geniculea	Elbow-stripe Grass-veneer	y	y	y	y			
Agriphila inquinatella	Barred Grass-veneer	y	y	y	y			
Agriphila latistria	White-streak Grass-veneer	y		y	y			
Agriphila selasella	Pale-streak Grass-veneer	y	y	y				
Agriphila straminella	Straw Grass-veneer	y	y	y	y			
Agriphila tristella	Common Grass-veneer	y	y	y	y			
Agrius convolvuli	Convolvulus Hawk-moth			y				
Agrochola circellaris	Brick			y				
Agrochola haematidea	Southern Chestnut	y	y	y	y			
Agrochola helvola	Flounced Chestnut		y	y				
Agrochola litura	Brown-spot Pinion			y				
Agrochola lota	Red-line Quaker		y	y	y	y		
Agrochola lychnidis	Beaded Chestnut		y	y	y	y		
Agrochola macilenta	Yellow-line Quaker		y	y	y	y		
Agrotis cinerea	Light Feathered Rustic			y				
Agrotis clavis	Heart & Club	y	y	y	y			
Agrotis exclamationis	Heart & Dart	y	y	y				
Agrotis ipsilon	Dark Sword-grass	y	y	y	y			
Agrotis puta	Shuttle-shaped Dart	y	y	y	y			
Agrotis segetum	Turnip Moth		y	y	y	y		
Agrotis vestigialis	Archer's Dart		y	y				
Alcis repandata	Mottled Beauty	y	y	y	y			
Aleimma loeflingiana	Yellow Oak Button	y	y	y				
Allophyes oxyacanthae	Green-brindled Crescent			y	y	y	y	
Alsophila aescularia	March Moth			y	y	y	y	

Alucita hexadactyla	Twenty-plume Moth			y	y	y	y	
Amblyptilia acanthadactyla				y				
Amblyptilia punctidactyla				y				
Amphipoea fucosa paludis	Saltern Ear			y				
Amphipoea oculea	Ear Moth		y	y	y	y		
Amphipoea oculea agg.	Ear Moth agg.			y				
Amphipyra berbera	Svensson's Copper Underwing			y	y	y	y	
Amphipyra pyramidea	Copper Underwing	y	y	y	y			
Amphipyra tragopoginis	Mouse Moth			y				
Amphisbatis incongruella	Ling Tubic		y					
Anacampsis blattariella	Birch Sober	y		y				
Anania verbascalis				y				
Anarsia spartiella	Small Crest	y						
Anarta myrtilli	Beautiful Yellow Underwing	y	y	y	y			
Ancylis achatana	Triangle-marked Roller	y		y				
Ancylis diminutana	Small Festooned Roller		y					
Ancylis laetana	Aspen Roller	y	y		y			
Ancylis mitterbacheriana					y	y	y	y
Ancylis uncella	Bridge Roller		y		y	y		
Ancylosis oblitella				y				
Anthophila fabriciana	Common Nettle-tap		y	y				
Anticlea badiata	Shoulder Stripe	y		y	y			
Anticlea derivata	Streamer			y	y	y	y	
Anticollix sparsata	Dentated Pug	y	y	y	y			
Apamea anceps	Large Nutmeg			y				
Apamea crenata	Clouded-bordered Brindle		y	y	y	y		
Apamea epomidion	Clouded Brindle			y				
Apamea lithoxylaea	Light Arches			y				
Apamea monoglypha	Dark Arches	y	y	y	y			
Apamea ophiogramma	Double Lobed			y				
Apamea remissa	Dusky Brocade	y	y	y				

Apamea scolopacina	Slender Brindle			y	y			
Apamea sordens	Rustic Shoulder-knot			y	y	y	y	
Apamea sublustris	Reddish Light Arches				y			
Apamea unanimis	Small Clouded Brindle			y	y	y	y	
Apeira syringaria	Lilac Beauty			y	y			
Aphelia paleana	Timothy Tortrix		y		y			
Aphomia sociella	Bee Moth		y	y	y	y		
Aplocera efformata	Lesser Treble-bar		y	y	y	y		
Aplocera plagiata	Treble-bar				y	y	y	y
Apocheima hispidaria	Small Brindled Beauty				y			
Apoda limacodes	Festoon			y	y			
Apomyelois bistriatella subcognata					y			
Aporophyla lutulenta	Deep-brown Dart			y	y	y	y	
Aporophyla nigra	Black Rustic			y	y	y	y	
Apotomis betuletana	Birch Marble		y					
Apotomis capreana	Sallow Marble		y	y	y	y		
Apotomis semifasciana	Short-barred Marble		y					
Apotomis turbidana	White-shouldered Marble		y	y	y	y		
Aproaerema anthyllidella					y			
Archanara dissoluta	Brown-veined Wainscot				y			
Archanara geminipuncta	Twin-spotted Wainscot			y	y			
Archanara sparganii	Webb's Wainscot				y			
Archiearis notha	Light Orange Underwing		y	y				
Archiearis parthenias	Orange Underwing		y	y	y			
Archips oporana	Pine Twist		y		y			
Archips podana	Large Fruit-tree Tortrix		y		y	y		
Archips xylosteana	Variegated Golden Tortrix		y		y	y		
Arctia caja	Garden Tiger			y	y	y	y	
Arctia villica	Cream-spot Tiger		y	y	y	y		
Arctia villica britannica	Cream-spot Tiger				y			
Arenostola phragmitidis	Fen Wainscot				y			

Argyresthia albistria				y	
Argyresthia brockeella	Gold-ribbon Argent	y	y	y	y
Argyresthia conjugella	Apple Fruit Moth			y	
Argyresthia curvella				y	
Argyresthia glaucinella				y	
Argyresthia goedartella	Golden Argent	y	y	y	y
Argyresthia pruniella	Cherry Fruit Moth			y	
Argyresthia pygmaeella	Sallow Argent	y		y	
Argyresthia retinella	Netted Argent	y	y	y	
Argyresthia spinosella				y	
Argyrotaenia ljungiana	Heather Twist	y	y		y
Aricia agestis	Brown Argus			y	
Aristotelia ericinella	Heather Neb	y	y	y	
Aroga velocella	Dusky Groundling	y	y	y	
Aspilapteryx tringipennella				y	
Aspitates ochrearia	Yellow Belle		y		
Assara terebrella				y	
Atethmia centrago	Centre-barred Sallow			y	
Athrips mouffetella	Dotted Grey Groundling	y		y	y
Atolmis rubricollis	Red-necked Footman			y	
Autographa gamma	Silver Y	y	y	y	y
Autographa pulchrina	Beautiful Golden Y			y	
Axylia putris	Flame	y	y	y	
Bactra lancealana	Rush Marble	y		y	
Bactra robustana				y	
Batia lambdella	Greater Tawny Tubic	y		y	
Batia lunaris	Lesser Tawny Tubic	y	y	y	
Batia unitella	Golden-brown Tubic	y		y	
Batrachedra praeangusta	Poplar Cosmet	y			
Bena bicolorana	Scarce Silver-lines			y	
Biston betularia	Peppered Moth	y	y	y	y

Biston betularia f. carbonaria	Peppered Moth [melanic form]			y				
Biston betularia f. insularia	Peppered Moth [melanic form]			y				
Biston strataria	Oak Beauty			y	y	y	y	
Blastesthia posticana	insect - moth		y					
Blastesthia turionella	Pine Bud Moth	y	y					
Blastobasis adustella	Dingy Dowd	y		y				
Blastobasis lacticolella	Wakely's Dowd	y	y	y	y			
Blastodacna hellerella	Hawthorn Cosmet	y						
Brachmia blandella	Gorse Crest	y		y				
Brachylomia viminalis	Minor Shoulder-knot	y	y	y	y			
Bryotropha domestica				y				
Bryotropha terrella	Cinerous Groundling	y	y	y	y			
Bryotropha umbrosella	Sandhill Groundling	y	y					
Bucculatrix cidarella	Alder Bent-wing		y		y	y		
Bucculatrix frangutella	Buckthorn Bent-wing	y	y					
Bucculatrix nigricomella				y				
Bucculatrix ulmella				y				
Bupalus piniaria	Bordered White	y	y	y	y			
Cabera exanthemata	Common Wave	y	y	y	y			
Cabera pusaria	Common White Wave	y	y	y	y			
Cacoecimorpha pronubana	Carnation Tortrix	y		y				
Calamotropha paludella				y				
Callimorpha dominula	Scarlet Tiger			y				
Callistege mi	Mother Shipton	y	y					
Callisto denticulella				y				
Calliteara pudibunda	Pale Tussock	y	y	y	y			
Caloptilia alchimiella				y				
Caloptilia azaleella	Azalea Leaf Miner			y				
Caloptilia betulicola	Red Birch Slender	y	y	y				
Caloptilia elongella	Pale Red Slender	y						
Caloptilia populetorum				y				

