

**OXFORD CITY COUNCIL**

**SHOTOVER  
COUNTRY PARK**

**MANAGEMENT PLAN**

## **FORWARD**

This management plan for Shotover County Park was prepared in 1988 and supersedes Shotover's original plan prepared in 1979-80. The intention of the plan is to provide a tool to enable the Oxford City Council to ensure the long term wise management of the Country Park. A draft of this plan has been read by many individuals and organisations and their comments led to many changes in the plan. Another value of the approved plan is that it will provide a ready means of informing interested members of the public about the background to all that goes on in the Country Park. The format of the plan is recommended by the Nature Conservancy Council, is identical to that used for Oxford City's Local Nature Reserves and is similar to that used world-wide for forest management plans.

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## **PART ONE DESCRIPTION**

### **1.1 GENERAL INFORMATION ON SHOTOVER**

#### **1.2.1.1. Location**

Grid reference: SP 565060

O.S. maps: 1:50 000 - Sheet 164  
1:25 000 - Pathfinder 1117

Parish: Oxford City (Wood Farm Ward), Risinghurst, Horspath, Forest Hill

Local Planning Authority; South Oxford D.C., Oxford City in part)

Access: There are numerous access points (see Fig. 1). The major vehicular access point is to Shotover Plain, which is reached via London Road, Wheatley. Subsidiary vehicular access points are via the Larches lay along the Ridings, gateways at the southern end of the Ridings, the gateway opposite the gypsy camp on the Eastern Bypass, Brasenose allotment, Oxford Road Recreation Ground Horspath, and Blenheim Road Horspath. There are numerous additional pedestrian access points. The only substantial car park is at Shotover Plain.

#### **1.1.2 Summary Description**

Shotover Country Park occupies the summit and some of south facing slopes of Shotover Hill. Shotover Hill is predominantly sandstone, flat-topped hill located 5km east of the centre of the City of Oxford. The Country Park about 126 ha (312 acres) in extent and consists of a variety of habitats including coppice-with-standards woodland, mixed woodland conifer plantation, scrub, acid, grassland, neutral grassland, heathland, bracken-covered slopes and marsh.

Historically Shotover Hill was part of a Royal Forest (Shotover with Stowood) and the richness of habitat variety and natural history interest may in part reflect the long period of being managed for nature conservation during Royal Forest times.

Shotover Country park has been managed for amenity by Oxford City Council for nearly 50 years and specialist staff have been employed throughout that period. Visitor pressure at Shotover is high (over 800 000 estimated in 1987) and the Country Park was designated as a Site of Special Scientific Interest (SSSI) in 1986. Shotover Plain is crossed by a highway providing a route between Headington and Wheatley. A compartment map is included (Figure 2) along with the surrounding vegetation, and a simple vegetation map is shown on Figure 4.



FIGURE 1

ACCESS

### 1.1.3 **Tenure**

- (a) Area Shotover Country Park = 126 ha (312 acres)
- (b) Data of Notification as SSSI - 25 April 1986
- (c) Most of Shotover Country Park is owned by Oxford City Council. Two fields (Shotover Plain and Johnson's Piece) are owned by Oxford University but are managed under licence.

Land ownership is shown on Figure 3.

### 1.1.4 **Photographs**

- (a) Aerial photographs
  - (1) 1947 set (Ordnance Survey Office)
- (b) Ground Photographs

Available photographs include

- (i) a collection taken by Henry Taunt (1880-1915) and housed in the Oxford Library at Westgate;
- (ii) a single photograph (1922) of Johnson's Piece (University Enclosure); and
- (iii) several photographs (1980s) in the Natural History of a Royal Forest.

FIGURE 2 - SHOTOVER COUNTRY  
PARK COMPARTMENT NAMES

FIGURE 3 LAND OWNERSHIP: SHOTOVER  
COUNTRY PARK AND SURROUNDINGS

FIGURE 4 - SIMPLE VEGETATION MAP

## 1.2 **ENVIRONMENTAL INFORMATION**

### 1.2.1 **Physical**

#### 1.2.1.1 **Climate**

Shotover Hill is situated just to the east of Oxford City. The City is within the larger definable area of the Oxford Clay Vale or Upper Thames Basin. The climate of Oxford has been described as enervating, warm and humid in summer and damp, raw, foggy and liable to cold north-east winds in winter.

The weather and climate of the Oxford District are affected by the same air masses which control the daily weather of southern England and the south Midlands. However, before arriving in the district the air masses are modified by topography and distance from the sea. Polar and tropical maritime air reaching the region brings a lower rainfall to the district due to the obstructions of the Chiltern and Cotswold Hills. The distance from the coast causes a relatively large diurnal and annual temperature range. The arrival of north-easterly airstreams in late winter and spring gives a more continental aspect to the climate.

During an easterly anticyclone inversion, visibility can be adversely affected by the downward smoke haze from London. These meteorological factors are responsible for some of the more extreme weather conditions reported from the area. Such variations are not always apparent in the available climatic statistics.

The dominant winds of the district come from the south-west to west throughout the year except during the spring when there is a marked dominance of north-east winds. Winds from the east and south-east are infrequent at all seasons. Calm conditions occur least often in spring and early summer. Due to the sheltered nature of the region wind speeds are not normally very high. Gale force winds occur on average only 2-3 days per year.

The broad area of the Thames Valley has between 650mm-900mm of rainfall a year. There is relatively little variation in the monthly and seasonal precipitation over the region. Spring is the driest period, autumn or early winter the wettest.

Average daily temperatures for the Oxford region range from around 0°C in January to over 21°C in July, with a mean annual temperature of about 10°C. Summer maximum temperatures are some of the highest in the UK.

Spells of absolute and partial drought are relatively frequent. For example, between 1881 and 1951 Oxford experienced 72 absolutely droughts of 15 consecutive days with < 0.01 inches of rain.

Snowfall occurs more frequently in the region than over most of southern England. Since 1881 snow has fallen in all months except July and August. Records between 1881 and 1951 show an increase in the total number of days in which sleet or snow falls over the Oxford region.

The annual duration of bright sunshine shows a marked seasonal variation. In the Upper Thames basin it ranges from an average of 1.5 hours a day in December to 7 hours a day in June.

Due to the sheltered nature of the Oxford Clay Vale humidities tend to be low. However, daily variations in relative humidity are large. Values can reach saturation (100%) at any time of the day, e.g. during fog, persistent rain or drizzle.

Shotover Hill occurs within the Ministry of Agriculture, Forestry and Fisheries agro-climate 31 NORTH. These areas are defined by similarities in climatological data as well as data on growing seasons, grazing seasons and other information on crops. The relevant data of agro-climate 31 NORTH is given in Table 1.

#### 1.2.1.2 **Hydrology**

The upper parts of Shotover Hill are predominantly pervious and no streams are present. Some springs are to be found where the pervious rocks overly impervious strata. The precise site of individual springs is not fixed and some movements have been observed over the years. Lower down the hillside small streams appear which eventually coalesce and flow to the west into the River Thames. At the base of the north side of the hill (outside the Country Park) are several small ponds, which result from previous excavations for bricking clay.

#### 1.2.1.3. **Geology**

Shotover Hill stands, at 171 metres, as the highest of the hills surrounding Oxford. Shotover is a steep-sided but flat topped hill, with flat bottomed valleys to the north and south. The Shotover Sands which cap the hill are porous and comparatively resistant to erosion - such flat topped hills are a feature of wherever ironsands are exposed. Forest Hill is a small outlier capped with Shotover Sands.

A geological map (Fig. 9) shows that the oldest rocks outcropping in the Shotover area are the dark, Oxford clays which form a belt of low country stretching from north Wiltshire to Peterborough. These clays were deposited at the bottom of a deep sea which then covered Oxfordshire. As this upper Jurassic sea became shallower, alterations took place in the type of deposit laid down, with a change from clays to sands (calcerous) and then to shallow water limestone (Coral Rag). However, the youngest Coral Rag rocks contain a mixture of clays, sandstones and limestones. Above the Coral Rag is a 22-24 metres thick bed of Kimmeridge rocks, mostly grey and black clays laid down at the bottom of a deep sea about 150 million years ago. The youngest Kimmeridge beds are the five metre thick Shotover Grit Sands containing doggers (concretionary masses of sandstone often of great size) which are exposed in several places at Shotover. Doggers are formed by gradual deposition of quartz around a nucleus but there are several local legends concerning the origin and purpose of doggers. In the twelfth century Empress Matilda, the enemy of King Stephen, was staying in London when a change of allegiance within the army put her life in danger. She immediately

Table 1

**AGRO-CLIMATICAL DATA FOR AREA 31 NORTH, THE AGRO-CLIMATIC AREA THAT INCLUDES OXFORD**

**Area Averages**

Area 31 North Latitude 51 4" N			Average Height 107m (351 ft) Height Range 46-201m						
Month	Temperature Air 30cm Earth		Rain mm (in)	PT mm (in)	* coeff	Sun hrs/day	Day length hrs	Rad. mw-hr per cm <sup>3</sup>	Ill. kilolux -hrs
JAN	3.2	3.7	62 (2.45)	1 (0.05)	-	1.7	9.7	70	75
FEB	3.6	3.7	47 (1.85)	32 (0.4)	-	2.5	11.1	120	140
MAR	5.8	5.2	42 (1.65)	32 (1.25)	-	3.7	13.0	220	270
APR	8.7	8.4	43 (1.7)	56 (2.2)	4.1 (0.16)	5.5	15.1	345	420
MAY	11.5	11.8	50 (1.95)	81 (3.2)	6.4 (0.25)	6.3	17.0	440	535
JUN	14.7	15.4	46 (1.8)	93 (3.65)	8.1 (0.32)	6.8	18.2	500	605
JUL	16.4	17.1	58 (2.3)	93 (3.65)	6.9 (0.27)	6.1	17.6	455	570
AUG	16.1	16.7	64 (2.5)	76 (3.0)	7.6 (0.30)	5.7	15.8	375	465
SEP	14.0	14.8	60 (2.35)	47 (1.85)	5.6 (0.22)	4.5	13.8	280	345
OCT	10.6	11.4	64 (2.55)	22 (0.85)	-	3.2	11.8	165	205
NOV	6.6	7.3	76 (3.0)	5 (0.2)	-	2.0	10.1	90	105
DEC	4.3	4.8	65 (2.55)	0 (0.0)	-	1.5	9.2	55	65
Total	-	-	677 (26.65)	516 (20.3)	-	-	-	-	-

Growing season: 254 days Mar 23-Dec 2

Potential Transpiration: 480mm (18.9 in) Effective Transpiration: 357mm (14.05 in)

Grazing season: 231 days Mar 30-Nov 16 Grass Drought Factor: 41 days

Degree - days above 10°C May to Oct: 805

Winter degree - days below 0°C: 130 Mean last frost: Late April

Maximum Summer SMD	Median	Quarrile Range
Return to Capacity	108mm	83-121mm
Excess Winter Rain	Nov 16	Oct 22-Dec11
End of Capacity	210mm (8.25 in)	140-275 mm
	Apr 9	Mar 19-May 4

Irrigation Need	Frequency	Adjusted Need
	(Years in 20)	Mean Max
Plan 3	19	135 205
Plan 4	16	120 155mm

(Source: "The Agricultural Climate of England and Wales" M.A.F.F. Technical Bulletin 35. H.M. S.O. 1976)



FIGURE 5

Average daily maximum temperature (\*C) in July over the period 1941-70 for the upper Thames Valley

FIGURE 6

Average annual sunshine duration (hours) over the period 1941-70 for the upper  
Thames Valley

FIGURE 7

LOCATION OF OXFORD WITHIN ITS AGRO-CLIMATE AREA

FIGURE 8

Average annual rainfall (mm) over the period 1941-70 for the upper  
Thames Valley

FIGURE 9

Geological map of Shotover

travelled to Oxford where safety was to be found. On reaching Shotover Hill Matilda expressed her relief by bursting into tears and it is said that her tears were so voluminous that as they fell they hardened into enormous boulders now seen as doggers. Doggers are also known as 'Giant's Marbles' and there are several different legends concerning giants at Shotover, which may date back to the seventeenth century when a figure of a giant was cut into the hillside. An unusually shaped dogger, known locally as 'Giant's Loaf' was formerly found at the junction of the Ridings and the Old Road up to Shotover Hill.

Above Kimmeridge beds are the Portland sands and limestones which were deposited near the edge of a shallow sea. The youngest and oldest Portland beds are made up of mustard coloured sands with occasional concretionary masses of grey limestone. A few feet of Purbeck beds consisting of limestone and marl with fossils outcrop in some places at Shotover, but their occurrence is sporadic.

The top 15 metres or so of Shotover Hill is composed of clays and sands of Wealden age. They contain some freshwater fossils which were probably deposited in an enormous estuary which covered much of southern Britain at this time. The gravely residue of weathered ironsand has produced a steep-sided hill. These ironsands are known as Shotover Sands and consist of ferruginous and argillaceous loams, ochre, yellow sand and ferruginous soil with many fragments of ironsand. A number of fresh-water fossils have been discovered and it is possible that at least some of the beds were deposited in a large, freshwater lake. Indeed dinosaur footprints have been discovered in Shotover sands where they outcrop in Wiltshire.

To sum up, the flatter land surrounding Shotover Hill consist of alluvium, clays and limestones, whereas the hill itself and the outlying Forest Hill consists of thin bands of limestones, clays and sandstones with the latter predominating.

## 1.2.2 **Biological Information**

### 1.2.2.1 **Vegetation**

521 Species of flowering plant have been recorded from Shotover Country Park including many historical records of species now extinct.

#### 1.2.2.1.1 **Woodland**

##### **Brasenose Wood**

The most southerly of Shotover's woods, lying on Kimmeridge clay at the base of Shotover Hill, Brasenose Wood contain many mature trees which give the wood a distinctive atmosphere. An active coppicing policy has given the wood the whole range of underwood age classes - the whole of the wood has been cut at least once since 1945. The extensive system of rides, provided because the wood is a public amenity, results in many flowery margins which are both attractive and of high nature conservation value. Brasenose Wood contains virtually all of the trees and shrubs found in the rest of Shotover Woods - for a 25.8 ha woodland it is

exceptionally diverse. The field layer contains no real rarities and only a few species that are locally uncommon.

In late March and April wood anemones (*Anemone nemorosa*) less celandines (*Ranunculus ficaria*) and bluebells (*Hyacinthoides non-scripta*) grow in profusion. Slightly later appear greater stitchwort (*Stellaria holostea*), bugle (*Ajuga reptans*) and yellow archangel (*Lamium galeobdolon*). In June and July common spotted orchid (*Dactylorhiza fuchsii*), saw-wort (*Serratula tinctoria*) and betony (*Stachys officinalis*) provide an impressive display of colour. It is in the summer that some of the more unusual plants such as violet helleborine (*Epipactis purpurata*), greater burnet-saxifrage (*Pimpinella major*) and orpine (*Sedum telephium*) may be seen in flower.

Several species of fern grow in the woods including bracken (*Pteridium aquilinum*), male fern (*Dryopteris filix-mas*), scaly male fern (*D. borneri*), broad buckler-fern (*D. dilatata*) and narrow buckler-fern (*D. carthusiana*). Under the field layer are many bryophytes including *Minium hornum*, *Thuidium tamariscinum*, *Atrichum undulatum* and *Eurhynchium praelongum*. *Funaria hygrometrica* and *Bryum pallens* may be seen on fire scars and *Pleurozium acuminatum* grows on rabbit scrapes. The uncommon *Dicranum tauricum* grows as an epiphyte on the branches of oak trees.

### Johnson's Piece

An open woodland on steeply sloping land to the south of Shotover Plain, Johnson's Piece has a few ancient oaks, and a range of mature deciduous and coniferous trees. Several thickets of scrub and young trees have invaded parts of the woodland. Open areas between trees are dominated by bracken. Spring-fed streams drain to the low point of the woodland and alongside these streams several areas of marsh have developed.

The perimeter of Johnson's Piece is lined with ancient, pollarded oaks growing on an earthbank. A particularly ancient oak tree, the oldest on Shotover, is to be found at the northeast corner of the wood. One can only guess at the age of the tree but it could be as old as 300 years, and hence may have been living when Shotover was a royal forest. The wood is dominated by pedunculate oak, ash and silver birch and other interesting species including common whitebeam, bird cherry and wild service tree.

The ground flora is sparse with only blue bells (*Hyacinthoides non-scripta*), red campion (*Silene dioica*), yellow pimpernel (*Lysimachia nemorum*) and greater stitch-wort (*Stellaria holostea*), breaking the domination by tall stands of bracken (*Pteridium aquilinum*).

### Magdalen Wood

Magdalen Wood has closely spaced oaks which have not achieved the height or girth of Brasenose Wood's trees. The most substantial of Magdalen Wood's trees are Scots Pine and Austrian Pine which were planted in 1892 close to the buildings of Wood Farm (now destroyed). There is a sparse shrub layer in the wood and the ground layer is dominated by brambles.

Dominated by a close canopy of pedunculate oak, other trees present include silver birch, yew, turkey oak, larch, Scots pine and Austrian pine. The trees of Magdalen Wood are mostly of uniform age and date from the end of the nineteenth century. The lack of any thinning operations has resulted in a shortage of quality timber trees.

The ground flora of Magdalen Wood is depauperate compared to that of the neighbouring Brasenose Wood. Brambles dominate but a few woodland flowers such as wood anemone (*Anemone nemorosa*), lesser celandine (*Ranunculus ficaria*), wood spurge (*Euphorbia amygdaloides*), wood sorrel (*Oxalis acetosella*), bluebell (*Hycinthoides non-scripta*) and hairy-brome (*Bromus ramosus*) are found. It will be interesting to see whether the woodland is colonised by further woodland plants from Brasenose Wood.