Caloptilia robustella				y	y	y	y
Caloptilia rufipennella				y			
Caloptilia stigmatella	White-triangle Slender	y		y	y		
Caloptilia syringella				y			
Calybites phasianipennella				y			
Campaea margaritata	Light Emerald	y	y	y	y		
Camptogramma bilineata subsp. bilineata	Yellow Shell	y	y	y	y		
Capperia britanniodactyla	Wood-sage Plume		y	y			
Caradrina morpheus	Mottled Rustic	y	y	y	y		
Carcina quercana				y			
Carpatolechia proximella	Black-speckled Groundling	y		y			
Caryocolum fraternella				y			
Cataclysta lemnata	Small China-mark			y	y		
Catocala nupta	Red Underwing			y			
Catoptria falsella	Chequered Grass-veneer	y	y	y	y		
Catoptria pinella	Pearl Grass-veneer	y	y	y			
Cedestis gysseleniella				y			
Cedestis subfasciella	Brown Pine Ermel	y					
Celaena leucostigma	Crescent			y			
Celypha lacunana	Common Marble	y	y	y	y		
Celypha rosaceana				y			
Celypha striana	Barred Marble	y	y	y			
Cerastis rubricosa	Red Chestnut	y	y	y	y		
Cerura vinula	Puss Moth			y			
Charanyca trigrammica	Treble Lines	y	y	y	y		
Charissa obscurata	Annulet		y				
Chilo phragmitella	Reed Veneer	y		y			
Chilodes maritimus	Silky Wainscot	y	y	y			
Chlorissa viridata	Small Grass Emerald	y		y			
Chloroclysta siterata	Red-green Carpet	y	y	y	y		

Chloroclysta truncata	Common Marbled Carpet			y	y	y	y
Chloroclystis v-ata	V-Pug			y	y	y	y
Chortodes pygmina	Small Wainscot		y	y	y	y	
Chrysoesthia drurella				y			
Chrysoteuchia culmella	Garden Grass-veneer	y	y	y	y		
Cidaria fulvata	Barred Yellow			y			
Cilix glaucata	Chinese Character		y	y			
Clavigesta purdeyi	Pine Leaf-mining Moth	y					
Clavigesta sylvestrana				y			
Cleora cinctaria	Ringed Carpet		y	y	y	y	
Cleora cinctaria subsp. bowesi	Ringed Carpet		y				
Cleorodes lichenaria	Brussels Lace			y	y	y	y
Clepsis consimilana	Privet Twist	y		y			
Clepsis spectrana	Cyclamen Tortrix			y			
Clostera curtula	Chocolate-tip			y	y	y	y
Cnephasia asseclana	Flax Tortrix		y	y			
Cnephasia incertana	Light Grey Tortrix		y	y	y	y	
Cnephasia longana				y			
Cnephasia stephensiana	Grey Tortrix	y		y			
Cochylidia implicitana				y			
Cochylimorpha straminea	Straw Conch	y		y			
Cochylis atricapitana	Black-headed Conch	y	y	y			
Cochylis molliculana				y			
Cochylis nana				y	y	y	y
Coenobia rufa	Small Rufous			y			
Coenonympha pamphilus	Small Heath			y			
Coleophora albella	Viviparous Case-bearer	y					
Coleophora albicosta	Gorse Case-bearer	y	y	y	y		
Coleophora albidella				y			
Coleophora alcyonipennella/frischella				y			
Coleophora deauratella				y	y	y	y

Coleophora frischella	White-clover Case-bearer	y					
Coleophora juncicolella	Least Case-bearer		y				
Coleophora lusciniaepennella	Osier Case-bearer	y	y				
Coleophora mayrella				y			
Coleophora milvipennis	Buff Birch Case-bearer	y	y				
Coleophora orbitella	Pale Birch Case-bearer		y				
Coleophora pyrrhulipennella	Ling Case-bearer		y		y	y	
Coleophora serratella	Common Case-bearer		y	y	y	y	
Coleophora striatipennella	Hedge Case-bearer		y				
Coleophora violacea	Violet Case-bearer	y					
Colocasia coryli	Nut-tree Tussock	y	y	y	y		
Colostygia pectinataria	Green Carpet	y	y	y	y		
Colotois pennaria	Feathered Thorn		y	y	y	y	
Comibaena bajularia	Blotched Emerald		y	y			
Conistra ligula	Dark Chestnut		y	y	y	y	
Conistra rubiginea	Dotted Chestnut			y			
Conistra vaccinii	Chestnut		y	y	y	y	
Conobathra repandana				y			
Coscinia cribraria	Speckled Footman		y				
Coscinia cribraria subsp. bivittata	Speckled Footman		y				
Cosmia affinis	Lesser-spotted Pinion			y			
Cosmia pyralina	Lunar-spotted Pinion			y			
Cosmia trapezina	Dun-bar	y	y	y	y		
Cosmiotes consortella	Field Dwarf		y				
Cosmopterix orichalcea				y			
Cosmorhoe ocellata	Purple Bar		y	y	y	y	
Cossus cossus	Goat Moth		y	y	y	y	
Crambus hamella	Dark Grass-veneer	y		y	y		
Crambus lathoniellus	Hook-streak Grass-veneer	y		y	y		
Crambus pascuella	Inlaid Grass-veneer	y		y	y		
Crambus perlella	Satin Grass-veneer	y	y	y			

Crambus pratella				y				
Craniophora ligustri	Coronet	y		y	y			
Crocallis elinguaria	Scalloped Oak	y	y	y	y			
Crocidosema plebejana				y				
Cryphia domestica	Marbled Beauty	y	y	y				
Cryphia muralis	Marbled Green			y				
Cryptoblabes bistriga	Double-striped Knot-horn	y		y				
Cucullia umbratica	Shark	y		y				
Cybosia mesomella	Four-dotted Footman	y	y	y	y			
Cyclophora albipunctata	Birch Mocha	y	y	y	y			
Cyclophora annularia	Mocha			y				
Cyclophora linearia	Clay Triple-lines			y	y			
Cyclophora pendularia	Dingy Mocha	y	y	y	y			
Cyclophora punctaria	Maiden's Blush	y	y	y	y			
Cydia amplana	Vagrant Piercer	y		y				
Cydia coniferana				y				
Cydia fagiglandana				y				
Cydia pomonella	Codling Moth	y		y	y			
Cydia splendana	Marbled Piercer	y		y				
Cydia succedana	Grey Gorse Piercer	y	y					
Cydia ulicetana				y	y	y	y	
Deilephila elpenor	Elephant Hawk-moth	y	y	y				
Deilephila porcellus	Small Elephant Hawk-moth	y		y				
Deltaornix torquillella				y				
Denisia similella				y				
Depressaria daucella	Dingy Flat-body	y		y				
Depressaria heraclei	Parsnip Moth			y				
Depressaria pastinacella	Parsnip Flat-body	y						
Depressaria pulcherrimella				y				
Diachrysia chrysitis	Burnished Brass	y	y	y	y			
Diacrisia sannio	Clouded Buff		y	y				

Diaphora mendica	Muslin Moth	y			y	y		
Diarsia brunnea	Purple Clay				y	y	y	y
Diarsia mendica	Ingrailed Clay			y	y			
Diarsia rubi	Small Square-spot	y		y	y	y		
Diasemiopsis ramburialis					y			
Dicallomera fascelina	Dark Tussock			y	y	y	y	
Dichomeris alacella					y			
Dichomeris marginella	Juniper Webber				y			
Dichonia aprilina	Merveille Du Jour			y	y	y		
Dichrorampha acuminatana					y			
Dichrorampha petiverella					y			
Digitivalva pulicariae					y			
Dioryctria abietella	Dark Pine Knot-horn	y		y	y	y		
Dioryctria simplicella	Brown Pine Knot-horn	y			y			
Dioryctria sylvestrella					y			
Dipleurina crataegella					y			
Dipleurina lacustrata	Little Grey	y		y	y	y		
Discestra trifolii	Nutmeg				y			
Ditula angustiorana	Red-barred Tortrix	y		y	y			
Diurnea fagella	March Tubic	y		y	y	y		
Donacaula forficella	Pale Water-veneer	y			y	y		
Donacaula mucronellus					y			
Drepana falcataria	Pebble Hook-tip	y		y	y	y		
Drymonia dodonaea	Marbled Brown	y		y	y	y		
Drymonia ruficornis	Lunar Marbled Brown	y			y			
Dryobotodes eremita	Brindled Green			y	y			
Dypterygia scabriuscula	Bird's Wing	y		y	y	y		
Dyscia fagaria	Grey Scalloped Bar			y	y			
Earias clorana	Cream-bordered Green Pea			y	y			
Ecliptopera silaceata	Small Phoenix	y		y	y	y		
Ectoedemia albifasciella	White-banded Pigmy	y						

Ectoedemia angulifasciella	Bent-barred Pigmy	y						
Ectoedemia minimella	Broken-barred Pigmy	y						
Ectoedemia occultella	Large Birch Pigmy	y	y	y				
Ectoedemia quinquella	Five-spot Pigmy	y						
Ectoedemia subbimaculella	Spotted Black Pigmy	y						
Ectropis bistortata	Engrailed	y	y	y	y			
Ectropis crepuscularia	Small Engrailed	y		y				
Eilema complana	Scarce Footman	y	y	y	y			
Eilema depressa	Buff Footman	y	y	y	y			
Eilema griseola	Dingy Footman	y	y	y	y			
Eilema lurideola	Common Footman	y	y	y	y			
Eilema sororcula	Orange Footman	y	y	y	y			
Elachista argentella	Swan-feather Dwarf	y	y	y				
Elachista canapennella	Little Dwarf	y	y	y				
Elachista maculicerusella				y	y	y	y	
Elaphria venustula	Rosy Marbled	y	y	y	y			
Electrophaes corylata	Broken-barred Carpet		y	y				
Elegia similella				y				
Elophila nymphaeata	Brown China-mark	y	y	y	y			
Ematurga atomaria	Common Heath	y	y	y	y			
Emmelina monodactyla	Common Plume	y	y	y	y			
Emmetia marginea	Bordered Carl	y	y	y				
Enarmonia formosana	Cherry Bark Tortrix	y		y				
Endothenia marginana				y				
Endothenia quadrimaculana	Blotched Marble	y	y	y				
Endotricha flammealis	Rosy Tabby	y	y	y	y			
Endrosis sarcitrella	White-shouldered House Moth			y	y	y	y	
Ennomos alniaria	Canary-shouldered Thorn	y	y	y	y			
Ennomos erosaria	September Thorn	y		y				
Ennomos fuscantaria	Dusky Thorn		y	y				
Ennomos quercinaria	August Thorn			y				

Epagoge grotiana	Brown-barred Twist	y		y	y			
Epermenia falciformis				y				
Ephestia parasitella	False Cacao Moth	y		y				
Ephestia parasitella unicolorella				y				
Epiblema costipunctana				y				
Epiblema cynosbatella	Yellow-faced Bell	y		y				
Epiblema foenella				y				
Epiblema roborana				y				
Epiblema rosaecolana				y				
Epiblema uddmanniana	Bramble Shoot Moth	y	y	y	y			
Epinotia abbreviana	Brown Elm Bell	y		y				
Epinotia bilunana	Crescent Bell	y	y	y	y			
Epinotia brunnichana	Large Birch Bell	y		y				
Epinotia demarniana	Birch Bell	y		y				
Epinotia immundana	Common Birch Bell	y		y	y			
Epinotia nisella	Grey Poplar Bell	y		y	y			
Epinotia ramella	Small Birch Bell	y	y	y				
Epinotia signatana				y				
Epinotia solandriana	Variable Bell	y		y				
Epinotia sordidana				y				
Epinotia subocellana	White Sallow Bell	y			y			
Epinotia tenerana	Nut Bud Moth	y		y				
Epinotia tetraquetrana	Square-barred Bell	y	y	y				
Epione repandaria	Bordered Beauty	y	y	y	y			
Epiphyas postvittana	Light Brown Apple Moth	y	y	y				
Epirrhoe alternata	Common Carpet	y	y	y	y			
Epirrita autumnata	Autumnal Moth		y	y	y	y		
Epirrita dilutata	November Moth			y	y	y	y	
Erannis defoliaria	Mottled Umber		y	y	y	y		
Eremobia ochroleuca	Dusky Sallow			y				
Eriocrania cicatricella	Washed Purple		y					

Eriocrania purpurella				y				
Eriocrania salopiella				y				
Eriocrania sangii	Large Birch Purple		y					
Eriocrania semipurpurella	Early Purple		y	y				
Eriocrania sparrmannella	Mottled Purple		y	y	y	y		
Eriocrania subpurpurella	Common Oak Purple		y	y				
Eriocrania unimaculella	White-spot Purple		y	y				
Eucalybites auroguttella	Gold-dot Slender		y					
Euchoeca nebulata	Dingy Shell	y	y	y	y			
Eucosma campoliliana	Marbled Bell	y	y	y				
Eucosma cana	Hoary Belle	y	y	y	y			
Eucosma obumbratana	Two-coloured Bell	y						
Eudemis profundana	Diamond-back Marble	y		y				
Eudonia angustea	Narrow-winged Grey	y		y	y			
Eudonia mercurella	Small Grey	y	y	y	y			
Eudonia pallida				y				
Eudonia truncicolella	Ground-moss Grey	y	y	y	y			
Eugnorisma glareosa	Autumnal Rustic		y	y	y	y		
Euleioptilus carphodactyla				y				
Eulithis mellinata	Spinach			y				
Eulithis prunata	Phoenix	y	y	y	y			
Eulithis pyraliata	Barred Straw			y	y	y	y	
Eulithis testata	Chevron	y	y	y	y			
Euphyia biangulata	Cloaked Carpet		y	y				
Euphyia unangulata	Sharp-angled Carpet			y				
Eupithecia abbreviata	Brindled Pug	y		y	y			
Eupithecia absinthiata	Wormwood Pug	y	y	y	y			
Eupithecia absinthiata f. goossensiata	Ling Pug			y				
Eupithecia assimilata	Currant Pug			y				
Eupithecia centaureata	Lime-speck Pug		y	y				
Eupithecia dodoneata	Oak-tree Pug	y		y	y			

Eupithecia exiguata	Mottled Pug			y			
Eupithecia haworthiata	Haworth's Pug			y			
Eupithecia icterata	Tawny Speckled Pug			y			
Eupithecia indigata	Ochreous Pug	y		y	y		
Eupithecia innotata	Angle-barred Pug		y				
Eupithecia innotata form fraxinata	Ash Pug		y				
Eupithecia insigniata	Pinion-spotted Pug			y			
Eupithecia intricata	Freyer's Pug			y			
Eupithecia inturbata	Maple Pug			y			
Eupithecia nanata	Narrow-winged Pug	y	y	y	y		
Eupithecia phoeniceata	Cypress Pug	y		y			
Eupithecia pulchellata	Foxglove Pug	y	y	y	y		
Eupithecia simpliciata	Plain Pug			y			
Eupithecia subfuscata	Grey Pug		y	y	y	y	
Eupithecia subumbrata	Shaded Pug			y			
Eupithecia succenturiata	Bordered Pug		y	y			
Eupithecia tantillaria	Dwarf Pug	y		y			
Eupithecia tenuiata	Slender Pug	y		y			
Eupithecia tripunctaria	White-spotted Pug	y		y			
Eupithecia trisignaria	Triple-spotted Pug			y			
Eupithecia vulgata	Common Pug	y		y	y		
Euplexia lucipara	Small Angle Shades	y	y	y	y		
Eupoecilia ambiguella	Vine Moth			y			
Eupoecilia angustana	Marbled Conch	y	y	y			
Eupoecilia angustana angustana				y			
Euproctis chrysorrhoea	Brown-tail	y	y	y			
Euproctis similis	Yellow-tail	y	y	y	y		
Eupsilia transversa	Satellite		y	y	y		
Eurrhypara hortulata	Small Magpie	y		y	y		
Euthrix potatoria	Drinker	y	y	y	y		
Euxoa tritici	White-line Dart	y	y	y	y		