Magdalen Wood is not an ancient wood and it provides a good example of the differences which can exist between neighbouring and superficially similar woods. Both woods are dominated by oaks and lie on similar soils. The marked differences in flora result from the different histories of the two woods

### The Larches

The Larches is a relatively pure stand of larch trees planted in the early years of the twentieth century. By the mid-1970s the trees had obtained about 20m in height but their lack of girth had resulted in instability and several dozen have been lost since that time through wind throw.

The ground flora is dominated by bracken and bramble.

### Westhill Wood

A stand of mixed woodland including oak, ash, grey poplar, holly, Scots pine and larch which was planted at the western end of Horspath Common in the latter years of the nineteenth century. Although the ground flora is dominated by bracken, a small stream runs through this wood which has several species of locally uncommon calcifuge bryophytes (eg *Cephalozia bicuspidata* and *Lepidozia reptans*).

To the west of Westhill Wood is a 0.5 ha larch plantation, planted in about 1970, which contains a scattering of oak and beech.

#### 1.2.2.1.2 Scrub



Scrub is the name given to a community of plants dominated by shrubs or bushes. At Shotover scrub occurs where heathland or grassland has ceased to be managed and invasion by woody plants has occurred. Scrub is a transitional habitat in that if left undisturbed it will develop into woodland.

On the higher slopes of the hill many hectares of scrub developed on fields which were formerly used for agriculture. Mary Sadler's Field, Sandpit Field and Horseshoe Field all have substantial stands of scrub. The last mentioned field may be seen to have been ploughed in 1947 from an available aerial photograph. The scrub is dominated by hawthorn and pedunculate oak with lesser quantities of blackthorn, elder, sycamore, ash and rowan. An interesting feature of this scrub is the presence of a few wild service tree saplings. Very few herbaceous plants are able to tolerate the deep shade under this scrub, but there are some shade-tolerant species such as ground ivy (*Glechoma hederacea*) and cuckoo pint (*Arum maculatum*), as well as the abundant moss *Eurhynchium praelongum*.

A slightly different scrub community has developed on the periphery of Brasenose Wood, particularly in Open Brasenose and Slade Camp North. Here the community is dominated by blackthorn with lesser quantities of buckthorn, hawthorn, elder, crab apple and pedunculate oak. A special feature of this area of scrub is the presence of a nationally rare butterfly - the black hairstreak, which may be seen flitting amongst the upper branches of the blackthorn bushes at the end of June and the beginning of July.

Although the plant diversity of scrub is poor it is a valuable habitat for many birds. Magpie, jay, wren, blackbird, thrush, chaffinch, whitethroat, lesser whitethroat, willow warbler, blackcap and garden warbler all commonly nest in Shotover's scrub. In addition, nightingales breed sporadically in this habitat although they are now much more rarely heard than in the years before the second World War. Scrub also provides a valuable winter food supply for many birds - fieldfares and redwings are regularly seen feeding on hips and haws in frosty weather.

## **Hedges**

Hedges are known to be particularly valuable to many forms of wildlife. Several species of bird nest in hedges and others feed on hedgerow fruits in autumn and winter. Small rodents find shelter in the longer vegetation at the base of hedges. Hedges are important to many species of insect which tend to fly alongside hedges rather than across inhospitable land. Indeed, hedges are especially important refuges for wildlife in intensively farmed arable areas. There are many hedgerows at Shotover but the majority are of recent origin. Such hedges, with only one or two shrub species, are of limited value to wildlife. Ancient hedges, which may possess up to 15 different shrubs, are much more valuable to wildlife and have a wide range of associated plants, mammals and invertebrates.

There are very few ancient hedgerows within the boundary of Shotover Royal Forest. However, the hedges on the north and south boundaries of Shotover Plain contain hawthorn, blackthorn, wild plum, oak, ash, holly, elder, hazel and gorse in

addition to the introduced Scots pine and larch. The hedgerows have about 6.5 woody species per 30 yards and this dates them at about 700 years old according to the method of Hooper 32. This method, which should be used only as a general guide, depends on hedges acquiring a single additional woody species each century by natural colonisation.

#### 1.2.2.1.3 **GRASSLAND**

A variety of different types of grassland are found at Shotover. Some fields have been 'improved' by treating with fertilisers or by being ploughed and resown. Such fields are dominated by a small number of cultivars of productive grasses and are of limited value to wildlife. However, some grasslands remain which are less intensively managed and may be described as seminatural. It must be remembered that if it were not for the effects of man and his grazing animals these fields would rapidly revert to scrub and woodland. An aerial photograph shows that the Horseshoe Field on the south side of Shotover Hill was ploughed up in 1947, but by the 1980s thick scrub had developed with oaks up to 8 metres in height.

Shotover's grasslands may be classified according to the soils on which they occur. The acidic soils on the slopes of Shotover Hill support a fine-leaved, hill-pasture type sward, and where the soil is deeper and the pH close to 7, neutral grasslands occur.

**Acid Grassland** Acid grassland is found where the soil is well drained on the higher slopes of Shotover Hill. In former times the grassland was maintained by grazing - cattle, sheep, horses, deer and rabbits would have all played a part in preventing much woody regrowth. Nowadays organised grazing has ceased except for some small areas on the northern slopes, and it is the trample of human feet and the grazing of rabbits which maintain the grassland as such.

Acid grassland supports a smaller number of flowering plants than limestone grassland. However, many attractive plants can be found. In addition to the dominant bent grasses (*Agrostis canina* and *A capillaris*), heath bedstraw (*Galium saxatile*), trailing St John's - Wort (*Hypericum humifusum*), squirreltail fescue (*Vulpia bromoides*) early hair-grass (*Aira praecox*), knotted trefoil (*Trifolium striatum*), heath speedwell (*Veronica officinalis*), bird's foot (*Ornithopus perpusillus*), sand spurrey (*Spergularia rubra*) and common centaury (*Centaureum erythraea*) are still found. There are common mosses such as *Dicranum scoparium*, *Ceratodon purpureus* and *Pottia truncata* as well as more local species such as *Campylopus pyriformis*, *Brachythecium albicans* and *Polytrichum juniperinum*.

Many interesting plants are known to have been lost from this habitat. Subterranean trefoil (*Trifolium subterraneum*), broad-leaved cudweed (*Filago Pyramidata*), small-flowered buttercup (*Ranunculus parviflorus*), small-flowered catchfly (*Silene gallica*), bur chervil (*Anthriscus caucalis*), mat-grass (*Nardus stricta*), buck's-horn plantain (*Plantago coronopus*), autumn lady's tresses (*Spiranthes spiralis*), and field gentian (*Gentianella campestris*) are documented examples of extinctions. Bryophytes lost include *Pogonatum nanum*, *P. aloides*, and *Climacium dendroides*.

The woodlark is a bird which nested at Shotover until the 1950s and has a requirement for short-grazed turf and bare ground. The loss of this uncommon bird may have followed the rapid scrub encroachment which was a result of the decimation of the rabbit population by myxomatosis in 1954. In the 1980s Shotover's rabbit population, although still prone to great fluctuations, seems to be maintaining itself at a high level. Some of the areas of scrub on the south side of Shotover Hill have been removed as a conservation measure. It will be interesting to see whether any of the lost acid grassland plants will return.

**Neutral Grassland** At the base of Shotover Hill on the lower Kimmeridge beds and the Coral Rag, are some interesting fields best described as neutral grassland. Within the country park Slade Campe (South) is the best example, but just to the north of the Country Park is Haynes Field which is a neutral grassland. Unfortunately the Shotover neutral meadows do not have the richness of top quality meadows, but a good deal of interest still remains.

A wide range of grasses occur in these two fields including perennial ryegrass (*Lolium perenne*), false oat-grass (*Arrhenatherum elatius*), rough meadow-grass (*Poa trivialis*), crested dog's-tail (*Cynosurus cristatus*) soft-brome (*Bromus hordeaceus*) and creeping bent (*Agrostis stolonifera*). Many legumes are present including common bird's-foot-trefoil (*Lotus corniculatus*), white clover (*Trifolium repens*), red clover (*T. pratense*), hop trefoil (*T. campestre*), grass vetchling (*Lathyrus nissolia*), meadow vetchling (*L. pratensis*) and the rare tuberous pea (*L. tuberosus*). The presence of alsike clover (*Trifolium hybridum*) in the southerly Slade Campe field is an indication of its former use for clover cultivation. Other interesting plants include the parasitic common broomrape (*Orobanche minor*), goat's rue (*Galega officinalis*), creeping bellflower (*Campanula rapunculoides*) and woolly thistle (*Cirsium eriophorum*).

These fields are valuable for birds. Notably skylark and grasshopper warbler bred in some years between 1975-87 and tree pipits display regularly although nesting has not been confirmed. Stonechats and wheatears are occasionally seen on winter passage migration. Lepidoptera are abundant here. Marbled whites and common blues are two of the many butterflies which breed in these fields. The 5-spot burnet moth provides a most spectacular sight here. A 'mark and recapture' estimate of the numbers of this red and black moth in 1979 suggested that there were 50,000 in the northerly Slade Camp field. Other interesting day-flying moths are the latticed heath (*Semiothisa clathrata*), mother shipton (*Callistegia mi*) and the burnet companion (*Euclidia glyphica*).

#### 1.2.2.1.4 **HEATHLAND**

Heathland is characteristically dominated by dwarf Ericaceous shrubs such as heather (*Calluna vulgaris*) and is usually found on well drained acidic soils. Such soils are rare in the Oxford area and consequently heath is an uncommon habitat. The nearest region of extensive heathland is found on the tertiary gravel beds of

south and east Berkshire. The largest expanse of heathland is found on the south side of Shotover Hill where Shotover Sands outcrop.

To set the scene Druce in the first decade of the twentieth century writes:

'The once celebrated district of Shotover has suffered much during the past century, at the beginning of which it was to a great extent open and uncultivated ground, in parts thickly wooded and in others showing delightful expanses of heath. In some places where the water issued at the base of previous strata bogs were formed, then the home of sundew, wood horsetail and other interesting uliginous species, while the drier spots on the sandy or peaty soils had the buck's-horn plantain and tow species of clubmoss; in other spots the moss *Polytrichum commune* was luxuriant, while on the turfy slopes the moonwort, the lady's tresses and the field gentian delighted the wanderer, or on the heathy ground the mountain fern showed its fragrant fronds. But these have gone. The enclosure of the heathy slopes, that cultivated its surface, the various encroachments upon its domain, have gradually denuded the hill of its characteristic vegetation and the progress of destruction still goes on. Year by year there is a shrinkage of the original vegetation and an extension of the plants which follow in the wake of man's disturbance of nature's domain. There are, whoever, still to be found some species of considerable interest .....

Many heathland plants have become extinct at Shotover. Stag's horn clubmoss (*Lycopodium clavatum*), fir clubmoss (*Huperzia selago*) mountain fern (*Thelypteris limbosperma*), buck's-horn plantain (*Plantago coronopus*) wood sage (*Teucrium scorodonia*), small cudweed (*Logfia minima*), bristle club-rush (*Scirpus setaceus*), sheep's bit (*Jasione montana*), bur chervil (*Anthriscus caucalis*) and rat's-tail fescue (*Vulpia myuros*) have all been lost from Shotover.

Some of the oldest bryophyte collections in the world are from Shotover and known heathland extinctions include *Nardia saclaris*, *Solenostoma Crenulatum*, *Tetraphis pellucida*, *polytrichum poloferum* and *Racomitrium canescens*.

Of the insects the green tiger beetle *Cicindela campestris*, the ground beetle *Carabus gallicus* and the nationally rare oil beetle *Meloe rugosus* are all thought to be extinct. Several heath-nesting bird species have been lost, notably the red-backed shrike (now a national rarity), nightjar, wheatear, stonechat and whinchat.

All in all we are presented with a picture of dramatic decline in both quantity and quality of the heathland habitat. Heather's presence is determined by a complex of factors. Moist air and free drainage are necessary to heather, as is a lightly acid soil which permits the existence of the symbiotic fungus *Phoma* on which heather depends in nature. For dominance of heath some factor which prevents gregarious and successful establishment of trees is essential, be it fires, high intensity grazing or violent winds. Heaths of southern Britain are normally associated with sandy or gravelly soils and typically contain very few species of higher plants apart from heather, although there are usually several species of bryophyte and lichen present.

There is some heather remaining at Shotover but rarely in sufficient quantities to constitute a true heath. Large quantities of silver birch, gorse and bracken remain which are species often associated with heaths, but with the cessation of grazing and burning the remaining heathland plants are becoming less numerous.

Small quantities of pill sedge (*Carex pilulifera*), tormentil (*Potentilla erecta*), slender trefoil (*Trifolium micranthum*) and knotted trefoil (*T striatum*) may be found as well as typical heathland bryophytes such as *Pleurozium schreberi* and *Campylopus pyriformis* and lichens including *Cladonia allosquomosa*, *C chlorophaea*, *C fimbriata*, *C pyxidata* and *C subulata*.

Heathland has declined dramatically both in area and richness in lowland England. The loss of the Dorset heaths is well documented and they are now only 15% of their 1760 extent. The reason for the decline in heathland throughout lowland England is that heaths can be rapidly converted for agriculture. Improved mechanisation and availability of fertilisers allow heaths to be ploughed and turned to arable usage. However, because of the intrinsic low fertility of heathland soil, crop production is often poor. As at Shotover some of the former heathland may be uneconomic to farm and so allowed to revert to its former status. There is no doubt that with management to prevent encroachment of woody species and to decrease the dominance of bracken, Shotover's heathland will regain some of its former interest and attractiveness.

#### 1.2.2.1.5 **WETLANDS**

Wetlands are one of the most threatened wildlife habitats in lowland Britain. Until the beginning of the nineteenth century large areas of East Anglia were marsh and fen. More locally Otmoor was a substantial area of wet moorland until the Enclosure Acts of the mid-nineteenth century. With an improved understanding of drainage technology these wetlands have been relentlessly drained and turned into high quality agricultural land. Marsh, fen and bog occurred in some quantity within Shotover Royal Forest. Following disafforestation in 1660 the wetlands were drained and converted to agriculture with the subsequent loss of many plant and animal species.

There are three categories of wetland remaining near Shotover: marsh, fen and pond. Marsh is a wet area where the water is close to, but not above ground level, and where the soil pH is acidic. Fen is a corresponding habitat on alkaline soils where there is some accumulation of surface peat. No area of fen survives in Shotover Country Park although there is a small remnant in nearby BBONT-owned Sydtings Copse.

**Marsh** The number and extent of marshes on the slopes of Shotover have declined dramatically over the past 200 years. This loss is testified to by a catalogue of extinctions. Round-leaved sundew (*Drosera rotundifolia*), wood horsetail (*Equisetum sylvaticum*), flat-sedge (*Blysmus compressus*), bog pimpernel (*Anagallis tenella*), blinks (*Montia fontana*) and crested buckler-fern (*Dryopteris cristata*) have all been lost. Of the bryophytes, *Polytrichum commune* is known to have been destroyed by drainage.

'Polytrichum commune was formerly fine at Shotover but destroyed by drainage about 1861.'

Other examples of peat bog bryophytes which once grew at Shotover include *Cephalozia connivens*, *Lepidozia setacea*, *Sphagnum subnitens*, *S. squarrosum*, *S. palustre*, *Dicranella cerviculata*, *Dicranum bonjeanii*, *Splachnum ampullaceum*, *Philonotis fontana* and *Drepanocladus revolvens*

The reason for the dramatic decline in wetland species is that the former marshes were drained and converted to agricultural use. A few small marshes still exist alongside the spring-fed streams which drain Johnson's piece and Holme Ground. Plants such as marsh-marigold with its large, bright yellow, buttercup-like flowers can still be found, as well as opposite leafed golden saxifrage (*Cyrtosplenium oppositifolium*), marsh valerian (*Valeriana dioica*), marsh stichwort (*Stellaria alsine*), hard rush (*J. articulatus*) and small quantities of the local flea sedge (*Carex pulicaris*). Several locally scarce species of bryophyte such as *Pellia epiphylla*, *Cephalozia biscuspidata*, *Calypogeia fissa* and *Rhizomnium punctatum* can still be found. But these small marshes are being further diminished by invasion of willow scrub and willow herb.

**Ponds** There are very few ponds in Shotover Country Park. An ancient pond site in Open Brasenose has suffered from recent drainage. A single small pond survives in Brasenose Wood and a small area of freshwater survives, except in drought, in Johnson's Piece. The natural history interest of these small, temporary ponds is limited.

- 1.2.2.1.6 Five fields, in Oxford City's ownership, occupy a central area of the Country Park. Crops in recent years include grass Leys, barley, oats and potatoes.

## 1.2.2.2 **FLORA**

### **Vascular Plants**

Plants of note still to be found at Shotover include several locally uncommon calcifuges such as training at John's Wort (*Hypericum humifusum*) sand spetty (*Spergularia rubra*) and early hair grass (*Aira praelox*); locally uncommon ancient woodland plants such as orpine (*Sedum telephium*), violet helleborine (*Epopactis purpurata*) and cow wheat (*Melampyrum pratense*); and plants of neutral grassland such as tuberous vetching (*Lathyrus tuberosus*).

### **Bryophytes**

Many mosses and liverworts are very exacting in their habitat requirements. For this reason the known loss of many bryophytes provides an indication of ecological changes which have taken place. The known extinction of a community of bryophytes including *Sphagnum subnitens*, *S. squarrosum*, *S. palustre*, *Polytrichum commune*, *Dicranum bonjeani*, *Splachnum ampullaceum*, *Philonotis fontana*, *Riccardia sinuata*, *Cephalozia connivens* and *Lepidozia setacea* testifies to the total

loss of peat bog from Shotover. Heath and acid grassland, which have many bryophytes in common, have lost *Pogonatum nanum*, *P aloides*, *Raconitrium caescens*, *Bryum pseudo-triquetrum*, *Nardia sclaris* and *Solenostomata crenulatum*.

Shotover's epiphyte flora is depauperate and known extensions include *Orthotrichum striatum*, *Ulota phyllanth*, *Cryphaea heteromalla*, *Leucodon sciuroides* and *Radula complanata*. There are several possible reasons for the epiphyte extinctions but it could well be that the increased level of  $\text{SO}_2$  in the atmosphere is the main culprit.

Species such as *Anthoceros punctatus* and *Ephemerum serratum* have been lost from the arable fields and others such as *Acaulon muticum* only remain in minute quantities. The reason for these losses is probably the change in farming practices which has resulted in arable fields being cultivated throughout the year and not being left fallow for any length of time.

A comprehensive list of bryophytes is included at Appendix 13.

Lichens - Shotover's woodlands possess few lichen species compared to woods away from urban development. *Lecanora conizaeoides* occurs abundantly as a thick, grey-green crust on bark. The abundance of this pollution-tolerant lichen suggests that Shotover's lichen flora is affected by atmospheric pollution. *L conizaeoides* is scarce in the pollution-free woodlands of western Britain, because of competition from some of the large foliose lichens which are extremely sensitive to air pollution. *Cladonia coniocraea*, which grows at the base of many of Shotover's mature oaks, is often found with the moss *Hypnum cupressiforme*. A third woodland lichen association is based on *Hypogumnia physodes* which is found in greatest abundance on large, horizontal branches of oak trees. Small quantities of *Evernia prunastri* and *Cetraria glauca* are found growing with *H physodes*. These lichens do not survive in areas of severe atmospheric pollution and so they indicate that Shotover does not suffer as bad air pollution as some parts of the country.

The acid grassland and heath of Shotover Hill contain few lichens. However, a careful search will reveal five species of *Cladonia*; *C allosquamosa*, *C chlorophaea*, *C fimbriata*, *C pyxidata* and *C subulata*.

The limestone walls on Shotover possess a rich lichen flora which is more tolerant of atmospheric pollution than the woodland lichen flora. Species present include *Calopiaca citrina*, *C heppiana*, *Dimerella lutea*, *Lecanora campestris*, *Physica caesia*, *P orbicularis*, *P grisea* and *Xanthoria parietina*. The exposed sandstone doggers have several species of lichen growing on them including *Bacidia umbrina*, *candelariella vitellina*, *Lecanora dispersa*, *L muralis* and *Physica caesia*.

A comprehensive list of lichens is included at Appendix 1, and a report on the use of lichens as indicators of air pollution at Shotover.

**Fungi** Over 260 species of fungi have been recorded from Shotover Forest and many more remain to be identified. Fungi play an extremely important role in the forest ecosystem. The fruiting bodies, most of which appear in Autumn, provide

food for many animals - from mammals, such as rabbits and squirrels, to beetles (for example, the family Mycetophagidae), to flies such as the fungus gnats.

In addition fungi are important agents of decomposition. Fungal mycelia extract nutrients from dead organic matter and hence play a vital role in mineral recycling.

There is an immense range of shape and colour shown by Shotover's fungi. The large, parasol mushroom is excellent to eat as are ink caps, morels and giant puffball 'steaks'. However two extremely poisonous species are also present and a single cap of *Amanita phalloides* or *Lepiota fuscovinacea* is sufficient to cause death to humans even after cooking! The acid grassland on the northern slopes of Shotover Hill has a magnificent range of colourful fungi - green parrot wax caps (*Hygrocybe pttacina*), scarlet wax caps (*H coccineus*) and vivid yellow wax caps (*H chlorophanus*).

Several rare fungi have been recorded from the Country Park including woodland species such as *Suillus aeruginescens* and the violet-stemmed *Lepiota bucknallii*, which smells strongly of coal gas, and grassland species such as the green *Leptonia incana* and the blackening wax cap *Hygrocybe nigrescens* which is orange when young, deep red when mature and black in old age. A comprehensive list of fungi is included at Appendix 15.

### 1.2.2.3. **FAUNA**

**Birds** Although no unusual birds nest at Shotover any longer, substantial numbers of common birds breed in the Country Park. Woodland is a particularly important habitat for breeding birds because it supports a much greater density of birds than other habitats. There has been a noticeable decline in such heathland species as night-jar, wheatear, whinchat and stonechat due in part to the scrubbing over of suitable habitat. If the heathland were restored it is by no means certain that these birds would return to breed, but it is possible that at least some would return over a period of years.

A comprehensive list is included in Appendix 1.

**Mammals** A wide range of mammals are found in the Country Park including harvest mice, water shrews, badgers and muntjac. A comprehensive list is included in Appendix 2.

#### **Invertebrates**

**Odonata** The dragonfly fauna of Shotover is rather disappointing although it is possible that other interesting species have been missed. The old record for *Gomphus* must be considered doubtful because of the lack of rivers which provide its normal habitat. The most widely seen dragonflies are *Aeshna grandis* and *Sympetrum striolatum* both of which are often seen far from water from July to September. All other species occur in good numbers near the more open ponds at Shotover. A comprehensive species list is included at Appendix 3.



**Butterflies** The neighbouring Bernwood Forest possesses one of the richest butterfly communities in Britain and it is not surprising that a lot of interest is found in the Shotover Wood. All of the hairstreaks have been recorded although the elusive brown hairstreak has not been seen in recent years. Of the Nymphalidae, white admirals are probably found in all of the woods, purple emperors in a few of the woods and the very rare large tortoise-shell has been recorded from both Shotover Hill and Brasenose Wood since the 1960s.

A comprehensive species list is included at Appendix 4.

**Moths** The 260 recorded species of moth include many which are confined to woodland. Local woodland moths include the sprawler (*Brachionycha sphinx*), scarce silver lines (*Pseudolps bicolorana*), and dotted rustic (*Rhyacia simulans*). Two uncommon woodland species which have not been recorded in recent years are the broad-bordered bee hawk (*Hemaris fuciformis*) and the oak nycteoline (*Nycteola revayana*). Other species of note are the archer's dart (*Agrotis vestigialis*) which is a mainly coastal moth and the forester (*Procris statices*) which is a nationally declining moth usually found in old meadows.

A comparative species list is included at Appendix 5.

**Diptera** Many rare flies have been recorded from Shotover. Of the old records there are the rare woodland species *Tipula truncorum*, *T. peliostigma*, *Ormosia bicomis* and *Criorhina asilica*; rare heathland and rough pasture species such as *Limonia masoni*, *Asilus crabroniformis*, *Eudorylas teminalis*, *Platycheirus discimanus*, *Volucella inanis* and *Miltogramma gemmari*, the latter two species being associated with solitary bees and wasps; and rare wetland species such as *Stratiomys furcata*, *Ulidia erthrophthalma* and *Sapromyza bipunctata*. Three rare Shotover flies have not been recorded from Britain in recent years - *Pipizella maculipennis*, *Eccoptomera omata* and *Ceromya monstrosicomis*. Very little attention has been paid to the flies recently but species of note from the 1980s are *Stratiomys potamida*, *Oxycera pulchella*, *Calliopum elisaw* and *Cerodontha hennigi* which mines wood small-reed (*Calamagrostis epigejos*).

The number of rare flies recorded from Shotover is quite outstanding. However, most of the records are more than fifty years old and the rarities may now be extinct. Nevertheless, much suitable habitat remains and a concerted search may well reveal interesting species.

A comprehensive species list is included at Appendix 6.

**Hymenoptera** With 174 species of Aculeate Hymenoptera (bees and wasps) Shotover has one of the most outstanding assemblages in the country. There are records for 13 national rarities and 32 local rarities (see 2.2.2.).

A comprehensive species list is included at Appendix 7.

**Coleoptera** A substantial list of beetles has been compiled and it is certain that a great many more remain to be found. Several local and uncommon species are present including *Rhizophagus nitidulus* (a small dead woodfeeder), two local dor longhorns (*Agapanthia villosoviridescens* and *Phytoecia cylindrica*) and a local or beetle *Typhaeus Typoheus*. Several rare beetles were recorded pre-1930 which have not been seen in recent years. Of particular note are the ground beetle *Harpalus honestus*, the oil beetle *Meloe rugosus*, the rove beetle *Aleochara maculata* and the Pselaphid *Claviger longicomis*. Other local ground beetles which have not been recorded in recent years are *Notiophilus aquaticus*, *Dyschirius politus*, *Panageus bipustulatus* and *Metabletus truncatellus* - it is interesting that these are all insects of open country.

One disappointment is the shortage of noteworthy dead wood beetles at Shotover. The dead wood species are mostly common (eg *Tetratoma fungorum*, *Mycetophagus bipustulatus* and *Atrecus baptolinus*) whereas Oxfordshire's other Royal Forests (Wychwood and Woodstock Chase) boast a range of rarities.

A comprehensive list is included at Appendix 8.

**Arachnida** 64 species of spider have been recorded from Shotover including the nationally rare *Zygiella stroema*, *Tuberta maerens* and *Porrhomma oblitum*.

A comprehensive list is included at Appendix 9.

### 1.2.3 **CULTURAL INFORMATION**

#### 1.2.3.1 **Historical**

##### (1) **Prehistoric Shotover**

Present day Shotover is very different from the natural forest which it replaced. No direct evidence about the nature of this forest is available, but it is possible to make some tentative assertions based on evidence from other parts of Britain and Europe. Following the Pleistocene glaciation Oxfordshire became extremely well wooded and these forests may have contained animals such as elk, reindeer and auroch (wild ox), remains of which have been found in northern Britain where they became extinct long before the Anglo-Saxon period. Animals which may have been found at Shotover at the time of the Roman occupation include wolf, wild cat and brown bear. Wolves were common during the Anglo-Saxon period. Wild cats, which still survive in Scotland, were formerly common throughout Britain disappearing only when woodland was cleared for cultivation. A wild cat is said to have been caught in Holton Wood in 1863. It was said to have been

'a genuine and splendid wild cat which looked like a small tiger and was 31½" long and weighed 9.75lb.'

However, this was probably a feral cat rather than a true wild cat. The question of brown bears is more problematical, but they were found in northern England until the tenth century and as their present day habitat in Europe is deciduous woodland, they may have existed in Oxfordshire at an early date.

Other animals present in prehistoric Shotover include red deer, roe deer and wild boar, but these did not disappear until comparatively recent times. Red deer were still present in Wychwood Forest until 1856 and their hides were used by the glove manufacturing industry at Chipping Norton. It is likely that both red and roe deer were still to be found at Shotover in Medieval times. Wild boar hunting was a favourite pastime of Norman Kings. Boars are known to have been in Wychwood Forest in the thirteenth century when Henry III instructed two boars to be taken from Wychwood to Haveris, then part of Waltham Forest. There is an interesting legend concerning wild boar at Shotover whereby a student of the Queen's College named Copcot, was walking in Shotover Forest reading Aristotle when a boar attacked him. The student rammed the volume down the throat of the beast say the words 'Graecum est' and the boar expired. This episode is remembered by an oil painting in the Queen's College, a stained glass window in Horspath Church and an annual ceremony in the Queen's College where a boar's head, with an orange between its teeth, is carried aloft in procession into Hall every Christmas Day. The family crest of Tyrell family, who lived in Shotover House in the seventeenth century, was a boar's head with a peacock feather in its mouth. The boar's head story can only be a legend because Greek was not taught at Oxford University at this time. However, one element of the story which makes it more believable is that Copcot is a local name, being derived from a place near Tetsworth. It is certain that wild boar were present in prehistoric Shotover but they probably became extinct in the forest during Anglo-Saxon times.

The vegetation of Shotover would have been largely high forest with oaks predominating. The pedunculate oak is the most abundant tree at Shotover now but it is possible that the sessile oak was more widespread in natural forest. Subsequent planting favoured the pedunculate oak which was thought to be the better timber tree. Although oaks were the most abundant tree, there were lesser numbers of other species such as silver birch, field maple, aspen, wild cherry and wild service tree. Apart from conifers the only alien tree species present in any numbers at Shotover is the sycamore, which was introduced to England as an ornamental in Tudor times. One tree species which may have been present in natural Oxfordshire forest but which is now absent from Shotover is the small-leaved lime (*Tilia cordata*). Pollen analysis of lime shows that it was widespread in England 5-7,500 years ago.

We have no evidence concerning herbaceous plants found in natural Oxfordshire wildwood but it is likely that it contained many species still present. A striking feature of wildwood is the amount of dead and fallen timber present - recent measurements from natural deciduous forest in Poland show that about as much wood is decaying on the ground as is standing - a marked contrast to the tidy, managed woodland of today.

## (2) **Archaeological Information**

The first direct evidence of human habitation at Shotover comes from the finding of flint chips, flakes, scrapers and arrow heads produced by a flint knapper in Neolithic times and found at several places including the vicinity of Westhill Farm<sup>25</sup>. The nearest substantial flint sources to Shotover are the Chilterns and Berkshire Downs and so any flint found at Shotover must have been brought from a distance. Two long barrows existed at the western end of Shotover Plain until their destruction by military activity during the Second World War. It is thought that a prehistoric route existed between Dorchester and Oxford along the line of the future Roman road<sup>17</sup>, and it is not surprising that such a well-drained and easily defended site as Shotover Hill was settled by early man.

### (3) **Roman Shotover**

Oxford was not heavily settled in Roman time but it was a major centre for the production of pottery<sup>26</sup>. Shotover Hill is just to the north of the Roman road between Dorchester and Alchester. Many kiln sites have been found near this road including one on Shotover Hill (in Row Field to the east of Shotover Plain), one in Open Brasenose (discovered as recently as 1969) and others at Woodeaton, Headington Wick and the Churchill Hospital - all within the bounds of what became Shotover Royal Forest. The Shotover kilns produced colour-coated wares, parchment wares, white wares and mortaria. Suitable clay for the grey and red wares could have come from either Kimmeridge or Oxford clays, but the white wares depend on iron-free clays of which Shotover had the only considerable source in its Wealden beds. This white clay was used for pipe making until the seventeenth century. The Shotover kilns were in operation from 240-400 AD and the white ware mortaria from Open Brasenose have been found all over Oxfordshire.

The presence of these kilns would certainly have had a considerable influence on Shotover Forest. The kilns would have been fuelled with local wood, and oaks from around the kilns would have been felled for this purpose. The Romans are known to have introduced certain plant and animal species to Britain, some of which are still found at Shotover. Henbane and ground-elder are two plants said to have been introduced for their medicinal value. Ground elder is common near habitation at Shotover. Henbane is not common but it did appear in profusion near Open Brasenose in 1976 and it may be that the hot dry summer of 1975 broke dormancy and allowed existing seeds to germinate. Fallow deer, possibly introduced by the Romans, were an important constituent of the Royal forest.

To sum up, Shotover was well known to the Romans, particularly as a source of iron-free clays. Although the Romans felled many trees for fuel and building, it is likely that these areas rapidly reverted to forest after the Romans left. The most lasting influence of the Romans was through the plant and animal species which they introduced.

### (4) **Shotover Royal Forest**

Royal Forests were established in Saxon times and forest laws are known to have existed in the time of King Canute (c.995-1035). These forests were areas of land, part woodland and part pasture, subject to strict laws exercised by a complicated system of courts and officials. The earliest surviving written regulation dealing with forest laws is the Assize of Woodstock (1184) but this embodied earlier customs and legal practice. Royal forests had something of a chequered history, with monarchs such as Henry II increasing the area of land subject to forest laws (afforestation) while others such as Edward I, reduced the area subject to forest laws (disafforestation). However, neither afforestation nor disafforestation involved felling or planting of trees.

Land subject to forest law was not necessarily owned by the Crown. In Domesday, Shotover is described as one of the King's 'demesne' forests which suggests that it was owned by the monarch. However, by the thirteenth century it is documented that certain religious houses owned parcels of land within the forest and for most of its history several land owners were involved at Shotover.

The early boundary of Shotover can be gleaned from a perambulation (a boundary survey) undertaken in about 1298. This boundary is shown on Fig. 10 superimposed on a present day parish boundary map. Most of this boundary interpretation is based on a study by Roberts<sup>27</sup>. The area of Shotover Royal Forest at this time was approximately 2,300 ha. Also shown on Figure 8 are woodlands formerly within the forest, which were disafforested by Edward I. For comparison the boundary of Shotover Forest in 1643<sup>28</sup>, seventeen years before disafforestation, is shown (Fig. 11) and it can be seen that the area subject to forest laws had shrunk to about 600 ha by that time.

The best known function of royal forests was to provide hunting facilities exclusively for the King. However, no records of any monarchs visiting Shotover are available even though they are known to have frequently visited neighbouring Wychwood Forest and Woodstock Chase. Shotover itself lay beside the route from Westminster to the Royal Manor of Woodstock and so every monarch would have passed Shotover and it is almost certain that all monarchs would have hunted there. The reason no records are available is that such an event would not have been considered newsworthy. It is probable that more important functions of royal

FIGURE 10 THE BOUNDARY OF SHOTOVER ROYAL FOREST IN 1298

FIGURE 11 t THE BOUNDARY OF SHOTOVER ROYAL FOREST IN 1642

forests were in raising revenue through sales and forest courts, and as perquisites to favoured individuals and organisations.

It is well known that the King's table at Windsor was sometimes replenished with venison from Shotover<sup>29</sup>. In 1613 the bailiwick of Shotover was granted to Sir Timothy Tyrell. There is a tradition that the reason for this gift was that while hunting with the Prince of Wales, Sir Timothy held a buck's head for the Prince to sever. The Prince's blow badly wounded Sir Timothy's hand and the bailiwick of Shotover was by way of compensation for the injury. However, it is not certain that this incident, if it happened at all, took place at Shotover.