Euzophera pinguis	Ash-bark Knot-horn		y		y			
Evergestis forficalis	Garden Pebble		y		y			
Evergestis pallidata	Chequered Pearl		y		y			
Exoteleia dodecella	Pine Groundling		y	y		y		
Falcaria lacertinaria	Scalloped Hook-tip		y	y	y	y		
Furcula bifida	Poplar Kitten				y			
Furcula furcula	Sallow Kitten		y	y	y	y		
Galleria mellonella	Wax Moth			y	y			
Geometra papilionaria	Large Emerald		y	y	y	y		
Glyphipterix fuscoviridella					y			
Glyphipterix thrasonella	Speckled Fanner		y		y	y		
Gortyna flavago	Frosted Orange				y			
Grapholita funebrana	Plum Fruit Moth				y			
Gymnoscelis rufifasciata	Double-striped Pug		y	y	y	y		
Gynnidomorpha alismana					y			
Gypsonoma aceriana					y			
Gypsonoma dealbana	Common Cloaked Shoot		y	y	y			
Gypsonoma oppressana					y			
Gypsonoma sociana					y			
Habrosyne pyritoides	Buff Arches		y	y	y	y		
Hada nana	Shears				y			
Hada plebeja	Shears		y	y	y	y		
Hadena bicruris	Lychnis				y			
Hadena rivularis	Campion				y			
Hecatera bicolorata	Broad-barred White				y	y	y	y
Hedya nubiferana	Marbled Orchard Tortrix		y	y	y	y		
Hedya pruniana	Plum Tortrix			y	y	y	y	
Hedya salicella	White-backed Marble		y	y	y	y		
Helcystogramma rufescens	Orange Crest		y		y			
Helicoverpa armigera	Scarce Bordered Straw				y			
Heliothis peltigera	Bordered Straw				y			

Hellula undalis	Old World Webworm	y		y				
Hemaris fuciformis	Broad-bordered Bee Hawk-moth		y	y				
Hemithea aestivaria	Common Emerald	y	y	y	y			
Hepialus hecta	Gold Swift	y	y	y	y			
Hepialus humuli	Ghost Moth			y	y	y	y	
Hepialus lupulinus	Common Swift	y		y	y			
Hepialus sylvina	Orange Swift			y	y	y	y	
Herminia grisealis	Small Fan-foot	y	y	y				
Hofmannophila pseudospretella	Brown House-moth	y		y	y			
Homoeosoma sinuella	Twin-barred Knot-horn	y	y	y				
Hoplodrina alsines	Uncertain	y	y	y	y			
Hoplodrina ambigua	Vine's Rustic	y	y	y	y			
Hoplodrina blanda	Rustic	y	y	y	y			
Hydraecia micacea	Rosy Rustic	y	y	y	y			
Hydrelia flammeolaria	Small Yellow Wave	y	y	y	y			
Hydriomena furcata	July Highflyer	y	y	y	y			
Hydriomena impluviata	May Highflyer	y	y	y	y			
Hylaea fasciaria	Barred Red	y	y	y	y			
Hyles livornica	Striped Hawk-moth			y				
Hyloicus pinastri	Pine Hawk-moth	y	y	y	y			
Hypatima rhomboidella				y				
Hypena crassalis	Beautiful Snout			y				
Hypena proboscidalis	Snout	y	y	y	y			
Hypena rostralis	Buttoned Snout	y		y				
Hypenodes humidalis	Marsh Oblique-barred			y	y	y	y	
Hypomecis punctinalis	Pale Oak Beauty	y	y	y	y			
Hypsopygia costalis	Gold Triangle	y	y	y				
Idaea aversata	Riband Wave	y	y	y	y			
Idaea aversata ab. remutata	Riband Wave [non-banded form]			y				
Idaea biselata	Small Fan-footed Wave	y	y	y	y			
Idaea dimidiata	Single-dotted Wave	y	y	y	y			

Idaea emarginata	Small Scallop			y	y	y	y
Idaea fuscovenosa	Dwarf Cream Wave	y	y	y	y		
Idaea muricata	Purple-bordered Gold		y				
Idaea rusticata atrosignaria	Least Carpet			y			
Idaea seriata	Small Dusty Wave		y	y			
Idaea straminata	Plain Wave	y	y	y	y		
Idaea subsericeata	Satin Wave	y	y	y	y		
Idaea sylvestraria	Dotted Border Wave		y	y			
Idaea trigeminata	Treble Brown Spot	y		y	y		
Incurvaria masculella				y			
Incurvaria pectinea	Pale Feathered Bright	y	y		y		
Infurcitinea argentimaculella	Silver-barred Clothes	y					
Ipimorpha retusa	Double Kidney	y	y	y			
Ipimorpha subtusa	Olive	y		y			
Lacanobia contigua	Beautiful Brocade	y	y	y	y		
Lacanobia oleracea	Bright-Line Brown-Eye	y	y	y	y		
Lacanobia suasa	Dog's Tooth			y			
Lacanobia thalassina	Pale-shouldered Brocade			y			
Lacanobia w-latinum	Light Brocade	y		y			
Laothoe populi	Poplar Hawk-moth	y	y	y	y		
Larentia clavaria	Mallow			y			
Lasiocampa quercus	Oak Eggar		y	y	y	y	
Lasiocampa quercus subsp. quercus	Oak Eggar	y	y				
Laspeyria flexula	Beautiful Hook-tip	y	y	y	y		
Lathronympha strigana	Red Piercer	y	y	y			
Leucoma salicis	White Satin Moth		y	y			
Ligdia adustata	Scorched Carpet			y	y	y	y
Lithophane hepatica	Pale Pinion			y	y	y	y
Lithophane leautieri	Blair's Shoulder-knot			y			
Lithophane leautieri hesperica	Blair's Shoulder-knot			y			
Lithophane ornitopus	Grey Shoulder-knot			y			

Lithophane ornitopus lactipennis	Grey Shoulder-knot			y			
Lithophane semibrunnea	Tawny Pinion			y			
Lithosia quadra	Four- spotted Footman			y	y	y	y
Lobesia abscisana				y			
Lobesia reliquana				y			
Lobophora halterata	Seraphim		y	y			
Lomaspilis marginata	Clouded Border	y	y	y	y		
Lomographa bimaculata	White-pinion Spotted		y	y			
Lomographa temerata	Clouded Silver	y	y	y	y		
Loxostege sticticalis	Diamond-spot Sable	y		y			
Lozotaenia forsterana	Large Ivy Twist	y		y			
Lozotaeniodes formosanus	Orange Pine Twist	y		y			
Luffia ferchaultella	Virgin Smoke	y					
Luperina testacea	Flounced Rustic	y	y	y	y		
Lycia hirtaria	Brindled Beauty	y		y	y		
Lycophotia porphyrea	True Lover's Knot	y	y	y	y		
Lygephila pastinum	Blackneck		y	y			
Lymantria monacha	Black Arches	y	y	y	y		
Lyonetia clerkella	Apple Leaf Miner		y	y	y	y	
Macaria alternata	Sharp-angled Peacock	y	y	y	y		
Macaria liturata	Tawny-barred Angle	y	y	y	y		
Macaria notata	Peacock Moth			y			
Macdunnoughia confusa	Dewick's Plusia			y			
Macroglossum stellatarum	Humming-bird Hawk-moth			y			
Macrothylacia rubi	Fox Moth	y	y	y	y		
Malacosoma neustria	Lackey			y	y	y	y
Mamestra brassicae	Cabbage Moth			y			
Marasmarcha lunaedactyla	Crescent Plume	y		y			
Meganola albula	Kent Black Arches			y	y	y	y
Melanchra persicariae	Dot Moth			y			
Melanchra pisi	Broom Moth	y	y	y			

Menophra abruptaria	Waved Umber			y	y		y		
Mesapamea didyma	Lesser Common Rustic				y	y	y	y	
Mesapamea secalis	Common Rustic	y	y	y	y	y			
Mesapamea secalis agg.	Common Rustic agg.				y				
Mesoleuca albicillata	Beautiful Carpet				y	y	y	y	
Mesoligia furuncula	Cloaked Minor	y	y	y					
Mesoligia literosa	Rosy Minor			y	y				
Metzneria lappella					y				
Micropterix aruncella	White-barred Gold			y					
Micropterix aureatella	Yellow-barred Gold			y					
Miltochrista miniata	Rosy Footman	y	y	y	y				
Mimas tiliae	Lime Hawk-moth				y				
Mompha propinquella					y				
Mompha raschkiella	Little Cosmet	y	y						
Monochroa cytisella	Bracken Neb	y	y	y					
Monopis crocicapitella					y	y	y	y	
Monopis laevigella	Skin Moth	y	y						
Monopis obviella					y				
Monopis weaverella	Carrion Moth	y	y	y					
Mormo maura	Old Lady	y	y	y					
Morophaga choragella	Large Clothes	y	y	y					
Musotima nitidalis						y	y	y	y
Myelois circumvoluta	Thistle Ermine			y	y				
Mythimna albipuncta	White-point			y	y	y	y		
Mythimna comma	Shoulder-striped Wainscot			y	y	y	y		
Mythimna conigera	Brown-line Bright-eye			y					
Mythimna favicolor	Mathew's Wainscot				y				
Mythimna ferrago	Clay	y	y	y	y	y			
Mythimna impura	Smoky Wainscot	y	y	y	y				
Mythimna l-album	L-album Wainscot				y				
Mythimna obsoleta	Obscure Wainscot			y	y				

Mythimna pallens	Common Wainscot	y	y	y	y				
Mythimna pudorina	Striped Wainscot	y	y	y	y				
Mythimna straminea	Southern Wainscot		y	y					
Mythimna unipuncta	White-speck			y					
Mythimna vitellina	Delicate			y					
Naenia typica	Gothic	y		y	y				
Narycia monilifera	White-speckled Smoke	y							
Nemapogon cloacella	Cork Moth				y	y	y	y	
Nematopogon metaxella				y	y	y	y		
Nematopogon swammerdamella				y					
Nemophora degeerella	Yellow-barred Long-horn	y	y	y					
Neofaculta ericetella	Heather Groundling	y	y	y	y				
Neozephyrus quercus	Purple Hairstreak			y					
Nephopterix angustella				y					
Noctua comes	Lesser Yellow Underwing	y	y	y	y				
Noctua fimbriata	Broad-bordered Yellow Underwing	y	y	y	y				
Noctua interjecta	Least Yellow Underwing			y					
Noctua interjecta subsp. caliginosa	Least Yellow Underwing		y	y					
Noctua janthe	Lesser Broad-bordered Yellow Underwing	y	y	y	y				
Noctua pronuba	Large Yellow Underwing	y		y	y				
Nola confusalis	Least Black Arches		y	y					
Nola cucullatella	Short-cloaked Moth			y					
Nomophila noctuella	Rush Veneer	y	y	y					
Nonagria typhae	Bulrush Wainscot		y	y					
Notodonta dromedarius	Iron Prominent	y	y	y	y				
Notodonta ziczac	Pebble Prominent	y	y	y	y				
Nycteola revayana	Oak Nycteoline	y		y					
Nymphula stagnata	Beautiful China-mark	y	y	y	y				
Ochropacha duplaris	Common Lutestring	y	y	y	y				
Ochropleura plecta	Flame Shoulder	y	y	y	y				
Ocnerostoma friesei	Grey Pine Ermel		y						

Odontopera bidentata	Scalloped Hazel	y	y	y	y			
Odontosia carmelita	Scarce Prominent	y	y	y	y			
Oegoconia quadripuncta				y				
Oligia fasciuncula	Middle-barred Minor	y	y	y	y			
Oligia latruncula	Tawny Marbled Minor	y	y	y	y			
Oligia strigilis	Marbled Minor	y	y	y	y			
Oligia strigilis agg.	Marbled Minor agg.			y				
Oligia versicolor	Rufous Minor	y		y				
Omphaloscelis lunosa	Lunar Underwing	y	y	y	y			
Oncocera semirubella				y				
Operophtera brumata	Winter Moth			y	y	y	y	
Opisthograptis luteolata	Brimstone Moth	y	y	y	y			
Opsibotys fuscalis	Cinerous Pearl		y					
Orgyia antiqua	Vapourer	y	y	y				
Orthonama obstipata	Gem	y		y				
Orthonama vittata	Oblique Carpet	y		y				
Orthopygia glaucinalis	Double-striped Tabby	y	y	y				
Orthosia cerasi	Common Quaker	y	y	y	y			
Orthosia cruda	Small Quaker		y	y	y	y		
Orthosia gothica	Hebrew Character	y		y	y			
Orthosia gracilis	Powdered Quaker			y				
Orthosia incerta	Clouded Drab	y		y	y			
Orthosia miniosa	Blossom Underwing			y				
Orthosia munda	Twin-spotted Quaker			y	y	y	y	
Orthosia populeti	Lead-coloured Drab		y	y				
Orthotaenia undulana				y	y	y	y	
Orthotelia sparganella				y				
Ostrinia nubilalis	European Corn-borer	y		y				
Ourapteryx sambucaria	Swallow-tailed Moth			y				
Pachycnemia hippocastanaria	Horse Chestnut	y	y	y	y			
Pachythelia villosella	Black Sweep	y	y					

Pammene albuginana	Blotched Piercer	y		y					
Pammene fasciana				y					
Pammene germmana				y					
Pammene herrichiana	Beech-mast Piercer	y							
Pammene regiana				y	y	y	y		
Pandemis cerasana	Barred Fruit-tree Tortrix	y	y	y	y				
Pandemis corylana	Chequered Fruit-tree Tortrix	y		y					
Pandemis heparana	Dark Fruit-tree Tortrix	y	y	y	y				
Panemeria tenebrata	Small Yellow Underwing		y						
Panolis flammea	Pine Beauty	y	y	y	y				
Paradarisa consonaria	Square Spot	y	y	y	y				
Paradrina clavipalpis	Pale Mottled Willow			y					
Parapoynx stratiotata	Ringed China-mark	y		y	y				
Parastichtis suspecta	Suspected	y	y	y	y				
Parastichtis ypsillon	Dingy Shears		y	y					
Paraswammerdamia lutarea	Hawthorn Ermel	y							
Parectropis similaria	Brindled White-spot	y		y					
Parornix anglicella					y	y	y	y	
Parornix betulae	Brown Birch Slender		y	y	y	y			
Parornix devoniella				y					
Parornix scoticella					y	y	y	y	
Pasiphila chloerata	Sloe Pug	y		y					
Pasiphila rectangulata	Green Pug	y	y	y	y				
Pediasia contaminella	Waste Grass-veneer	y		y	y				
Pelurga comitata	Dark Spinach			y					
Pempelia formosa	Beautiful Knot-horn	y		y					
Pempelia genistella	Gorse Knot-horn	y		y	y				
Pempelia palumbella	Heather Knot-horn	y	y	y	y				
Perconia strigillaria	Grass Wave	y	y	y	y				
Peribatodes rhomboidaria	Willow Beauty	y	y	y	y				
Peridea anceps	Great Prominent			y					