Local forest courts or Swainmotes are known to have taken place at Shotover at least from the thirteenth to the seventeenth century, but the only court about which any details are extant was held at Headington on 9 June 1636<sup>30</sup>. This is a late date in the history of royal forests and in many places forest laws had begun to decay before this time. During the reign of Charles I there was an attempt to revive strict forest jurisdiction. This example gives an insight into the hierarchy of forest officers as well as the range of offences committed. All the forest officers were present. Henry Lord Holland was keeper, the chief local authority of the forest and a post which carried many perquisites and privileges. Sir Henry Cooke and Mr Unton Croke were the two verderers, elected by free-holders in the county court whose duties were concerned with the forest courts. Three foresters were present, each of which was in charge of a 'walk' within the forest, namely New Lodge Walk, Old Lodge Walk and Stowood.

Edward Whistler was woodward for the whole forest and his duties included ensuring that the underwood was properly enclosed before the coppice was cut, paying labourers employed in fence making, dividing underwood into lots for sale, directing any tree felling and making sure that any person trespassing within the forest was brought to justice. Twelve regards were present and these men, originally knights, made a triannual inspection of the forest and reported to the forest courts. Two gentlemen keepers were at the court whose duties involved looking after the forest deer. Two agisters were present whose duties were to oversee any grazing within the forest. Cattle, sheep and swine were all grazed in the forest and payments (agistments) were collected for this privilege. Other forest officers present at the court were five subforesters, two wardens and two pages. As can be seen a considerable number of officers and labourers were employed in various activities within the forest.

Offences in the forest come under four headings: venison (killing deer or wild boar), vert (damaging timber or underwood), assart (enclosing land within the forest) and purpresture (building within the forest). At this 1636 court Roger Gardiner was fined £100 for killing two bucks and two does. John Symondes of Headington was fined £5 for killing does with a 'moungrell' dog. John Weston was fined 320 for netting hares and William Willoughby, a shipwright, was fined £2,020 for felling fifty oaks valued at 20s each and grubbing up their roots valued at 5s each. Other delinquents were fined £5 for removing an ash worth 3s, £2 for removing an ash worth 6d and £10 for taking 3 cartloads of ash worth 20s. As can be imagined these fines were extremely severe but they do not compare with the mutilation and



death meted out by the courts in Norman times. The Anglo-Saxon Chronicle for 1087 states that King William legislated that

‘Whosoever should slay hart or hind should be blinded’

Other sources of revenue to the Crown and forest officers included the sale of timber and underwood, and the collection of agistments for animals pastured within the forest. Timber from Shotover was used in the construction of many buildings including Oxford gaol<sup>30</sup>, Oxford and Wallingford Castles, Chapel of St Mary in the Hospice of St John the Baptist and the Bodleian Library<sup>31</sup>. Even though Shotover is far from the coast its oaks were valued for shipbuilding. In 1629 shipwrights visited Shotover and censused over 27,000 tress which they wanted for their own use stating that the oaks were

‘the best in the kingdom for shipping, both for hardness and toughness thereof being not apt to rend or cleave<sup>32</sup>’.

Studley Priory was granted the right to sell underwood from a wood within the forest<sup>33</sup>. Villages with no common grazing paid agistment to the swainmote for the right to pasture animals within the forest. In 1363 Noke sent 12 pigs, Islip 20 pigs, Woodeaton 6 pigs, Elsfield 8 pigs, Beckley 10 pigs, Forest Hill 12 pigs, Wheatley 10 pigs, Horspath 18 pigs and Cowley 10 pigs into the forest at the rate of 1s 6d per pig, par of the fee going to the Crown and part to the senior forest officers<sup>34</sup>. The pigs were only allowed into the forest during the pannage (acorn eating) season lasting from 14 September until 18 November (21 September to 25 November in the modern calendar). In 1452 agistments totalled 28s 7.75d plus eighteen bushels of wheat. Other minor sources of revenue included cokshots (payments of hens and eggs for the privilege of collecting dry wood within the forest) and chiminage which was payment for the right of driving beasts through the forest.

A final source of revenue was the payments made for quarrying within the forest. White clay for pipemaking was quarried until the seventeenth century. Ochre, said by Robert Plot to be the finest in the kingdom<sup>15</sup>, was quarried for many centuries. The poor quality ochre was used as a dye for painting wagons: traditionally the body of Oxfordshire wagons was yellow but the wheels and bed were red<sup>34</sup>. The finest quality ochre was used for paint pigments as was ground at a mill near Wheatley. The Cuddesdon Charter of 956 was the first endowment of St Ethelwold’s reconstituted Abingdon Abbey. In the famous Benedictional of St Ethelwold, which was once kept at Chatsworth and is now stored in the National Library, the animal on which Christ is entering Jerusalem is painted with mineral ochre, which may have been from Shotover as a good and local source<sup>22</sup>.

Many individuals and organisations (religious houses in particular) benefited from gifts and favours and some of these had an important influence on the later history of the forest. Gifts of venison were frequent: in 1278 four bucks were sent from Shotover as a gift to Bartholomew de Sutlegh and in 1281 six bucks were sent to James de Ispannia, nephew of Queen Eleanor the King’s Consort<sup>30</sup>. The Knight’s Templars, who owned a wood to the south east of the present day Brasenose Wood, were granted the right to take ten bucks annually. Certain organisations were excused payments of pannage and were allowed to herd swine free of charge.

In 1443 Humphrey Duke of Gloucester, keeper of the royal forests to the south of the river Trent, granted the Hospice of St John the Baptist the right to put fifty pigs in whittlewood Forest, fifty in Bernwood and fifty in Shotover free of pannage<sup>35</sup>.

Gifts of underwood were common and in later years these were sometimes superseded by fits of land. In 1222 Henry III granted the brethren of the Hospital of St Bartholomew the right to gather one hundred bundles of dead wood for burning from Shotover. In 1234 the Hospice of St John the Baptist, on whose site Magdalen College now stands, was granted the right to collect a load of wood for fuel by sumpter horse twice daily from the forest. In 1246 this right was replaced by a gift of land within the forest, which was later known as Wood Farm and included Magdalen Wood<sup>36</sup>.

In 1226 Henry III granted the Prioress of Littlemore the right to take a sumpter horse twice daily into the forest to collect dead wood and thorn for fuel<sup>17</sup>. This concession was replaced in 1259 by a gift of 27 acres of forest. The location of this gift is given as being bounded by the wood of the Templars (probably Peryhale which is now an arable field to the SE of Brasenose Common), The King's Wood (Shotover to the north) and Wodewardesmede (later Wood Farm). Brasenose Wood has an earth bank running SW to NE which divides the wood into two and as the parcel of woodland to the north of the mound measures 27.59 acres, it is possible that this is the same woodland granted to the prioress in the thirteenth century. While in the possession of the Prioress of Littlemore, the wood was known as Minchery Wood. This name was derived from the obsolete word minchin which in turn came from the Old English mynecenu meaning nun<sup>38</sup>. Minchery Wood was later increased in size to about 80 acres to include all of Brasenose Wood and Open Brasenose.

In 1659 Sir Christopher Brome purchased 'Myncherye Woodde' from Edmund Powell of Lampeforde for £40<sup>39</sup>. In 1579 Brasenose College obtained Minchery Woods from Sir Christopher Brome by means of a swap with land at Forest Hill and Northam and Bradmore<sup>40</sup>. Records in the archives of Brasenose College show that the wood was being actively coppiced during the sixteenth century. In 1570 Elizabeth I granted the College the right to continue

'laying waste, rearranging and repairing their 80 acre coppice in Heddendon'<sup>41</sup>.

Brasenose College managed the woodland by letting it on a series of 21 year leases. For example in 1654 the woods were let to Wm. Combes for £22<sup>42</sup>. Conditions of the lease provided that the tenant was to

'repair, cleanse, and scour the ditches, hedges, fences, mounds and watercourses in the woods and to surrender all in good condition'.

An extra payment of £5 was to be made for every acre of land ploughed up or 'eased'. It is interesting to note that Wm. Combes recovered a good deal of his rent back from the College on payment for timber for building in the College. For example in 1656 there is an entry in the Account Book

'payd to Wm. Combes for 3 sapling oaks counting 84' at 15½d per foot = £5.8.6 for laths for chapple'<sup>43</sup>.

The system of 21 year leases was continued into the early years of the twentieth century.

The presence of a royal forest would have had great local significance, both as a source of revenue to the forest officers and some local organisations, and as a restriction on local peasants some of whom frequently infringed the forest laws. The forest was managed with the aim of maintaining a good stock of deer, maintaining the timber and underwood in a healthy condition and producing revenue from grazing the forest pasture. In order to achieve these aims a high level of activity was necessary and many people were employed in the forest.

#### (5) **Decline of Shotover Forest**

During the period when Sir Timothy Tyrell was Keeper of Shotover Forest (1613-60) the woods decayed leading to disafforestation in 1660. There were significant demands for timber from the navy at this point because the New Forest and Forest of Dean had been worked out. Further demands on Shotover's timber came from the works on the banks of the river Thames. Sir Timothy is said to have unnecessarily felled many oaks and it is also said that the revenue from timber sales went into the pocket of the forest officers rather than the Crown. This period of waste and decay was compounded during the period of the Civil War when Oxford was the capital of the Royalists. During the siege of Oxford much of Shotover's wood was used for fuel and some of the larger trunks were used for fortification. Finally in 1660, in the reign of Charles II, Shotover was shown to be in such poor condition that it was disafforested or made no longer subject to forest laws. After disafforestation those with rights of common were compensated by fits of land (641 acres), while the rest (983 acres) was leased by the Crown, the lessees being encouraged to build and plough. The estate was purchased from the Crown in 1745 by Augustus Sshutz, and is still largely in private hands although three farms (Westhill Farm, Wood Farm and Brasenose Farm) were acquired by Oxford City Council in the first half of the twentieth century.

Throughout the period of Shotover Royal Forest the main route from Oxford to London passed over Shotover Hill. The occupants of the coach were obliged to dismount and walk up the steepest sections. There is a record of a Dutch scholar named Mathew Slade expiring due to the rigours of the uphill walk in December 1869<sup>44</sup>. A stone used for remounting the coach is still to be found at the western end of Shotover Plain.

The area to either side of Shotover Plain was a wild and desolate place and there are several records of dastardly deeds. One of the most famous victims of highway robbery was Charles Wesley<sup>45</sup>, who one October day in 1739 was travelling from Oxford to London on horseback. He had not gone more than a mile from the city when his mount went lame. So, as is recorded, he commended himself to Divine protection and began to sing the 91st Psalm, that robust anthem which assures the believer that the Almighty will deliver him from 'the snare of the

hunter', 'the noisome pestilence', 'terror by night' and 'the arrow that flieth by day', among a long catalogue of perils with which the righteous are bound to be assailed.

The traveller had hardly ended the singing, and had but that moment passed the hut on Shotover Hill (presumably Titup Hall, now the Crown and Thistle) when a man came up and asked him for his money. The highwayman showed no pistol, but Charles Wesley handed over his purse containing 30 shillings. 'Have you no more?' asked the robber, whereupon he put his hand in his pocket and gave the man some halfpence.

Again the highwayman asked the question. Now Charles Wesley could not tell a lie, so he bade the fellow search for himself. It was a successful ruse for the highwayman, evidently never before having met a traveller not prepared to lie with fluency and good conscience, took the rejoinder as a surly way of saying 'no' and did not search him. Wesley salved his conscience and saved the thirty guineas he had in another pocket.

In the 12 January 1760 edition of Jackson's Oxford Journal it is recorded that

'Last Saturday morning the Birmingham stage was robbed about five o'clock in the morning at Shotover Hill, near this city, by two young fellows, in blue close-bodied coats, mounted on black horses; they took from the passengers about seventeen pounds and after giving the coachman and postilion a shilling each, rode off.'

In the 9 September 1773 edition it is recorded that

'Last Saturday morning Mr Way of Thame in this county was stopped in the Hollow Way on the side of Shotover Hill facing Wheatley by two footpads in carter's smock frocks one of whom seized his horse's bridle, and immediately brandished a pistol which he clapped to Mr Way's chest and he threatened to shoot him dead if he did not instantly deliver his money; upon which Mr Way desired him to remove his pistol and he would give it him; the fellow did so and received a purse containing twenty six pounds five shillings and sixpence, with which they both went off contented, wishing him a good night'.

In the last quarter of the eighteenth century the Stokenchurch Turnpike was completed (later to become the present A40) and the need to cross Shotover Hill removed.

### **Post - Royal Forest History**

**Brasenose Wood** There were a number of disputes in the sixteenth and seventeenth centuries of grazing rights of commoners within Brasenose Wood. For

example in 150 there was a dispute concerning whether “oxen, sheepe, or labouring horse can common within the forest”.<sup>4</sup> In 1789 Open Brasenose was used for common grazing by the parishes of Headington, Horspath and Cowley, and so it seems that the disputes about grazing in Brasenose Wood were resolved by allowing common grazing rights in the 26.74 acres of Open Brasenose. In the nineteenth and early twentieth centuries gypsies camped in Open Brasenose, but this practice ceased and the common was fenced following an incident where a gypsy man stabbed his wife to death there and was hanged.<sup>44</sup>

Ten acres of woodland were felled in 1852-3 and converted to arable usage<sup>5</sup>. Judging from the 1797 map of Richard Davis<sup>6</sup> the parcel of woodland was removed from the northwest of the woods. By the early years of the twentieth century Brasenose Farm was becoming uneconomic; demand for timber and coppice wood was slack and the shallow soiled single field was unproductive. Church<sup>2</sup> states that Brasenose Wood’s underwood was in poor condition in 1921-22 when it fetched only £4 per acre (=6d per pole) at the annual underwood sales, compared to £6 per acre for the better quality underwood of Bagley Wood and £14 per acre for best quality coppice in Nuneham Wood. Coppicing has long since ceased in Bagley Wood, to be replaced by conifer production.

In 1935 Brasenose College sold Brasenose Wood to the Citizens of Oxford for £6,000 on condition that

“The piece of land marked Brasenose Wood ... shall for ever be kept and used as woodland and no timber be felled ... unless it is in the interests of good forestry”.<sup>7</sup>

**Johnson’s Piece** On the nineteenth century sale maps<sup>8,9</sup> Johnson’s Piece, then named Middle Ground, is described as rough grazing and furze. Indeed there is an old drinking trough which provides further evidence that the field was formerly grazed. In 1908 Rev. A H Johnson, a fellow of All Souls College, along with a number of other members of Oxford University, subscribed to buy Johnson’s Piece as a gift of the Chancellor, Masters and Scholars of the University of Oxford. Conditions of the gift were that the area should be devoted to the use of the public forever and that the charge of the land should be entrusted to the Curators of the University Parks<sup>10</sup>. Immediately after the land was entrusted to the University several ornamental trees were planted including sweet chestnut, sugar maple, red-leafed maple, Scots pine and Austrian pine, which have since matured to give the area something of the feel of an informal arboretum. In Church<sup>2</sup> there is a photograph taken in 1922 of Johnson’s Piece, then named University Enclosure, which clearly shows how much more open the area was at that time.

The 1947 aerial photograph shows that there was less woodland there than now and it also shows the considerable erosion in the north caused by passage of military vehicles.

**Magdalen Wood** Between the seventeenth and nineteenth centuries Magdalen Wood was let on a series of seven year leases. In Mr North’s lease of 1766 for example<sup>11</sup>, the rent for seven years was £14 but all the timber from the woodland was reserved for College use. At the end of the eighteenth and beginning of the

nineteenth centuries trees from Magdalen Wood were used to repair the buildings of Wood Farm<sup>12</sup>, but the paucity of records of timber sales suggests that Magdalen Wood was not as important a source of timber as some other parts of Shotover Forest. Although no longer subject to forest laws there were still severe penalties for misdemeanours in local woodland. In March 1766 Edward Jones was publicly whipped for stealing two faggots from Magdalen Wood<sup>13</sup>. In 1872 there was a court case concerning rights of ingress and egress through Magdalen Wood<sup>14</sup> and the accompanying text and map afford an insight into the condition of Wood farm in the nineteenth century. Open Magdalen was described as having some timber trees with brakes of thorns, briars and furze. The dispute concerned the people of Cowley who had common grazing rights on Elder Stubs.

Before enclosure (1853) parishioners were in the habit of taking their cattle through Open Magdalen on their way to graze on Elder Stubs, and of taking their cattle back through Open Brasenose. The dispute continued for about 40 years with Magdalen College fencing the wood and erecting a gate to prevent the entrance of cattle, and the local farmers breaking down the gate and firing the furze on Open Magdalen. In 1893 a second prosecution was brought against two locals, the famous Oxford botanist George Claridge Druce being a witness for the prosecution. The result was that the parishioners sold Elder Stubs and purchased a recreation ground within the parish of Cowley<sup>15</sup>. Wood Farm was sold to Oxford Corporation in the 1930s, and most of the land is now used for housing apart from Open Magdalen, which is now known as Magdalen Wood.

### 1.2.3.2 **Land Use History**

When subject to forest law Shotover Royal Forest was covered almost entirely by seminatural vegetation, although the 1298 perambulation shows that there was some arable land within the forest. The forest was not truly natural because many of man's activities had an influence on the nature of the vegetation. However, very little intensive management occurred and so the plant communities found were strongly related to those which would be present if the area were uninhabited by man. The fate of Shotover's seminatural vegetation is of particular interest because it contains a rich assemblage of native plants and animals. Indeed, many species are so closely adapted to life in a semi-natural community that they are quite unable to survive outside it.

During the reign of Edward I Shotover Royal Forest was at least 3,000 ha in extent. By 1298 the area subject to forest laws had diminished to about 2,300 ha. At disafforestation in 1660 the area of the Royal Forest was only 600 ha. A detailed survey of the surviving seminatural remnants of the forest shows that only about 252 ha remain, thus representing about 8.4% of the area of the original Shotover Royal Forest. It is interesting to note that about 140 ha of seminatural woodland remain, compared to 58.6 ha of seminatural grassland, 3.5 ha of heath and 5.0 ha of fen and marsh.

There are many reasons for the dramatic loss of semi-natural vegetation. Some woods were felled during the royal forest period. For instance, we can deduce that Peryhale, a wood at one time owned by the Knight's Templars and situated to the

SE of Open Brasenose, was felled prior to 1605 when it is shown as agricultural land on a map of Corpus Christi College lands drawn by Thomas Langdon<sup>46</sup>. In the seventeenth century many trees were requisitioned by the navy's shipwrights and transported to the coast<sup>32</sup>. Considerable tree felling took place near Oxford at the time of the civil war for purposes of fuel and fortification<sup>47</sup>. Much woodland was felled or 'eased' following disafforestation. In 1852-53 ten acres of Brasenose Wood were felled and converted to arable usage<sup>48</sup>.

The loss of seminatural heathland is less well documented but Druce writes in the early years of this century<sup>3</sup>

'The once celebrated district of Shotover has suffered much during the last century, at the beginning of which it was open and uncultivated ground, in parts thickly wooded and in others showing delightful expanses of heath ... the enclosure of the heathy slopes, the cultivation of its surface ... have gradually denuded the hill of its characteristic vegetation and the process of destruction still goes on'.

Comparison of the view of Shotover Hill from Cowley Barracks by the renowned Oxford photographer Henry Taunt in 1880 with the same view today, shows how the processes of enclosure and cultivation have continued. In the 1920s many hectares of heathland to the south side of Shotover Hill were lost. 2.5 ha were planted with European larch and about 15 ha were used for low density housing with the heathland being transformed into domestic gardens. A photograph of a newly constructed thatched cottage designed by Thomas Rayson appeared in the April 1921 issue of *Homes and Gardens* and clearly shows open heathland in the background<sup>49</sup>.

Since 1930 Shotover's heathland has declined in quantity and quality because of the lack of human interference! This apparent paradox results from the fact that heathland has to be maintained by grazing or burning. These activities ceased at Shotover and the result was the encroachment of woody plants and dense stands of bracken, and the subsequent demise of the varied heath flora.

Seminatural grassland has been lost both to the plough and to 'agricultural improvements' such as reseeding or treatment with fertilisers and pesticides.

The natural history of arable fields, an artificial habitat, has declined over the past 200 years. Thorow-wax (*Bpuleurum rotundifolium*), corncockle (*Agrostemma githago*), corn buttercup (*Ranunculus arvensis*), rough poppy (*Papaver hybridum*) and corn parsley (*Petroselinum segetum*) are documented examples of extinctions. Some arable field bryophytes are known to have been lost, and others such as *Acaulon muticum* only remain in minute quantities. Losses are continuing - cornflower (*Centaurea cyanus*) grew near Sydling's Copse until 1981. Some unusual weeds remain - the tiny venus's looking-glass (*Legousia hybrida*), many seeded goosefoot (*Cehnopodium polysperum*) and the beautiful corn marigold (*Chrysanthemum segetum*) are still found but each year in diminishing quantities. The reason for these changes is that improvements in agricultural practice result in purer seed corn and increased use of herbicides.

The vegetation of Shotover has changed dramatically since Royal Forest times. The diminution of seminatural vegetation has reduced the number of places suitable for many of our native plants and animals. Not all changes have been harmful - the construction of ponds on the Shotover Estate, the more recent clay pit ponds at Risinghurst and the excavation of ponds within the Country Park have provided valuable freshwater habitats. However, most changes have been harmful and have resulted in the loss and fragmentation of much callable wildlife habitat.

1.2.3.3 **PAST MANAGEMENT OF SHOTOVER COUNTRY PARK BY OXFORD CITY COUNCIL**

Oxford City Council has managed Shotover Country Park since the late 1930s. Two resident rangers have been on site throughout that period. A wide range of land management activities have been undertaken since that time. More detailed comments on many of these are included in the Prescriptions (Chapter 3). Provision of visitor facilities has been limited to construction of WC block (SODC in late 1960s), provision of nature trails (1978), provision of permanent orienteering course (1977), provision of two picnic tables (donated by Rotary Club 1983) and provision of information boards (1980).

A variety of opinions have been expressed on the success of Oxford City's management of Shotover Country Park. Some local residents express the view that no land management operations should take place in the Country Park and in general these people are unhappy to see large numbers of visitors. Many regular visitors express reasonable satisfaction with the management of the country park. Organisations such as Nature Conservancy Council and Countryside Commission have expressed satisfaction with the situation at Shotover (see Appendix 20).

1.2.3.4 **PUBLIC INTEREST**

Shotover Country Park is heavily used by the public for informal recreation. The shortage of 'wild' countryside in Oxfordshire results in a limited choice for people wishing to take advantage of this kind of facility.

Since 1979 a count has been kept of the number of cars visiting Shotover Plain.

**TABLE 2**

	<b>Total no of vehicles</b>	<b>Weeks Counter Operational</b>	<b>Estimated total annual no of vehicles</b>	<b>Estimated total no of visitors</b>
1979	35,520	27	68,409	432,577
1980	35,062	25	72,929	461,159



1981	73,476	34	112,375	710,591
1982	4,730	4	-	-
1983	88,360	45	102,105	645,650
1984	106,834	50	111,107	702,574
1985	71,764	49	76,158	481,577
1986	134,012	50	139,373	881,310
1987	99,396	40	129,215	817,076

These figures are based on the following assumptions.

- (1) Every car visiting Shotover Plain passes the counter twice
- (2) Cars contain an average of 3.5 people per car. This is a Countryside Commission figure based on surveys at various country parks.
- (3) 61.5% of visitors to Shotover arrive by car. This is based on 2 questionnaires carried out by Oxford Polytechnic on Sundays in 1977 and 1978. In 1977 60 out of 100 arrived by car, and in 1978 122 out of 193 (=63%) arrived by car.
- (4) 9 out of 10 visitors to Shotover Country Park arrive via Shotover Plain. This estimate is based on the knowledge that there are about 10 minor entrances to Shotover but that the Plain is the only substantial car park.

Little information is available on the origin of the people visiting the Country Park, but although the vast majority are Oxford residents it is known that a minority come from as far afield as Witney, Abingdon and Kidlington. The lack of public transport makes it difficult for non car owners or people living out of walking range to visit the country park. Many people find it difficult to articulate their reasons for coming to Shotover but likely reasons include the extensive views to the south, the informal 'wild' aspect of Shotover, the variety of habitat and the profusion of wildlife.

The high level of public interest in Shotover has resulted in the establishment, in 1973 of the Shotover Preservation Society. In addition the Shotover (Consultative) Sub-Committee of Oxford City's Recreation and Amenities Committee was established in 1976, and its terms of reference is included in Appendix 19.

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## **PART TWO EVALUATION AND OBJECTIVES**

### 2.1.1. **Scientific History**

The proximity to Oxford University has resulted in a good deal of collecting of plant and animal data from Shotover. Jacob Bobart made some of the world's earliest bryophyte collections from Shotover and it is clear that Shotover was a favoured hunting ground of eighteenth and nineteenth century natural historians. Important collections were made in the early years of the twentieth century and this profusion of scientific information about Shotover adds to the present day interest of the site.

### 2.1.2 **SSSI Status**

Shotover Country Park (with the exception of the larches) was notified as a SSSI on 25 April, 1986. The official description (2.1.2.1.) and the list of potentially damaging operations follow (2.1.2.2.)

#### 2.1.2.1 **SSSI Description**

## 2.1.2.2

### BRASENOSE WOOD AND SHOTOVER HILL SITE OF SPECIAL SCIENTIFIC INTEREST, OXFORDSHIRE OPERATIONS LIKELY TO DAMAGE THE SPECIAL INTEREST

<u>Standard Ref. No</u>	<u>Type of Operation</u>
1	Cultivation, including ploughing, rotovating, harrowing and re-seeding
2	The introduction of or changes in the greater regime (including type of stock or intensity or seasonal pattern of grazing and cessation of grazing).
3	Changes in stock feeding practice
4	Changes in the mowing or cutting regime (including hay making to silage and cessation).
5	Application of manure, fertilisers and lime
6	Application of pesticides, including herbicides (weedkillers)
7	Dumping, spreading or discharge of any materials
8	Burning
9	The release into the site of any wild, feral or domestic mammal, reptile, amphibian, bird or invertebrate, or any plant or seed
10	The killing or removal of any wild mammal, reptile, amphibian, bird or invertebrate, including pest control
11	The destruction, displacement, removal or cutting of any plant or plant remains, including tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf mould and turf, except in the course of normal woodland management and annual cutting of hay.
12	Changes in tree or woodland management including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management
13a	Drainage (including the use of mole, tile, tunnel or other artificial drains).
13b	Modification of the structure of water courses (eg rivers, streams, springs, ditches, drains) including their banks and beds, as by re-alignment, regrading and dredging.

Standard                      Type of Operation

Ref. No.

- |     |  |
|-----|--|
| 13c | Management of aquatic and bank vegetation for draining purposes  |
| 14  | The changing of water levels and tables and water utilisation (including irrigation, storage and abstraction from existing bodies and though boreholes).   |
| 15  | Infilling of ditches, drains, ponds, pools.  |
| 20  | Extraction of minerals, including sand and gravel, topsoil, sub-soil and lime  |
| 21  | Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground |
| 22  | Storage of materials   |
| 23  | Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.  |
| 26  | Use of vehicles likely to damage or disturb features of interest   |
| 27  | Recreational or other activities likely to damage features of interest   |
| 28  | The introduction of or changes in game management and hunting practice   |

This letter of consent is not legally valid until one copy has been signed AND returned to the Nature Conservancy Council.

Name of site:           Brasenose Wood and Shotover Hill, Oxfordshire

The City Secretary and Solicitor  
Oxford City Council  
St Aldates Chambers  
St Aldates  
OXFORD  
OX1 1DS

Nature Conservancy Council  
Foxhold House  
Crookham Common  
Newbury  
Berks  
RG15 8EL

(This form should be signed, where indicated, by the Nature Conservancy Council and the above-named owner or occupier of the site to give effect to the notice and consent provisions of Section 28(5) and (6) of the Wildlife and Countryside Act 1981.)

Specified operations:

Extent, level and timing of operations which the owner or occupier proposes to carry out or permit to be carried out or permit to be carried out from the date of notification, in agreement with the Nature Conservancy Council:

- A. Any operation carried out in accordance with a current Management Plan approved by the Nature Conservancy Council.
- B. The following operations, for a five year period commencing on the date of notification:
- 1 Clearance of vegetation and rotovation, in an area not exceeding 2 ha., for planting and cultivating native heather species (Calluna vulgaris, Erica tetralix or E. cinerea).  
Scuffling and harrowing of pebble tracks in Brasenose Wood.
  - 2 Grazing of up to 10 cattle or horses between July and December inclusive in Slade Field (between Brasenose Wood and the bypass).
  - 3 Stock feeding using hay in Slade Field.
  - 4 The cutting of hay in Slade Field after 1st July each year.  
Amenity mowing on Shotover Plain, part of May Sadlers field and along footpaths and rides after 1st July each year.
  - 6 The application of Asulam (mixed with Actipron) to control bracken. The application of Glyphosate or Amcide to cut stumps of scrub species.
  - 8 Controlled bonfires.
  - 10 The lawful killing of grey squirrels
  - 11 Flailing of bracken  
Thinning of scrub to create a mosaic of grassland and scrub, and flailing of regrowth.  
Use of a mechanical chipper to remove cut stumps.  
Removal of limbs and trees posing a hazard to the public.  
Hedge-laying and routine trimming.  
Clearance of footpaths.  
Flailing of rides from 1st September each year.
  - 12 Tree planting using native broadleaved species in a 100m strip southeast of the parish boundary between Westhill Farm and the Reservoir Field, and with 1 100m strip west of Blenheim Road.  
Rotational coppicing of hazel.

13b/14 Enlarging wetland areas and raising water levels by damming streams and blocking drainage channels.

Maintenance of principal drains, including clearance of bank vegetation.

21 Construction of wooden walkways over boggy ground.

22 Storage of normal forestry products.

26 Use of normal tractors, trailers and forest machinery.



COUNTY: OXFORDSHIRE      SITE NAME: BRASENOSE WOOD AND SHOTOVER HILL

DISTRICT: OXFORD CITY/SOUTH OXFORDSHIRE

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Oxford City Council/South Oxfordshire District Council

National Grid Reference: SP567058

Ordnance Survey Sheet 1:50,000: 164 (Oxford)      1:10,000: SP 50 NE SP 50 SE

Date Notified (Under 1949 Act):      Date of Last Revision

Date Notified (Under 1981 Act): 1986      Date of Last Revision

Area:      109.5 ha 270.6 ac

Other Information: The site is managed by Oxford City Council as a Country Park

#### Description and Reasons for Notification:

Brasenose Wood has a well defined coppice-with-standards structure and is one of the few English woods which is still actively managed by this traditional method. The greater part of the wood is an ancient remnant of Shotover Forest with a documented history dating back to the thirteenth century. The wood lies on poorly-drained Kimmeridge clays but oolitic limestone occurs close to the south western boundary and the presence of lime-loving plants suggests that it outcrops elsewhere in the wood. The flora is exceptionally rich for a wood of this size with 221 recorded vascular plant species including 46 which are characteristic of ancient woodland.

The canopy consists mainly of mature pedunculate oak. Field maple is widespread but nowhere abundant. There are several clones of aspen and, in common with other remnants of Shotover Forest, wild cherry is frequent. Smaller amounts of silver birch, beech, rowan and yew occur but standard ash trees are confined to Open Brasenose, a wood of relatively recent origin derived from an open common. The coppice layer is dominated by hazel with abundant blackthorn, hawthorn, Midland hawthorn, crab apple, field maple, dogwood, ash, holly and elm suckers. Smaller number of guelder rose, wayfaring tree and spindle are found in the southern part of the wood. The field layer is rich and varied, the composition of which is dependent on the stage of coppicing. Bramble dominates broad areas of recent coppice but in suitable places plants such as goldilocks buttercup (*Ranunculus auricomus*), orpine (*Sedum telephium*), nettle-leaved bellflower (*Campanula trachelium*), spurge laurel (*Daphne Lareola*), blackcurrant (*Ribes nigrum*), wood meadow-grass (*Poa nemoralis*) and bearded couch (*Elymus caninus*) occur. In recently cleared areas, plants such as henbane (*Hyoseyamus niger*) and deadly nightshade (*Atropa belladonna*) may flourish for a short time.

Further variety is provided by a network of sinuous rides, with glades at the intersections, and two small ponds. Open Brasenose has a different structure from the main body of the wood,

characterised by narrow, close-necked stems and few open areas. Open Magdalen is of similar composition and recent origin, but both of these woods are sufficiently close to the ancient wood to have developed a relatively rich flora and fauna. Brasenose Wood is a promising site for invertebrates and the blackthorn thickets and hedges along the northern and southern perimeter are the main habitat and foodplant of the rare Black Hairstreak butterfly. The nesting bird population is dense with an estimated average of 225 pairs representing 34 species within the 55 acres of ancient woodland. They include grasshopper warbler and tree pipit, both scarce species in the Oxford area. The Slade Camp fields are good examples of unimproved neutral or slightly acidic grassland managed for hay and pasture. Large numbers of butterflies and day-flying moths use the fields and they contain a wealth of wild flowers including characteristic species of clay soils such as grass vetchling (*Lathyrus nissolia*) and smooth tare (*Vicia tetrasperma*) as well as naturalised aliens such as goat's-rue (*Galega officinalis*) and the rare tuberous pea (*Lathyrus tuberosus*).

Shotover Hill provides one of the few extensive examples of unimproved acidic grassland and heath in Oxfordshire. Only a small area (1-2 acres) of heather-dominated vegetation now remains and elsewhere former heathland and bog has been replaced by bracken, birch and gorse. Current management aims at reinstating some of the former heathland area. The grassland is maintained as a short sward by rabbit-grazing and human trampling, and the dry, sandy soils, support a rich flora of annuals such as bird's-foot (*Ornithopus perpusillus*), knotted clover (*Trifolium stratum*), slender trefoil (*T. micranthum*), Knawel (*scleranthus annuus*), early hair-grass (*Aira praecox*) and squirrel-tail fescue (*Vulpia bromoides*). The vegetation of Shotover has been studied by botanists for the past three hundred years and some of Britain's earliest scientific collections were made here.

The sheltered open swards, sandy banks, scrub woodland, wet flushes and streambanks of Shotover Hill are of outstanding entomological interest. A substantial number of rare species occur here, particularly among the diptera (true flies) and aculeates (bees, wasps and ants). The recorded total of 174 aculeate species is one of the highest in Britain and although many of these have not been seen in recent years, the area is still an important one. Shotover Hill is also of local importance for breeding and wintering birds.

### 2.1.3. Site definition and boundaries

The letters refer to Fig. 11 Boundary Description.

A-B : a thick, overgrown hedge possessing a wide range of woody species.  
Privately-owned arable and pasture fields to the north.

B-C : a thin, regularly cut hedge. Privately owned field to the north.

D-E : a thin, regularly cut hedge. Oxford City owned arable field to the south.

E-F : gappy fence with some shrubs and bramble thickets alongside Oxford City owned arable field to the north and east.