Peridroma saucia	Pearly Underwing				y				
Perinephela lancealis	Long-winged Pearl	y			y				
Perizoma affinitata	Rivulet				y				
Perizoma alchemillata	Small Rivulet	y	y		y	y			
Perizoma flavofasciata	Sandy Carpet	y			y				
Petrophora chlorosata	Brown Silver-line	y	y		y	y			
Phalera bucephala	Buff-tip	y	y		y	y			
Phalonidia manniana	Water-mint Conch	y							
Pheosia gnoma	Lesser Swallow Prominent	y	y		y	y			
Pheosia tremula	Swallow Prominent	y	y		y				
Phigalia pilosaria	Pale Brindled Beauty				y	y	y	y	
Philereme transversata britannica	Dark Umber				y				
Philereme vetulata	Brown Scallop	y	y		y				
Phlogophora meticulosa	Angle Shades	y	y		y	y			
Phlyctaenia coronata	Elder Pearl	y			y				
Phlyctaenia perlucidalis					y				
Photedes minima	Small Dotted Buff				y				
Phragmatobia fuliginosa	Ruby Tiger	y	y		y	y			
Phtheochroa inopiana					y				
Phtheochroa rugosana					y				
Phycita roborella	Dotted Oak Knot-horn	y	y		y				
Phycitodes binaevella	Ermine Knot-horn	y			y				
Phycitodes maritima	Chalk Knot-horn	y			y				
Phycitodes saxicola					y				
Phyllonorycter blancardella					y				
Phyllonorycter coryli	Nut Leaf Blister Moth				y				
Phyllonorycter corylifoliella					y				
Phyllonorycter froelichiella						y	y	y	y
Phyllonorycter lautella						y	y	y	y
Phyllonorycter leucographella	Firethorn Leaf Miner				y	y	y	y	
Phyllonorycter sorbi						y	y	y	y

Phyllonorycter ulmifoliella	Red Birch Midget	y	y	y				
Phylloporia bistrigella	Striped Bright		y		y	y		
Phytometra viridaria	Small Purple-barred			y				
Piniphila bifasciana	Pine Marble	y						
Plagodis dolabraria	Scorched Wing	y	y	y	y			
Platyperigea kadenii	Clancy's Rustic			y				
Platyptilia pallidactyla				y				
Plemyria rubiginata	Blue-bordered Carpet	y		y	y			
Plemyria rubiginata plumbata	Blue-bordered Carpet			y				
Plemyria rubiginata rubiginata	Blue-bordered Carpet			y				
Pleuroptya ruralis	Mother of Pearl	y	y	y	y			
Pleurota bicostella	Light Streak		y	y				
Plodia interpunctella	Indian Meal Moth			y				
Plusia festucae	Gold Spot			y				
Plutella xylostella	Diamond-back Moth	y	y	y	y			
Poecilocampa populi	December Moth			y	y	y	y	
Polia nebulosa	Grey Arches		y	y				
Polychrysia moneta	Golden Plusia			y				
Polymixis flavicincta	Large Ranunculus			y				
Polymixis lichenea	Feathered Ranunculus			y				
Polyommatus icarus	Common Blue			y				
Polyploca ridens	Frosted Green			y				
Prays fraxinella	Ash Bud Moth	y		y				
Prays fraxinella f. rustica				y				
Protodeltote pygarga	Marbled White Spot	y	y	y	y			
Pseudargyrotoza conwagana				y				
Pseudatemelia flavifrontella				y				
Pseudoips prasinana	Green Silver-lines			y	y	y	y	
Pseudoips prasinana britannica	Green Silver-lines			y				
Pseudoips prasinana subsp. britannica	Green Silver-lines	y						
Pseudoswammerdamia combinella				y				

Pseudoterpna pruinata	Grass Emerald	y	y	y	y
Psyche casta	Common Sweep		y	y	
Pterapherapteryx sexalata	Small Seraphim	y	y	y	y
Pterophorus pentadactyla	White Plume Moth	y		y	
Pterostoma palpina	Pale Prominent	y	y	y	y
Ptilodon capucina	Coxcomb Prominent	y	y	y	y
Ptycholoma lecheana				y	
Pyla fusca				y	
Pyralis farinalis	Meal Moth	y		y	
Pyrausta aurata	Small Purple & Gold	y		y	
Pyrausta despicata	Straw-barred Pearl	y		y	
Pyrausta purpuralis	Common Purple & Gold	y		y	y
Pyrrhia umbra	Bordered Sallow			y	
Rheumaptera undulata	Scallop Shell		y	y	
Rhizedra lutosa	Large Wainscot			y	
Rhodometra sacraria	Vestal	y	y	y	y
Rhopobota naevana	Holly Tortrix			y	
Rhyacionia buoliana	Pine Shoot Moth		y	y	
Rhyacionia pinicolana	Orange-spotted Shoot	y	y	y	y
Rhyacionia pinivorana	Spotted Shoot Moth	y	y	y	y
Rivula sericealis	Straw Dot	y	y	y	y
Roeslerstammia erxlebella	Copper Ermel	y		y	
Rusina ferruginea	Brown Rustic	y	y	y	y
Saturnia pavonia	Emperor Moth	y	y	y	y
Schrankia costaestrigalis	Pinion-streaked Snout	y	y	y	y
Scoliopteryx libatrix	Herald	y	y	y	y
Scoparia ambigualis	Common Grey	y	y	y	y
Scoparia basistrigalis	Base-lined Grey	y		y	
Scoparia pyralella	Meadow Grey	y	y	y	y
Scoparia subfusca				y	
Scopula emutaria	Rosy Wave			y	

Scopula floslactata	Cream Wave		y	y	y	y
Scopula imitaria	Small Blood-vein	y	y	y		
Scopula immutata	Lesser Cream Wave			y		
Scopula marginepunctata	Mullein Wave	y		y	y	
Scotopteryx luridata subsp. plumbaria	July Belle	y		y		
Scrobipalpa costella				y		
Scythris empetrella	Ling Owlet		y			
Scythris grandipennis	Black Owlet		y			
Scythropia crataegella	Hawthorn Moth	y		y	y	
Selenia dentaria	Early Thorn	y	y	y	y	
Selenia lunularia	Lunar Thorn			y		
Selenia tetralunaria	Purple Thorn	y		y	y	
Selidosema brunnearia	Bordered Grey		y			
Semiaspilates ochrearia	Yellow Belle			y		
Sesia bembeciformis	Lunar Hornet Moth			y		
Shargacucullia verbasci	Mullein			y		
Smerinthus ocellata	Eyed Hawk-moth	y		y		
Sophronia semicostella	White-shouldered Sober	y				
Sphinx ligustri	Privet Hawk-moth			y		
Spilonota ocellana	Bud Moth	y		y	y	
Spilosoma lubricipeda	White Ermine	y		y	y	
Spilosoma luteum	Buff Ermine	y	y	y	y	
Spodoptera exigua	Small Mottled Willow			y		
Stauropus fagi	Lobster Moth	y	y	y	y	
Stigmella atricapitella	Black-headed Pigmy	y				
Stigmella aurella	Golden Pigmy	y	y	y		
Stigmella basiguttella	Base-spotted Pigmy	y				
Stigmella catharticella	Buckthorn Pigmy	y				
Stigmella confusella	Pale Birch Pigmy	y	y			
Stigmella lapponica	Drab Birch Pigmy	y				
Stigmella luteella	Short-barred Pigmy	y				

Stigmella malella	Apple Pygmy			y				
Stigmella nylandriella					y	y	y	y
Stigmella salicis	Sallow Pigmy	y	y					
Stilbia anomala	Anomalous				y	y	y	y
Swammerdamia caesiella	Birch Ermel	y	y	y	y			
Synanthedon culiciformis	Large Red-belted Clearwing		y	y				
Synanthedon flaviventris	Sallow Clearwing	y	y					
Synanthedon formicaeformis	Red-tipped Clearwing		y					
Synanthedon vespiformis	Yellow-legged Clearwing	y	y					
Synaphe punctalis	Long-legged Tabby	y	y	y	y			
Syndemis musculana	Dark-barred Twist	y	y	y	y			
Tachystola acroxantha				y	y	y	y	
Taleporia tubulosa	Brown Smoke		y	y				
Teleiodes luculella				y				
Teleiodes vulgella				y				
Teleiopsis diffinis	Large Groundling	y	y	y				
Tethea ocularis	Figure of Eighty	y		y				
Tethea ocularis subsp. octogesimea	Figure of Eighty		y	y				
Tethea or	Poplar Lutestring			y				
Thalpophila matura	Straw Underwing	y	y	y	y			
Thera britannica	Spruce Carpet		y	y	y	y		
Thera cupressata	Cypress Carpet			y				
Thera firmata	Pine Carpet	y	y	y	y			
Thera obeliscata	Grey Pine Carpet	y	y	y	y			
Theria primaria	Early Moth			y				
Thiodia citrana				y				
Tholera cespitis	Hedge Rustic	y	y	y	y			
Tholera decimalis	Feathered Gothic			y	y	y	y	
Thumatha senex	Round-winged Muslin		y	y				
Thyatira batis	Peach Blossom			y				
Timandra comae	Blood-Vein	y	y	y				