F-G : rustic wooden fence with some trees and stretches of hedge alongside Green Lane leading to Horspath village.

G-H : line of mature oaks alongside drive to private dwelling.

H-J : mixed fencing (some post and wire, some larch lap) around garden

J-K : post and wire fencing alongside thicket.

K-L : post and wire fencing alongside pasture field.

L-M : ditch and thicket alongside Oxford city owned arable field.

M-N : stone wall and post and wire alongside Westhill Farm

N-O : ditch alongside Oxford city owned arable field.

O-P : overgrown hawthorn hedge alongside Oxford city owned arable field (to the east) and privately owned paddock (to the west).

P-Q : post and wire fence around privately owned gardens to the south and west.

Q-R : post and wire fence alongside The Ridings.

R-S : post and wire fence alongside privately owned gardens to the north.

S-T : post and wire fence alongside Oxford Preservation Trust owned pasture field to the north.

T-U : chain link fence alongside Water Authority pasture field to the north.

U-V : chain link fence (dilapidated) alongside Eastern By Pass.

V-W : chain link fence alongside allotments to the south.

W-X : ditch and post and wire fence alongside Oxford City owned pasture field to the south.

X-Y : mixed hedge and ditch alongside Oxford city owned arable fields to the north.

Y-Z : post and wire rail alongside private gardens to the north

Z-T : mixed hedge alongside The Ridings to the north.

FIGURE 12

BOUNDARY DESCRIPTION

## 2.2.1 EVALUATION

Size : the country park occupies much of the south facing slope of Shotover Hill and at 126 ha is a substantial block of Oxfordshire Countryside. The woodland, scrub and bracken habitats are represented in large blocks; the acid and neutral grassland are adequate in size; but the heath and marsh components are smaller than is ideal.

Diversity : the country park possesses an intimate mosaic of habitats and there is food structural diversity within each habitat. Heath and marsh are lacking in structural diversity at present and the establishment of a bog community at Shotover would add to the overall diversity.

Naturalness : all of the country parks habitats have been substantially modified by man over many centuries and in that sense this cannot be considered natural.

Some of the woodlands have been in their present condition for several centuries and that fact, coupled with the country park's "natural aspect" make it appear natural to most visitors.

Rarity : neutral meadows and acid grassland may be defined as rare habitats in that they occur in less than 10,000 ha in England, Scotland and Wales. There are many records of rare flora and fauna listed in the following section.

Fragility : in general Shotover Country Park is not particularly fragile in that it is able to accept large numbers of visitors without unacceptable amounts of damage. However, heath, marsh and acid grassland are fragile in the sense that if unmanaged they would deteriorate within about 10 years, and wetland habitats in the country park are damaged by pressure from people and domestic animals.

Typicalness : little at Shotover can be considered as typical of Oxfordshire's countryside.

Recorded history : few sites can have been as well recorded over three centuries as Shotover.

Potential value : the possible expansion of existing rare habitats at Shotover, as well as the potential for recreating a bog, indicates that there is further potential to be realised in terms of both a varied site for recreation and a rich site for nature conservation.

Intrinsic appeal : the high numbers of visitors to Shotover suggests that it does possess considerable intrinsic appeal.

## 2.2.2. Identification of Important Features

(An assessment of features now lost is included in Appendix 16 and definition of Red Data Book (RDB) categories in Appendix 17.)

FEATURE	STATUS		
	National	Regional	Local
Ash-maple woodland		*	
Wet ash-maple woodland	*		
Acid pedunculate oak-hazel-ash woodland	*		
Lowland hazel-pedunculate oak wooded	*		
Secondary woodland			
Heath		*	
Scrub		*	
Bracken			*
Acid grassland	*		
Neutral grassland		*	
Marsh		*	
VASCULAR PLANTS			
<u>Salix aurita</u>			*
<u>Trifolium striatuus</u>			*
<u>Hypericum humisfusum</u>			*
<u>Epilobium palustre</u>			*
<u>Epipaetis purirata</u>			*
<u>Sedum telephium</u>			*
FUNGI			
Boletus pulverilentus			*
<u>B. edulis</u>			*
Clavaria vermiculata			*
Russula betularum			*
R. sororia			*
COLEOPTERA			

<i>Cicindela campestris</i>	*	
<i>Rhizophagus nitidulus</i>	* (Notable)	
<i>Agapanthea villosivirdescens</i>	* (Notable)	
<i>Phyoecia cylindrica</i>	* (Notable)	
<i>Pterosticlus oblongopunctatus</i>	* (Notable)	
<i>Horpalus azureus</i>	* (Notable)	
<i>Agathidium convexum</i>	* (Notable)	
<i>Colon brunneum</i>	* (Notable)	
<i>Phloeostiba plana</i>	* (Notable)	
<i>Bolitobius inclinans</i>	* (Notable)	
<i>Aleochara ruficornis</i>	* (Notable)	
<i>Meligethes fulvipes</i>	* (Notable)	
<i>Micrambe villosus</i>	* (Notable)	
<i>Caenoscelis ferruginea</i>	* (Notable)	
<i>Pyrochroa coccinea</i>	* (Notable)	
<i>Bruchus rufipes</i>	* (Notable)	
<i>Chrysolina methastri</i>	* (Notable)	
<i>Phytodecta decemnotata</i>	* (Notable)	
<i>Altica brevicollis</i>	* (Notable)	
<i>Anthonomus ulmi</i>	* (Notable)	
DIPTERA		
<i>Empis borealis</i>	* (Notable)	
<i>Stratiomys potamida</i>	* (RDB 3)	
<i>Gloma fuscipennis</i>		* (Notable)
<i>Oxycera rara</i>		* (Notable)



Lucilla bufonivora		* (Notable)
Calliopum elisae		*
Clusiodes facitatis		* (Notable)
LEPIDOPTERA		
Strymonidia prunis	* (RDB 4)	
Theala betulae		* (Notable)
Apatura iris		* (Notable)
Nymphalis polychloros	* (RDB 1)	
BIRDS		
Hawfinch		*

### 2.2.3. The site in wider perspective and implications for management.

Shotover Country Park represents less than 50% of the public open space owned by Oxford City Council, but the local scarcity and quality of most of Shotover habitats indicate the importance of their conservation.

### 2.2.4. Specified limits (areas given in ha)

<u>Habitat</u>	<u>Present Level (approx)</u>	<u>Min. acceptable</u>	<u>Max. acceptable</u>	<u>Significant considerations</u>
Coppiced woodland	25	25	25	Existing area about right
Mixed woodland	42	42	42	Existing area about right
Heath	0.5	1	5	Some expansion desirable
Bracken	20	5	15	Some contraction desirable
Acid grassland	10	10	15	Existing area acceptable but at lower limit
Neutral grassland	7	7	7	Existing area about right
Scrub	20	15	20	
Marsh	1	3	5	Some expansion desirable
Bog	0	0.5	1	Some expansion desirable

### 2.2.5 Ideal management objectives

All surviving semi-natural habitats at Shotover should be conserved with special attention given to the regionally scarce heathland and wetland habitats.

- (a) to maintain a mosaic of semi-natural habitats at Shotover
- (b) to maintain populations of rare plants and animals
- (c) to facilitate recreational and education use of the site in a way designed to ensure minimum damage to the country park.

## 2.3 Factors influencing management

### 2.3.2 Natural Trends

As with all of Oxfordshire the natural process of succession will tend towards woodland over the whole country park.

### 2.3.2 Man-induced trends

Increased leisure time is likely to result in more visitors in years to come.

### 2.3.3 External Factors

Reduction in agricultural chemical application and industrial air pollution would result in some improvements to the existing habitats at Shotover. The cessation of domestic effect on its ecology.

### 2.3.4 Obligations

Under the terms of the Wildlife and countryside Act 1981 (as amended) owners and occupiers of SSSIs are required to give the Nature Conservancy Council at least 4 months written notice of an intention to carry out a Potentially Damaging Operation.

As owners of the land the Council is subject to the Owners Liability Acts 1957 and 1984. This imposes a duty on the Council to take reasonable care to see that visitors to the area will be safe.

Southern Gas and Thames Water have wayleave agreements to enable them to keep their pipelines clear.

The arable fields within the Country Park are held by Mr R Walker of Horspath on a "year-to-year" agricultural tenancy, and as such he is protected under the Agricultural Holdings Acts.

As part of the purchase agreement for Brasenose Wood, Oxford City agreed that "The piece of land marked Brasenose Wood .... shall for ever be kept and used as woodland and no timber be felled .... unless it is in the interests of good forestry."

The gift of 183 acres of land from the Oxford Preservation Trust (1952) was on the following conditions:-

- (a) The land must only be used for the purposes of an open space or park in its natural state to which the public may be allowed access.
- (b) The Council must not use the land on any other manner or at any time erect buildings of any kind on the property. However any land suitable for agricultural use may be used as such without breaking the conditions.

An agreement exists with Oxford University which gives the Council the right to manage Shotover Plain and Johnson's Piece. Conditions imposed on the Council by the agreement are:-

- (a) The Council must employ a suitable person to be warden of the lands.
- (b) Any land not used for agricultural purposes shall be kept open to the public and the Council will control public access to the land.
- (c) The Council must maintain the lands in good condition. As the Council's role is to manage the lands anything which falls outside that role will need express permission from the University.

### 2.3.5 Manpower constraints

At present the Oxford City Council Countryside Team consists of 5 people who spend about 50%-60% of their time at Shotover Country Park. A substantial number of volunteers help with informal wardening and occasional work parties.

## 2.4 Operational objectives and management options

2.4.1 Statement of aims. (No priority is intended in the list of Statement of Aims)

### A Recreation

To provide a recreational resource for local residents and for other visitors. As stated in Oxford City Council's Equal Opportunities Policy.

### B Species and habitat conservation

To manage the land at Shotover Country Park in such a way to conserve and where possible enhance the wildlife

### C Amenity

To provide an area of visual beauty and general attractiveness for visitors and passers by.

### D Historical conservation

To recreate and conserve aspects of land use previously found at Shotover.

### E Education

To provide an educational resource for local residents and school children

### F Income

To continue to take opportunities for income generation where they are not inconsistent with any of A-E (above).

## 2.4.2 Operational objectives

### Conservation of features

- A Brasenose Wood: maintenance of uneven aged mixed standards over rotational coppice.
- B Open Brasenose: allow natural increase in structural and compositional diversity through non-intervention.
- C Magdalen Wood: selective felling to give mixed age high forest structure.
- D Heathland: increase to 3 ha by active management.
- E Marsh: increase to 3 ha by active management.
- F Plantations: thin to provide mixed, native deciduous woodland
- G Acid grassland: prevent scrub incursion by cutting if necessary
- H The Larches: continue felling blocks of mature trees and replacing with mixed plantings
- I Westhill Wood: retain the existing species mix but aim for a greater structural and age diversity
- J Scrub: maintain and enhance the variety of scrub stands
- K Neutral grassland: conserve existing areas of neutral grassland
- L General: The visitor numbers at Shotover approximately doubled over the period 1979-87. Accompanying this increase in numbers has been a substantial increase in litter and rubbish dumping, an increase in “new” paths and a slight increase in erosion on some paths. There is little evidence of other damage to wildlife by visitor numbers at the 1987 level.
- There is a possibility that any future dramatic increase in visitor numbers (not anticipated at present) would seriously damage the fabric of Shotover’s countryside and any such development will be strenuously resisted.
- M Provision of facilities: Investigate the possibilities for provision of a visitor centre at Shotover Country Park.
- N To be aware of the danger of “overcivilisation” of Shotover’s Countryside. Too many man-made structures could spoil the special attraction of the country park.

- O To provide sufficient car parking to cope with existing numbers (1988) but to be aware of the dangers of (O).
- (P) Draft bye-laws designed to assist control of nuisance activities, awaiting confirmation by the Home Office are appended (Appendix 15).

## **PART THREE PRESCRIPTIONS (PROJECTS)**

### 3.1 Conservation of Features

#### Brasenose Wood

- BRAS1 Maintenance of uneven aged mixed standards by selective felling of over-represented age classes in some years, and by planning if natural regeneration fails to provide young.
- BRAS2 Maintenance of active coppicing policy (see Fig 13 for details) based on an 8-15 year cycle.
- BRAS3 The density of coppice stools (especially hazel) to be increased by propagation from existing stock (upper limit of 500 stools per acre).
- BRAS4 Exclusion of selection NI (see Fig 14) from coppice rotation.
- BRAS5 One or two "habitat piles" of dead wood (neatly stacked) to be left each year to provide shelter and home for a dead wood community.
- BRAS6 Monitor growth of coppice after deer browsing damage; to be aware of the possible need to fence if damage becomes too severe.
- BRAS7 Maintenance of varied ride structure with widths varying from 2-10m. Failing scrubby edge on alternate years.
- BRAS8 Annual cut in November of ride centres and "picnic areas".
- BRAS9 Connect the widest north-south wide to the ride system in the Slade camp (North) plantation.
- OPBR1 Allow natural increase in structural and compositional diversity through non-intervention.
- OPBR2 Maintain peripheral bridle path to 4m wide.
- OPBR3 Pollard crack willows along southern perimeter very 15 years or so. (See Fig 15)
- OPBR4 Manage blackthorn thickets on 100 year coppice rotation to maintain suitable habitat for black hairstreak (see Fig 16)

#### Magdalen Wood:

- MAGD1 Aim at a varied-structure high forest woodland by selective felling every five years or so.
- MAGD2 Cut existing rides annually in October and November.

FIGURE 13

BRASENOSE WOOD - COPPING DATES



FIGURE 14

BRASENOSE WOOD COMPARTMENT EXCLUDED FROM COPPING REGIME

FIGURE 15

OPEN BRASENOSE - CRACK WILLOWS, POLLARDS

FIGURE 16

OPEN BRASENOSE  
BRASENOSE MANAGEMENT F  
BLACKTHORN THICKET

FIGURE 17

SHOTOVER COUNTRY PARK  
PLANTATIONS

FIGURE 18

SHOTOVER COUNTRY PARK  
HEATHLAND

### The Larches:

- LARC1 Fell remaining larches (except see LARC3) in three blocks (1990, 1993, 1996) and replant immediately following each felling.
- LARC2 Replant with larch, Scots pine, beech, oak and wild cherry in grow tubes
- LARC3 Leave occasional clumps of larch to overmature.
- LARC4 Once established thin to achieve an uneven-aged stand of trees to avoid the necessity for any future clear felling.

### Westhill Wood:

- WEST1 Maintain a mixed woodland but aim for a greater structural and age diversity by the selective felling (especially of dangerous trees) and underplanting.

### Plantations (Figure 16)

- PLAN1 Replace vandalised or dead trees and grow tubes as and when identified.
- PLAN2 Leave growtubes until they wear out (3-5 years)
- PLAN3 Thin trees as necessary when the canopy begins to close, selectively removing any non-native tree species

### Heathland: Encourage heathland in 4 areas (See fig 18)

- HEAT1 Increase extent of heather dominated habitat by propagation from existing stock
- HEAT2 Control competing plants (e.g. bracken, silver birch, brambles) as necessary and by appropriate means
- HEAT3 Leggy stands of heather will need trimming

### Marsh Conserve and increase existing areas of marsh (Figure 19)

- MARS1 Cutting invasive woody plants every five years or so
- MARS2 Investigating the possibility of further local damming to slightly increase the area of marsh.

Acid grassland Conserve existing areas (Figure 20) by

- ACGR1 Cut for hay or forage harvest Mary Sadler's field and Shotover Plain annually (mid-July).
- ACGR2 Monitor other areas of acid grassland and prevent further regression to scrub by cutting if necessary.
- ACGR3 Investigate the possibility of sheep grazing some areas of acid grassland.
- ACGR4 Investigate the possibility of scarification of small patches of acid grassland to see whether viable seeds from extinct plants can be activated.

Neutral grassland Conserve existing areas (Figure 21) by

- NEUT1 Taking an annual hay crop (after 1 July) from Slade Camp (South).
- NEUT2 Investigating the possibility of grazing (cattle, horses or sheep) Slade Camp South as happened in 1975-85.
- NEUT3 Cutting the grass in Slade Camp North each October.

Scrub (Figure 22) Aim at a variety of Scrub types by

- SCRB1 Allowing some stands (e.g. those marked 1) to develop naturally into woodland without interference
- SCRB2 To investigate long term rotational cutting for those areas of hawthorn-dominated scrub (marked 3) with the aim of retaining scrub of all age-classes.
- SCRB4 To leave those areas of scrub marked 4 to develop along natural lines but to be aware that some management may eventually be necessary in the light of experience gained from SCR1-SCR3.

Ponds

- POND1 Make more permanent the pond to the south at Open Brasenose by damming as soon as the necessary drainage works alongside the Brasenose Allotments can be accomplished.

Hedges

- HEDG1 Flail every three years the hedges marked on Figure 23 alongside the access to Westhill Farm.
- HEDG2 Lay the hedge running NW from Westhill from (Figure 23).

FIGURE 19

SHOTOVER COUNTRY PARK  
MARSH



## General projects

- GENE1 Maintain existing range of paths and rides by (1) keeping the firebreaks paths at 8m wide (Figure 24), monitoring erosion on problem paths, mowing a small number of well used paths where long grass is a problem and leaving all minor paths.
- GENE2 Investigate the feasibility and advisability of recreating an area of bog habitat in Shotover Country Park.
- GENE3 Control sycamore in areas such as Brasenose Wood, Johnson's Piece and Holme Ground, with no control in the east of Horspath Common.
- GENE4 Pollard crack willow pollards every 15 years or so (Holme Ground, Open Brasenose).
- GENE5 Investigate the possibility of a regular survey of visitors to Shotover Country Park using schools or similar organisations.
- GENE6 Monitor any damage to Shotover's countryside and make any necessary adjustments to control damage.