Tinea semifulvella	Fulvous Clothes	y	y	y	y		
Tinea trinotella	Bird's-nest Moth	y		y			
Tischeria dodonaea	Small Carl	y					
Tischeria ekebladella	Oak Carl	y					
Tortricodes alternella	Winter Shade	y		y	y		
Tortrix viridana	Green Oak Tortrix	y	y	y			
Trachycera advenella	Grey Knot-horn	y		y			
Trachycera marmorea				y			
Trachycera suavella	Thicket Knot-horn	y		y			
Triaxomera parasitella	Large Brindled Clothes		y	y	y	y	
Trichoplusia ni	Ni Moth			y			
Trichopteryx carpinata	Early Tooth-striped	y	y	y	y		
Tyria jacobaeae	Cinnabar	y	y	y			
Udea ferrugalis	Rusty Dot	y	y	y	y		
Udea fulvalis				y			
Udea olivalis	Olive Pearl	y		y	y		
Udea prunalis	Dusky Pearl		y	y	y	y	
Watsonalla binaria	Oak Hook-tip	y	y	y			
Xanthia aurago	Barred Sallow			y			
Xanthia icteritia	Sallow		y	y	y	y	
Xanthia togata	Pink-barred Sallow		y	y	y	y	
Xanthorhoe biriviata	Balsam Carpet			y			
Xanthorhoe designata	Flame Carpet	y	y	y	y		
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	y		y	y		
Xanthorhoe fluctuata	Garden Carpet		y	y	y	y	
Xanthorhoe fluctuata fluctuata	Garden Carpet			y			
Xanthorhoe montanata	Silver-ground Carpet			y			
Xanthorhoe montanata subsp. montanata	Silver-ground Carpet		y	y			
Xanthorhoe spadicearia	Red Twin-spot Carpet	y	y	y			
Xestia agathina	Heath Rustic		y	y	y	y	

Xestia baja	Dotted Clay	y		y	y			
Xestia castanea	Neglected Rustic	y	y	y	y			
Xestia c-nigrum	Setaceous Hebrew Character	y	y	y	y			
Xestia sexstrigata	Six-striped Rustic	y	y	y	y			
Xestia triangulum	Double-square Spot		y	y	y	y		
Xestia xanthographa	Square-spot Rustic		y	y	y	y		
Xylena vetusta	Red Sword-grass			y				
Xylocampa areola	Early Grey		y	y	y	y		
Yponomeuta cagnagella	Spindle Ermine			y				
Yponomeuta evonymella	Bird-cherry Ermine	y		y	y			
Yponomeuta malinellus	Apple Ermine	y		y				
Yponomeuta padella	Orchard Ermine	y		y				
Yponomeuta plumbella				y				
Ypsolopha alpella	Barred Smudge	y		y				
Ypsolopha dentella	Honeysuckle Moth	y		y	y			
Ypsolopha mucronella				y				
Ypsolopha nemorella	Hooked Smudge	y		y	y			
Ypsolopha parenthesella	White-shouldered Smudge	y		y	y			
Ypsolopha scabrella				y				
Ypsolopha sequella	Pied Smudge	y		y				
Ypsolopha ustella	Variable Smudge	y		y	y			
Zanclognatha tarsipennalis	Fan-foot	y	y	y				
Zeiraphera isertana	Cock's-head Bell	y		y				
Zeiraphera ratzeburgiana	Spruce Bud Moth	y		y				
Zeuzera pyrina	Leopard Moth		y	y				
Zygaena filipendulae	Six-spot Burnet	y	y					
Zygaena trifolii form decreta	Five-spot Burnet		y					
944 species		484 species	426 species	838 species	380 species	107 species	57 species	10 species

Summary of fish records (data provided by DERC)

Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest
Brown/Sea Trout	bony fish (Actinopterygii)		y		
Bullhead	bony fish (Actinopterygii)	y	y		
Chub	bony fish (Actinopterygii)	y	y		
Common Bream	bony fish (Actinopterygii)	y			
Dace	bony fish (Actinopterygii)	y	y		
European Eel	bony fish (Actinopterygii)	y	y		
Grayling	bony fish (Actinopterygii)	y			
Gudgeon	bony fish (Actinopterygii)	y	y		
Perch	bony fish (Actinopterygii)	y			
Pike	bony fish (Actinopterygii)	y	y		
Roach	bony fish (Actinopterygii)	y	y		
Stone Loach	bony fish (Actinopterygii)		y		
Tench	bony fish (Actinopterygii)		y		
13 species		**10 species**	**10 species**	**0 species**	**0 species**

Summary of reptile and amphibian records including 2013 surveys (data provided by DERC & ARCT)

Species	Common Name	Taxon group	DERC / ARCT DATA Hurn Forest	DERC / ARCT DATA Buffer zone	2013 Survey Season	New to Hurn Forest
Lissotriton helveticus	Palmate Newt	amphibian	y	y		
Lissotriton vulgaris	Smooth Newt	amphibian		y		
Rana temporaria	Common Frog	amphibian	y	y		
Zootoca vivipara	Common lizard	reptile	y	y	y	
Anguis fragilis	Slow worm	reptile	y	y	y	
Lacerta agilis	Sand lizard	reptile	y	y	y	
Vipera berus	Adder	reptile	y	y	y	
Natrix natrix	Grass snake	reptile	y	y	y	
Coronella austriaca	Smooth snake	reptile		y	y	y

Summary of bird records including 2013 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest
Tyto alba	Barn Owl	bird	y	y		
Hirundo rustica	Barn Swallow	bird	y	y	y	
Phoenicurus ochruros	Black Redstart	bird		y		
Pica pica	Black-billed Magpie	bird	y	y	y	
Sylvia atricapilla	Blackcap	bird	y	y	y	
Chroicocephalus ridibundus	Black-headed Gull	bird	y	y		
Limosa limosa	Black-tailed Godwit	bird		y		
Cyanistes caeruleus	Blue Tit	bird	y	y	y	
Fringilla montifringilla	Brambling	bird	y	y	y	
Corvus corone	Carrion Crow	bird	y	y	y	
Cettia cetti	Cetti's Warbler	bird	y	y		
Fringilla coelebs	Chaffinch	bird	y	y	y	
Periparus ater	Coal Tit	bird	y	y	y	
Turdus merula	Common Blackbird	bird	y	y	y	
Pyrrhula pyrrhula	Common Bullfinch	bird	y	y	y	
Buteo buteo	Common Buzzard	bird	y	y	y	
Phylloscopus collybita	Common Chiffchaff	bird	y	y	y	
Fulica atra	Common Coot	bird		y		
Loxia curvirostra	Common Crossbill	bird	y	y	y	
Cuculus canorus	Common Cuckoo	bird	y	y	y	
Bucephala clangula	Common Goldeneye	bird		y		
Locustella naevia	Common Grasshopper Warbler	bird	y			
Falco tinnunculus	Common Kestrel	bird	y	y	y	
Alcedo atthis	Common Kingfisher	bird	y	y		
Carduelis cannabina	Common Linnet	bird	y	y	y	