## 3.2 **Provision of Facilities**

- FAC1 1 Maintain existing facilities Wcs, nature walks, orienteering course, horse riding tracks, car park, information boards, picnic benches (2) and Junior Ranger Club at their 1987 level.
- FAC1 2 Continue to investigate any opportunity for the provision of a modest visitor centre at Shotover Country Park.
- FAC1 3 To monitor the use of Shotover Country Park for events (Cross Country races, Orienteering competition, fun runs) and to resist any substantial escalation in the numbers of these activities.
- FAC1 4 To provide a small car park at the edge of the Country Park (Bullington Green).

FIGURE 20

SHOTOVER COUNTRY PARK  
ACID GRASSLAND

FIGURE 21

SHOTOVER COUNTRY PARK  
NEUTRAL GRASSLAND

FIGURE 22

SHOTOVER COUNTRY PARK  
SCRUB

FIGURE 23

SHOTOVER COUNTRY PARK  
HEDGE MANAGEMENT

FIGURE 24

SHOTOVER COUNTRY PARK  
FIREBREAKS

## 3.3

**SHOTOVER COUNTRYPARK WORK PLAN 1988-94)**

<u>PROJECT NO</u>	<u>1987-88</u>	<u>1988-89</u>	<u>1989-90</u>	<u>1990-91</u>	<u>1991-92</u>
BRAS 1					
BRAS 2					
BRAS 3					
BRAS 4					
BRAS 5					
BRAS 6					
BRAS 7					
BRAS 8					
BRAS 9					
OPBR 1					
OPBR 2					
OPBR 3					
OPBR 4					
MAGD 1					
MAGD 2					
LARC 1					
LARC 2					
LARC 3					
LARC4					
WEST 1					
PLAN 1					
PLAN 2					
PLAN 3					
HEAT 1					
HEAT 2					
HEAT 3					
MARS 1					
MARS 2					
ACGR 1					
ACGR 2					
ACGR 3					
ACGR 4					
NETU 1					
NEUT 2					
NEUT 3					
SCRB 1					
SCRB 2					
SCRB 3					
SCRB 4					
POND 1					
HEDG 1					
HEDG 2					
GENE 1					
GENE 2					
GENE 3					

GENE 4  
GENE 5  
FACI 1  
FACI 2



## Appendix 1 Birds

**Little grebe** (*Tachybaptus ruficollis*). Little grebes breed in small numbers on some of Shotover's Hill's large ponds and have been seen in the Country Park.

**Grey heron** (*Ardea cinerea*). Herons are often seen flying over Shotover but as the nearest heronry is some miles away Shotover must be on a regularly used flight path.

**Mallard** (*Anas platyrhynchos*). Mallards breed on some of Shotover's larger ponds and occasionally roost on even the smaller ponds in the Country Park.

**Rough-legged Buzzard** (*Buteo laeops*). A single record (14th October 1973) exists for this uncommon visitor to Britain.

**Sparrowhawk** (*Accipiter nisus*). Although they usually nest in conifers, sparrowhawks are now so common in the county that they nest in oaks at Shotover. They feed mainly on smaller birds. Between 1955 and 1965 the numbers of sparrowhawks in Britain crashed dramatically. This crash was connected to the increased use in agriculture of toxic chemical sprays and in particular chlorinated hydrocarbons. The early 1980s have seen an equally dramatic increase in sparrowhawk numbers in Oxfordshire following the decreased use of these chemicals 3 or 4 pairs in the Country Park.

**Hen harrier** (*Circus cyaneus*). Last recorded at Shotover on 24th January 1921, hen harriers are regularly seen near Oxford in winter. 200 years ago hen harriers bred in Southern England but their numbers fell dramatically in the early 1900s and for a while they bred only in the Orkneys.

**Hobby** (*Falco subbuteo*) This attractive falcon is a summer visitor from Africa and it is only present in its restricted breeding area for 5 months of the year. These birds are the last of the summer migrants to be seen at Shotover where, although they do not nest, they may occasionally be seen on their extended hunting trips searching for large insects and hirundines.

**Kestral** (*Falco tinnunculus*). Kestrels feed mainly on rodents, short-tailed voles in particular, and they will often be seen quartering the ground and hovering in search of prey two or three pairs breed in the Country Park.

**Partridge** (*Perdix perdix*) The native grey partridge may occasionally be seen in the fields and open woods on the slopes of the hill, where breeding probably occurs but has not been proven.

**Red legged partridge** (*Alectoris rufa*) Introduced in the nineteenth century, red-legged partridges are now commoner than grey partridges at Shotover.

**Pheasant** (*Phasianus colchicus*). Pheasants were probably introduced to England by the Normans in the eleventh century and became widespread by the sixteenth century. There are several active pheasant shoots near Oxford where birds are reared in large numbers for sport - Woodeaton, Long and Noke woods are all used for pheasant rearing. They occur in small numbers in the Country Park.

**Moorhen** (*Gallinula chloropus*). Moorhens are the commonest breeding waterbirds at Shotover. These familiar birds nest near almost all of Shotover's ponds, including those within the Country Park.

**Coot** (*Fulica atra*). Coots are a familiar feature of Shotover's larger ponds and small lakes, but they have been seen occasionally in the Country Park.

**Snipe** (*Gallinago gallinago*) The harsh December of 1981 saw a snipe feeding on Brasenose pond for about one week.

**Woodcock** (*Scolopax rusticola*). This beautiful wader is not known to breed at Shotover, probably because there is not a sufficiently extensive tract of woodland. However, woodcock are regularly seen in woodland when they stop off on winter migration.

**Lesser black-backed gull** (*Larus fuscus*) and **herring gull** (*Larus argentatus*). These gulls are often seen overhead and following the plough on the lower slopes of the hill.

**Black-headed gulls** (*Larus ridibundus*) are rarely seen overhead.

**Feral pigeon** (*Columba livia*) Feral pigeons are closely related to the wild rock doves which are now only found in West Scotland and Ireland. Feral pigeons are semi-domesticated birds which until the time of the Napoleonic Wars were an important element of the rural economy. These birds nest in outbuildings at Shotover and are frequently seen feeding on arable fields in the Country Park.

**Wood pigeon** (*Columba palumbus*) Wood pigeons are serious agricultural pests which consume large quantities of grain. They breed in abundance at Shotover, and their white wing-bars and wing-clapping display flights are frequently seen.

**Stock dove** (*Columba oenas*) Stock doves nest in tree holes, unlike the other British pigeons and doves. Their far-carrying but soft song and their display flights make these doves easy to locate.

**Turtle dove** (*Streptopelia turtur*) The purring song of this migrant dove is reminiscent of high summer. One or two pairs nest in the scrub of Shotover's hillside but the numbers are less than might be expected. This probably reflects the shortage of weed seeds, the staple food of the turtle dove, in the agricultural fields nearby.

**Collared dove** (*Streptopelia decaocto*) This handsome dove has only bred in this country since 1955 and in this county since 1962, but it has increased in numbers since then. Collared doves feed mainly on grain and other seeds and they may be seen feeding in allotments and large, private gardens at Shotover.

**Cuckoo** (*Cuculus canorus*). The strange breeding habits of this species are well known but it is less well known that females lay from 12-25 eggs per season, each in a different nest. Dummock and robin are probably the commonest hosts at Shotover. Cuckoos are becoming scarce over the country as a whole and nowadays they are rarely seen in woodland.

**Barn owl** (*Tyto alba*) This beautiful owl has not been seen at Shotover in recent years although breeding was suspected on the north side of the hill in 1961. Indeed barn owls have

become scarce near Oxford over the past five years with many birds disappearing from established territories.

**Little owl** (*Athene noctua*) Not indigenous to Britain, little owls were initially released in Kent in the 1870s and in other parts of the country in succeeding years. These small owls nest in tree holes in hedgerow oaks and elms on the lower slopes of the hill. They feed on a wide variety of animal life including small mammals, birds and insects and have been seen following the plough at Shotover.

**Tawny owl** (*Strixaluco*) Several pairs of tawny owls breed at Shotover, nesting in tree holes. Newly emerged owlets may be seen sitting together on a branch near the nest hole in April and May. The well known hooting of this species may be heard at night throughout the autumn and winter.

**Nightjar** (*Caprimulgus europaeus*) Typically a bird of dry, sandy heaths, there has been a widespread and drastic decline in nightjar numbers since the end of the nineteenth century. This decline is still progressing and so, although a nightjar was recorded at Shotover in 1936, it is unlikely that they will return in the near future.

**Swift** (*Apus apus*) Although they are not known to breed on the hillside, parties of screaming swifts are a common and familiar sight in summer as they feed on insects high over Shotover.

**Green Woodpecker** (*Picus Viridis*) 3-4 pairs nest on Shotover Hill and such a high density suggests that the habitat is very suitable with a combination of mature oaks for nesting and

open ground for insect feeding. It is a very noisy bird and its loud, laughing cry gives rise to its country name of 'yaffle'.

**Green spotted woodpecker** (*Dendrocopos major*) Great spotted woodpeckers are most likely to be seen in the vicinity of mature trees because they feed on bark insects. A loud drumming noise, produced by repeatedly hammering the beak against the wood, is their substitute for a territorial song. Several pairs of these attractive woodpeckers nest at Shotover although the felling of the last dead elm trees reduced their food supply.

**Lesser spotted woodpecker** (*Dendrocopos minor*) These sparrow sized woodpeckers are much less common than the other two species. A single pair is often seen in Brasenose Wood and Johnson's Piece and occasionally in the other Shotover Woods.

**Woodlark** (*Lullula arborea*) Woodlarks bred near Shotover Plain from 1949-1956. Since the 1950s there has been a rapid contraction of the woodlark's range in Britain. The possible reasons for this are the shortage of close cropped grass following the results of myxomatosis and the preponderance of cool, wet summers in the 1950s and 1960s.

**Skylark** (*Alauda arvensis*) The skylark is the most widely distributed of the British birds but few pairs nest at Shotover. One pair bred in Slade Camp (south) 1977-79.

**Swallow** (*Hirundo rustica*) The arrival of the swallow early in April is a herald of spring. Their nests are almost always attached to man-made structures and they are one of the species that are far more abundant now than in the days before man.

**House martin** (*Delichon urbica*) These attractive little martins are frequently seen feeding with swallows at Shotover, but although many apparently suitable house eaves are available none have been seen nesting.

**Carrion crow** (*Corvus corone*) The crow's solitary nest perched high in oak trees is a common sight at Shotover. They feed on a wide variety of animal matter including eggs and young nestling birds.

**Rook** (*Corvus frugilegus*) These noisy, gregarious birds were common near Open Brasenose until 1978 when their elm-tree homes were felled, having succumbed to Dutch Elm Disease. Since then they are seen much less often and there is no rookery on the hillside.

**Jackdaw** (*Corvus monedula*) These largely insectivorous birds with their conspicuous grey napes are abundant at Shotover breeding both in tree holes and in chimneys.

**Magpie** (*Pica pica*) Between 10 and 15 pairs of magpies nest in the thorn bushes of Shotover and flocks of up to 15 birds may be seen feeding on open ground. During the nineteenth and early twentieth centuries magpies suffered greatly from keeping because, although they feed mainly on invertebrates and berries, they do occasionally take eggs and young birds.

**Jay** (*Garrulus glandarius*) This large, brightly coloured bird is common in coppice-with-standards woodland in Britain. 3-4 pairs nest in Brasenose Wood and it is thought that these birds help to propagate oaks by bury acorns.

**Great tit** (*Parus major*) The loud, ringing 'tee-cha' song of the great tit is a common and unmistakable sound at Shotover. These rather quarrelsome tits nest in tree holes and often feed on the ground.

**Blue tit** (*Parus caeruleus*) Blue tits are abundant at Shotover. The large number of mature oaks provide ideal conditions both in terms of invertebrate food and nesting holes.

**Coal tit** (*Parus ater*) The song of these small tits may be confused with that of the great tit but the smaller tits are more numerous in the vicinity of Shotover's conifers, feeding on insects amongst the needles, they do nest in the exclusively deciduous Brasenose Wood.

**Marsh tit** (*Parus palustris*) Several pairs of marsh tits breed at Shotover and silver birches are often chosen for nesting. These noisy birds sing loudly in early spring and their 'pitchou' calls ring throughout the woods.

**Willow tit** (*Parus montanus*) Willow tits look very similar to marsh tits and the small morphological differences are difficult to pick out in the field. Willow tits excavate their own nest holes, unlike marsh tits, and consequently chips of wood will be found under the nest. The willow tit is much quieter than the marsh tit, its piping song is rarely heard but it does produce a distinctive nasal buzzing sound. Fewer willow than marsh tits breed at Shotover.

**Long-tailed tit** (*Aegithalos caedatus*) Unlike tits of the genus *Parus* the long tailed tit builds a nest in a bush consisting of moss, cobwebs, hair, lichen and feathers. These beautiful birds have unusual breeding behaviour and often several birds attend a single nest.



**Nuthatch** (*Sitta europaea*) These noisy, rather quarrelsome birds may be heard singing throughout the spring in some of Shotover's woodlands. They feed on bark insects and nuts, and penetrate acorns by wedging them in tree bark and then using their powerful bills to break the shells. The remains of these nuts may be found in the ridged oak bark.

**Treecreeper** (*Certhia familiaris*) Like the previous species the treecreeper spends most of its time looking for insects on tree bark. Being small and drably coloured and having a rather thin song, they are not often seen but are more numerous than nuthatches at Shotover.

**Wren** (*Troglodytes troglodytes*) The loud, vehement song of the wren may be heard from early spring until the end of summer and is a familiar sound at Shotover. Like all small birds, wrens suffer greatly in cold winters but the recent succession of mild winters has allowed them to increase in numbers.

**Mistle thrush** (*Turdus viscivorus*) The loud fluted song of the mistle thrush, uttered from a high perch, may be heard from late December until June. They are one of the earliest species to lay and they usually have a second brood.

**Fieldfare** (*Turdus pilaris*) Fieldfares are winter visitors and their harsh flight calls are frequently heard over Shotover. They feed in small flocks on open fields on the lower slopes. Fieldfares breed in Scandinavia and the Baltic region but their range is extending westward.

**Song thrush** (*Turdus philomeios*) The common bird has a well known song which includes many repeated phrases which assist recognition. At Shotover song thrushes are about as

common as the related mistle thrush, but over the country as a whole song thrushes are by far the more numerous.

**Redwing** (*Turdus lilacus*) Redwings are winter visitors to Oxfordshire. They nest in Scandinavia and in recent years they have started to breed in Scotland in small numbers. At Shotover, flocks of redwings may be seen feeding in haws or rustling in leaf litter looking for invertebrate food.

**Blackbird** (*Turdus merula*) One of our most familiar birds, blackbirds are abundant at Shotover. Their beautiful, melodic song is best heard early in the morning and at dusk, and their churring alarm call is often heard during the daytime.

**Wheatear** (*Oenanthe oenanthe*) Wheatears are typically birds of remote uplands but a few pairs breed in Southern England in areas where grazing by sheep and rabbit maintains a short sward. A report in the 1931 bulletin of the Oxford Ornithological Society states that "... many years ago Wheatears bred at Shotover but they have long since ceased to do so". This report suggests that Shotover was once rather more of a remote upland than it is today. Wheatears are still seen occasionally on brief stop-overs on spring and autumn passage.

**Stonechat** (*Saxicola torquata*) Stonechats breed in rough country with gorse, heather or bracken and close-cropped grass. Stone chats bred at Shotover in 1889, 1935 and 1936 but there has been no nesting in recent years. Few inland heaths support many stonechats but they are occasionally seen at Shotover during the winter months.

**Whinchat** (*Saxicola rubetra*) Whinchats are heathland birds which are more common on inland heaths than the related stonechats. Whinchats bred regularly at Shotover until 1958 and we must assume that their departure was caused by the diminution of their heathland habitat.

**Redstart** (*Phoenicurus phoenicurus*) Redstarts are uncommon breeding birds in Oxfordshire, although these attractive summer visitors are abundant in parts of Scotland and Wales. Redstarts were recorded at Shotover in 1939 and 1952.

**Nightingale** (*Luscinia megarhynchos*) The magnificent song of the nightingale may be heard in some years at Shotover but in other years it is absent. Nightingales were recorded in 1934, 1937, 1943, 1945, 1947, 1948, 1950, 1952, 1955, 1965 and 1978 but they were absent in 1975, 1976, 1977, 1979 and 1982. The population of nightingales in Britain is declining and as Oxford is near the north west limit of their breeding range it is not too surprising that their occurrence is sporadic. A recent study has shown that a rich and constantly changing ground flora is a common component of nightingale territories, and this is most likely to occur where coppice-with-standards is being actively managed. Optimum habitat occurs when the coppice is 5-8 years old. It is likely that the decline in nightingale numbers is caused by a decrease in coppicing.

**Robin** (*Erithacus rubecula*) This, the best known and most loved of British birds, is abundant at Shotover. Their song may be heard throughout the year but at about the time that the young are fledged the song changes and becomes more melancholic, as if mourning the passing of spring.

**Grasshopper warbler** (*Locustella naevia*) Grasshopper warblers depend on thick, low, tangled vegetation for nesting and their distinctive, reeling song may be heard at a distance of up to 1Km. They breed in small numbers at two places on the lower slopes of the hill.

**Blackcap** (*Sylvia atricapilla*) The rich and beautiful song of the blackcap rivals that of the nightingale and blackbird, and the latter is usually uttered from a high perch. In recent years there has been a trend for some blackcaps to overwinter in Britain and some have been seen visiting bird tables near Shotover. Ringing studies have shown that these winter blackcaps are eastern European birds which migrate here in October and November. Unlike most warblers blackcaps will take fruit if insects are in short supply and it is probably this adaptability which enables them to survive our winter.