Gallinula chloropus	Common Moorhen	bird	y	y	
Luscinia megarhynchos	Common Nightingale	bird		y	
Phasianus colchicus	Common Pheasant	bird	y	y	y
Aythya ferina	Common Pochard	bird	y	y	
Corvus corax	Common Raven	bird		y	
Carduelis flammea	Common Redpoll	bird	y	y	y
Tringa totanus	Common Redshank	bird		y	
Phoenicurus phoenicurus	Common Redstart	bird		y	
Actitis hypoleucos	Common Sandpiper	bird	y	y	
Tadorna tadorna	Common Shelduck	bird	y	y	
Gallinago gallinago	Common Snipe	bird	y	y	
Sturnus vulgaris	Common Starling	bird	y	y	y
Apus apus	Common Swift	bird	y	y	y
Sterna hirundo	Common Tern	bird	y		
Sylvia communis	Common Whitethroat	bird	y	y	y
Columba palumbus	Common Wood Pigeon	bird	y	y	y
Sylvia undata	Dartford Warbler	bird	y	y	y
Calidris alpina	Dunlin	bird		y	
Streptopelia decaocto	Eurasian Collared Dove	bird	y	y	
Numenius arquata	Eurasian Curlew	bird	y	y	
Falco subbuteo	Eurasian Hobby	bird	y	y	y
Corvus monedula	Eurasian Jackdaw	bird	y	y	y
Garrulus glandarius	Eurasian Jay	bird	y	y	y
Circus aeruginosus	Eurasian Marsh Harrier	bird		y	
Haematopus ostralegus	Eurasian Oystercatcher	bird	y		
Acrocephalus scirpaceus	Eurasian Reed Warbler	bird	y	y	
Carduelis spinus	Eurasian Siskin	bird	y	y	y
Accipiter nisus	Eurasian Sparrowhawk	bird	y	y	y
Anas crecca	Eurasian Teal	bird	y	y	
Certhia familiaris	Eurasian Treecreeper	bird	y	y	y
Anas penelope	Eurasian Wigeon	bird	y	y	

Scolopax rusticola	Eurasian Woodcock	bird	y	y	y
Pluvialis apricaria	European Golden Plover	bird		y	
Carduelis carduelis	European Goldfinch	bird	y	y	y
Carduelis chloris	European Greenfinch	bird	y	y	y
Pernis apivorus	European Honey-buzzard	bird	y		
Caprimulgus europaeus	European Nightjar	bird	y	y	y
Erithacus rubecula	European Robin	bird	y	y	y
Streptopelia turtur	European Turtle Dove	bird	y	y	
Turdus pilaris	Fieldfare	bird	y	y	
Regulus ignicapilla	Firecrest	bird		y	
Anas strepera	Gadwall	bird		y	
Sylvia borin	Garden Warbler	bird	y		y
Anas querquedula	Garganey	bird		y	
Larus hyperboreus	Glaucous Gull	bird		y	
Regulus regulus	Goldcrest	bird	y	y	y
Mergus merganser	Goosander	bird		y	
Botaurus stellaris	Great Bittern	bird		y	
Phalacrocorax carbo	Great Cormorant	bird	y	y	y
Podiceps cristatus	Great Crested Grebe	bird		y	
Dendrocopos major	Great Spotted Woodpecker	bird	y	y	y
Parus major	Great Tit	bird	y	y	y
Branta canadensis	Greater Canada Goose	bird	y	y	
Aythya marila	Greater Scaup	bird		y	
Anser albifrons	Greater White-fronted Goose	bird	y	y	
Tringa ochropus	Green Sandpiper	bird	y	y	
Picus viridis	Green Woodpecker	bird	y	y	y
Ardea cinerea	Grey Heron	bird	y	y	y
Perdix perdix	Grey Partridge	bird	y	y	
Motacilla cinerea	Grey Wagtail	bird	y	y	
Anser anser	Greylag Goose	bird		y	y

Prunella modularis	Hedge Accentor	bird		y	y	y	
Circus cyaneus	Hen Harrier	bird		y	y		
Larus argentatus	Herring Gull	bird			y		
Delichon urbicum	House Martin	bird		y	y	y	
Passer domesticus	House Sparrow	bird			y		
Lymnocryptes minimus	Jack Snipe	bird			y		
Larus fuscus	Lesser Black-backed Gull	bird		y	y		
Carduelis cabaret	Lesser Redpoll	bird			y		
Dendrocopos minor	Lesser Spotted Woodpecker	bird		y	y	y	
Sylvia curruca	Lesser Whitethroat	bird		y	y		
Egretta garzetta	Little Egret	bird			y		
Tachybaptus ruficollis	Little Grebe	bird		y	y		
Athene noctua	Little Owl	bird		y	y		
Charadrius dubius	Little Plover	bird			y		
Clangula hyemalis	Long-tailed Duck	bird			y		
Aegithalos caudatus	Long-tailed Tit	bird		y	y	y	
Anas platyrhynchos	Mallard	bird		y	y	y	
Poecile palustris	Marsh Tit	bird		y			
Anthus pratensis	Meadow Pipit	bird		y	y	y	
Falco columbarius	Merlin	bird		y	y		
Larus canus	Mew Gull	bird			y		
Turdus viscivorus	Mistle Thrush	bird		y	y	y	
Circus pygargus	Montagu's Harrier	bird		y			
Cygnus olor	Mute Swan	bird		y	y		
Accipiter gentilis	Northern Goshawk	bird		y	y		
Vanellus vanellus	Northern Lapwing	bird		y	y		
Anas acuta	Northern Pintail	bird			y		
Anas clypeata	Northern Shoveler	bird			y		
Oenanthe oenanthe	Northern Wheatear	bird		y	y		
Falco peregrinus	Peregrine Falcon	bird			y	y	y
Ficedula hypoleuca	Pied Flycatcher	bird		y			

Motacilla alba subsp. yarrellii	Pied Wagtail	bird	y	y	
Milvus milvus	Red Kite	bird		y	
Alectoris rufa	Red-legged Partridge	bird	y	y	
Turdus iliacus	Redwing	bird	y	y	y
Emberiza schoeniclus	Reed Bunting	bird	y	y	y
Charadrius hiaticula	Ringed Plover	bird		y	
Aythya collaris	Ring-necked Duck	bird		y	
Corvus frugilegus	Rook	bird	y	y	y
Philomachus pugnax	Ruff	bird		y	
Riparia riparia	Sand Martin	bird	y	y	
Acrocephalus schoenobaenus	Sedge Warbler	bird	y	y	
Asio flammeus	Short-eared Owl	bird		y	
Alauda arvensis	Sky Lark	bird	y	y	
Anser caerulescens	Snow Goose	bird		y	
Turdus philomelos	Song Thrush	bird	y	y	y
Muscicapa striata	Spotted Flycatcher	bird	y	y	
Columba oenas	Stock Pigeon	bird	y	y	y
Saxicola torquata	Stonechat	bird	y	y	y
Strix aluco	Tawny Owl	bird	y	y	
Anthus trivialis	Tree Pipit	bird	y	y	y
Aythya fuligula	Tufted Duck	bird	y	y	
Cygnus columbianus	Tundra Swan	bird	y	y	
Rallus aquaticus	Water Rail	bird	y	y	
Saxicola rubetra	Whinchat	bird	y		
Cygnus cygnus	Whooper Swan	bird		y	
Poecile montanus	Willow Tit	bird	y	y	
Phylloscopus trochilus	Willow Warbler	bird	y	y	
Troglodytes troglodytes	Winter Wren	bird	y	y	y
Lullula arborea	Wood Lark	bird	y	y	y
Sitta europaea	Wood Nuthatch	bird	y	y	y

Tringa glareola	Wood Sandpiper	bird		y		
Phylloscopus trochilus	Willow Warbler	bird	y		y	
Motacilla flava	Yellow Wagtail	bird		y		
Emberiza citrinella	Yellowhammer	bird	y	y		
	151 species		**111 species**	**141 species**	**61 species**	**1 species**

Summary of bat records including 2013 surveys (data provided by DERC)

Species	Common Name	Taxon group	DERC DATA Hurn Forest	DERC DATA Buffer zone	2013 Survey Season	New to Hurn Forest	New to Forest and buffer
Eptesicus serotinus	Serotine	terrestrial mammal		y	y	y	
Myotis bechsteinii	Bechsteins	terrestrial mammal			y	y	y
Myotis daubentonii	Daubenton's Bat	terrestrial mammal		y	y	y	
Nyctalus noctula	Noctule Bat	terrestrial mammal	y	y	y		
Pipistrellus pipistrellus	Common Pipistrelle	terrestrial mammal	y	y	y		
Pipistrellus pygmaeus	Soprano Pipistrelle	terrestrial mammal	y	y	y		
Plecotus auritus	Brown Long-eared Bat	terrestrial mammal		y	y	y	
7 species			**3 species**	**6 species**	**7 species**	**4 Species**	**1 Species**