**Garden warbler** (*Sylvia borin*) The song of the garden warbler is similar to that of the blackcap and the two are often difficult to distinguish. Garden warblers were much scarcer than blackcaps at Shotover in the period 1975-1983 but in 1927 they were reported to be “remarkably numerous” in Johnson’s Piece.

**Whitethroat** (*Sylvia communis*) Several pairs of whitethroat nest at Shotover. They choose a thorn thicket for nesting and the presence of nearby open grassland seems to be desirable.

**Lesser whitethroat** (*Sylvia curruca*) This skulking bird nests in thick scrub and Shotover provides a good deal of suitable habitat. The lesser whitethroat’s presence is confirmed by its distinctive but unmelodic, rattling song which is reminiscent of the first part of the chaffinch’s song.

**Willow warbler** (*Phylloscopus trochilus*) With its familiar descending trill of silvery notes the willow warbler is a welcome spring arrival to Shotover. In 1959 it was estimated that there were 100 pairs and the population has changed little since then.

**Chiffchaff** (*Phylloscopus collybita*) The reiterated song notes of the chiffchaff are penetrating and heard all over the hillside during the spring. The chiffchaff, like most other warblers, is cryptically coloured to avoid predation, but to ensure that a mate is found has a loud and penetrating song.

**Wood warbler** (*Phylloscopus sibilatrix*) Wood warblers are strictly confined to mature deciduous woodland. They are uncommon breeders in Oxfordshire but they do nest sporadically at Shotover, being recorded in 1945, 1949, 1971, 1972 and 1975. In 1979 a male sang in Brasenose Wood but it did not breed.

**Goldcrest** (*Regulus regulus*) This tiny bird nests in small numbers in Shotover's conifers but may be seen feeding in deciduous trees.

**Firecrest** (*Regulus ignicapillus*) Firecrests were first known to have bred in England in 1962 and since then their range has expanded. As their song, appearance and habitat is similar to that of the goldcrest they are easily overlooked. The first confirmed sign record for Shotover was in a small, young larch plantation near Westhill Farm in spring 1983.

**Spotted flycatcher** (*Musicapa striata*) Spotted flycatchers are one of the last summer migrants to arrive. They have a dull plumage and a thin song but the aerobatic forays for food quickly reveal the flycatchers presence.

**Pied flycatcher** (*Ficedula hypoleuca*) Pied flycatchers, which breed in north and west Britain, have been heard singing twice at Shotover (1981, 1983) for short periods.

**Dunnock** (*Prunella modularis*) Dunnocks are abundant at Shotover and although they are visually inconspicuous, may be easily recognised by their fast, rather squeaky song.

**Tree pipet** (*Anthus trivialis*) In recent years tree pipits have become scarce as breeding birds in Oxfordshire. They were recorded at Shotover in 1934, 1951, 1958 and 1960 (4 pairs) but they had disappeared by 1962. Breeding had ceased in Sydling's Cope by the mid 1970s. In 1979 a male was seen performing its characteristic aerobatic display in Slade Camp north but it did not breed.

**Pied wagtail** (*Motacilla alba*) Pied wagtails are not often seen at Shotover because of the preponderance of woodland and scrub and lack of more suitable wet habitats. However, a few pairs breed regularly near to fresh water.

**Grey wagtail** (*Motacilla cinera*) Grey wagtails breed near freshwater streams and rivers. A pair has been seen in several occasions in the vicinity of the ponds in Shotover Spinney but breeding has not been confirmed.

**Red-backed shrike** (*Larius collurio*) Red-backed shrikes have been declining in range and number in Britain for over 100 years and they are now extremely scarce breeders.

Red-backed shrikes bred in Johnson's Piece in 1930 and in Open Brasenose in 1944 but have not been recorded since.

**Starling** (*Sturnus vulgaris*) Starlings are abundant at Shotover nesting in large numbers in both tree holes and outbuildings. These familiar birds have a disarming ability to mimic other bird songs, such as the green woodpecker, and even sounds such as the screeching of car brakes.

**Hawfinch** (*Coccothraustes coccothraustes*) This large, heavy billed finch is extremely elusive as it is shy, does not have a distinctive song and spends its time high in the deciduous tree canopy. It was recorded at Shotover in 1927, 1936 and 1937.

**Greenfinch** (*Carduelis chloris*) Greenfinches nest in small numbers in the scrub at Shotover but they are more numerous in peripheral gardens where they frequently visit bird tables. Their bat-like display flight and characteristic nasal 'dszwee' call make greenfinches easily recognised.

**Goldfinch** (*Carduelis carduelis*) Goldfinches feed on weed seed and in autumn they are fond of thistle and knapweed seedheads. They have a characteristic twittering flight call which resembles that of a linnet but their brightly coloured plumage is quite distinctive.

**Siskin** (*Carduelis spinus*) Siskins breed in the conifer forests of Northern Scotland but they are occasionally seen feeding in mature conifers at Shotover. They are usually to be seen in flocks of redpolls with which they may be confused.

**Linnet** (*Acanthis cannabina*) Linnets feed on weed seeds and so are usually to be found in small colonies in gardens on the periphery of Shotover and in particular on allotments. Their cheerful twittering song is especially welcome in summer when birdsong is at a premium.

**Redpoll** (*Acanthis flammea*) Small flocks of redpolls are regularly seen at Shotover, both in mature conifers and in deciduous woodland, but breeding has not been confirmed.

**Bullfinch** (*Pyrrhula pyrrhula*) Shotover's blackthorn scrub provides ideal nesting sites for this attractive finch. Bullfinches are serious pests in some places because of their habit of eating fruit blossom buds, but they cause no problems in their natural woodland edge habitat.

**Crossbill** (*Loxia curvirosta*) The crossbill's specially adapted beak, with the tips of the hooked mandibles overlapping, enables it to extract seeds from cones. Crossbills breed in Northern Scotland and a few scattered southerly localities, but occasionally great numbers of immigrants are seen in this country. When these eruptions occur birds are usually seen at Shotover and flocks were recorded in 1929, 1936 and 1963.

**Chaffinch** (*Fringilla coelebs*) The widespread and abundant chaffinch breeds in woodland and scrub at Shotover having spent most of the winter in fields around the hill. Its cheerful, rollicking calling with a distinctive final flourish is a welcome addition to the woods in spring.



**Brambling** (*Fringilla montifringilla*) Bramblings do not breed in this country but are winter visitors. They resemble the related chaffinch in many ways but have a prominent white rump. Bramblings are seen in small numbers at Shotover each winter.

**Corn bunting** (*Emberiza calandra*) Corn buntings have been heard singing from hedgerows in arable fields below Shotover and breeding is probable. An interesting feature of the breeding biology of this species is that an individual male supports several females.

**Yellowhammer** (*Emberiza citrinella*) The gorse of Shotover Hill and the hedgerows of the lower fields provide nesting sites for this familiar and attractive bunting. Their well known 'little-bit-of-bread-and-no-cheese' song may be heard from February until August.

**Reed bunting** (*Emberiza schoeniclus*) These pretty, black-headed buntings are occasionally seen feeding at Shotover and they breed in some of the wet areas.

**House sparrow** (*Passer domesticus*) House sparrows are commensal with man and are found breeding in large numbers in most of Oxfordshire's buildings. Although rarely seen away from domestication, they do feed in small flocks in the woods when insect food is abundant.

**Tree sparrow** (*Passer montanus*) Similar to the house sparrow except for its chestnut head, tree sparrows are easily overlooked. Breeding was reported at Shotover in 1960, 1962, and 1965 but has not been confirmed in recent years.

Nomenclature after Sharrock J.T.R. (1977) The Atlas of Breeding Birds in Britain and Ireland. T & A D Poyser.

## Appendix 2 Mammals

**Hedgehog** (*Eranaceus europaeus*) This unmistakable animal is regularly seen in the gardens surrounding Shotover, and as a road casualty. Hedgehogs are entirely nocturnal, which accounts for the comparatively few sightings.

**Mole** (*Talpa europaea*) Fresh mole-hills, which are recently excavated soil from mole's underground burrows, are a common sight over Shotover Hill and the surrounding woodlands.

**Common shrew** (*Sorex araneus*) Shrews are active throughout the day and night and take a wide range of invertebrates with beetles and earthworms forming a major part of their diet. They are found throughout Shotover and are frequently killed by domestic cats.

**Pygmy Shrew** (*Sorex minutus*) Pygmy shrews which occur in good numbers at Shotover are difficult to distinguish from common shrews but they are slightly small in size, have a proportionately longer tail and a more uniform coloration.

**Water Shrew** (*Neomys fodiens*) Water shrews may be recognised by their black upper parts and by the red tips to their teeth. They have been taken from the Slade Camp north and are not as dependent on water as their name suggests.

**Bats** (Chiroptera) The most spectacular behavioural characteristic of bats is undoubtedly their development of sonar. Most British bats find their way predominantly by echolocation, emitting high-pitched sounds at about 80,000 cycles per second and interpreting the reflected soundwaves to distinguish between obstacles to flight and prey. Bats present problems of identification and they need to be hand held for positive determination. Many bats have been

seen at Shotover but the only species which has been identified with reasonable certainty is the pipistrelle (*Pipistellum pipistrellum*) which is a small bat seen flying at dusk. Bats larger than pipistrelles have been seen which may be noctules (*Nyctalus noctula*).

**Rabbit** (*Oryctolagus cuniculus*) Rabbits were introduced to Britain in the twelfth century for their meat and fur but did not become widely established until much later. The Shotover rabbit population was decimated in 1954 by the arrival of myxomatosis, a viral disease transmitted by the rabbit flea. At Shotover the number of rabbits present remains very variable and the observed population crashes may still be connected with myxomatosis. Rabbits have an important influence on vegetation. Their close grazing maintains a short sward which favours fine leaved grasses and prevents the establishment of scrub. Many scrub thickets can be dated to the early 1950s and can therefore be directly attributed to the onset of myxomatosis.

**Hare** (*Lepus capensis*) Hares have been declining in Oxfordshire in recent years. Near Shotover they are scarce and are only found in any quantity near Beckley close to Stowood and Sydling's Copse. Shallow depressions where they lie up may be found in rough grassland and the woodland edge.

**Grey Squirrel** (*Sciurus carolinensis*) Grey squirrels were introduced to Britain from USA in 1876 and were introduced in Oxfordshire between 1890 and 1905. Grey squirrels are abundant in woodland at Shotover where they feed on tree mast, seeds, leaves and fungi. They also take bark from distorted growth, and for this reason are regarded by many as pests.

**Red squirrel** (*Sciurus vulgaris*) Prior to the introduction of the grey squirrel, red squirrels were common in Oxfordshire but their numbers declined dramatically to extinction between 1910 and 1925. An endemic virus carried by the grey squirrel has been postulated as the cause of the red squirrel's demise. However, marked fluctuations in the numbers of red squirrel were observed prior to the introduction of the grey squirrel, and it may be that the main influence of the latter is to prevent recolonization of the native red squirrel.

**Bank vole** (*Clethrionomys glareolus*) Bank voles are abundant in Shotover's woodland where they feed on fruits, seeds and leaves. They feed during the daytime and so are more likely to be seen than mice or shrews, from which they may be distinguished by their blunter muzzles.

**Field vole** (*Microtus agrestis*) One of the commonest and most widespread of British rodents, field voles are abundant in grassland at Shotover. Like the bank vole they are active throughout the 24 hours and so may be seen during the daytime.

**Wood mouse** (*Apodemus sylvaticus*) The wood mouse is the characteristic rodent of deciduous woodland living in small runways beneath the litter. Wood mice are nocturnal and so are not often seen.

**Harvest Mouse** (*Micromys minutus*) The harvest mouse is the smallest British rodent weighing only 6 grams when adult. They are easily distinguished by their size, their small hairy ears and blunt muzzle. Harvest mice have been seen on the periphery of Brasenose Wood but probably occur over much of Shotover. Their nests may be found in the stalks of vegetation well above ground level.

**House Mouse** (*Mus musculus*) House mice are not easy to distinguish from wood mice but they have a greyer-brown coloration and a characteristic 'stale' smell not found in wood mice. They have been found in Britain since the Iron Age but it is thought that they are not truly native. They are abundant in the houses and outbuildings at Shotover and are found in smaller numbers away from habitation.

**Common rat** (*Rattus norvegicus*) The common rate is thought to have been introduced to Britain in the early years of the eighteenth century when it replaced the ship rat (*R. rattus*) which had been present for hundreds of years. Rats are an important vector of human disease. At Shotover they are associated with large gardens and domestic animals.

**Fox** (*Vulpes vulpes*) The familiar fox is common at Shotover but because of its nocturnal habits is not often seen. Foxes are opportunists which regularly scavenge in suburban housing estates, such as Wood Farm and Headington Quarry, but they prefer woodland for their earths. Foxes are predators and scavengers and as such have an important function in the natural community. The fox's mating season is January and February and vixens may be heard screaming at this time. This screaming is an eerie and rather frightening noise reminiscent of a child crying.

**Stoat** (*Mustela erminea*) Stoats are larger than the closely related weasels and may be recognised with certainty by the black tip to their tail. Stoats are efficient predators able to take prey as large as rabbits although they also take birds and small rodents. Since mycomatosis the stoat population has declined dramatically and they are rarely seen at Shotover.

**Weasel** (*Mustela nivalis*) Weasels are much more common than stoats at Shotover.

Weasels feed primarily on small rodents, bank voles in particular, but they also take small birds. Family parties of weasels are occasionally seen in May, with the young following a parent in a line.

**Badger** (*Meles meles*) For such a large animal badgers are rarely seen, feeding only at night and spending the daylight hours in their sets. There are five known sets at Shotover but a careful search might well reveal more. Badger's prints, which are easily distinguished from other mammals, show that they forage a long way from their nests.

**Feral cat** (*Felis* sp.) Cats of domestic origin living in the wild are an underrated source of predation on rodents and small birds. Although there are no packs of feral cats at Shotover several individuals have been seen.

**Fallow deer** (*Dama dama*) Fallow deer were probably introduced to Britain by the Normans but remains have been found from the last interglacial period. These large deer are common in extensive areas of woodland near Oxford, such as Wytham Woods and Bernwood Forest.

**Roe deer** (*Capreolus capreolus*) Roe deer became virtually extinct in England by the beginning of the eighteenth century and the present population in South England is the result of later introductions. Roe deer were certainly present at Shotover in medieval times. There has been one recent doubtful sighting at Shotover but as roe deer are extending their range from strongholds in Surrey and Sussex, it will be interesting to see whether they eventually return to Oxfordshire.

**Muntjac** (*Muntiacus reevesi*) Muntjac are the commonest deer at Shotover. They are easily recognised by their small size, rounded back and the males by their rusks and simple antlers. Asian in origin, muntjac escaped from Woburn deer park in about 1900. Muntjac are also called barking deer because of their habit of making loud, barking noises in the rutting season.



## Appendix 3 Odonata

### Coenagridae

Ischnura elegans  
Coenagrion puella

### Gomphidae

\*Gomphus vulgatissimus

### Aeshnidae

Aeshna grantis  
A. juncea  
A. mixta

### Libellulidae

Libellula depressa  
Sympetrum striolatum

## Appendix 4 Butterflies

### Hesperiidae

Thymelicus sylvestris Small skipper

Ochlodes venata Large skipper

### Pieridae

Gonepteryx rhamni The brimstone

Pieris brassicae Large white

P. rapae Small white

P. napi Green-veined white

Anthocharis cardamines Orange tip

Colias croceus Clouded yellow

### Lycaenidae

Quercusia quercus Purple hairstreak

Strymonidia pruni Black hairstreak

Callophrys rubi Green hairstreak

\*Thecla betulae Brown hairstreak

Lycaena phlaeas Small copper

Polyommatus icarus Common blue

Celastrina argiolus Holly blue

### Nymphalidae

Vanessa atalanta Red admiral

Cynthia cardui Painted lady

Ladoga camilla White admiral

Apatura Iris Purple emporor

Aglais urticae	Small tortoiseshell
*Nymphalis polychloros	Large tortoiseshell
Inachis io	Peacock
*Boloria euphrosyne	Pearl-bordered fritillary

Styridae

Lasiommata megera	The wall
Pararge aegeria	Speckled wood
Melanargia galathea	Marbled white
Pyronia tithonus	Hedge brown
Maniola jurtina	Meadow brown
Aphantopus hyperantus	Ringlet
Coenonympha pamphilus	Small heath

\* Species not recorded since 1980

Nomenclature after Bradley, J.D. and Fletcher, D.S. (1979)

British Butterflies and Moths. Curwen Books.

## Appendix 5 Moths

### Hepialidae

Helpialus humuli	Ghost
H. sylvina	Orange swift
H. lupulinus	Common swift

### Cossidae

Aeuaera pyrina	Leopard moth
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### Zygaenidae

Aygaeba fukuobdykae	Six-spot burnet
Z. Ionicerae	Narrow-bordered five-spot burnet
*Procris statices	The forester (3 July 1971)

### Lasiocampidae

Philudoria potatoria	The drinker
Malacosoma neustria	Lackey
Poecilocampa populi	December moth

### Drepanbidae

Cilix glaucata	Chinese character
Drepana binaria	Oak hook-tip
D. falcataria	Pebble hook-tip

### Thyatiridae

Tethea ocularis	Figure of eighty
Achlya flavicornis	Yellow-horned
Habrosyne pyritoides	Buff arches
Thyatira batis	Peach blossom

Geometridae

Archiearis parthenias	Orange undrwing
Alsophila aescularia	March moth
Pseudopteryphina pruinata	Grass emerald
Geometra papilionaria	Large emerald
Comibaena bajuliara	Blotched emerald
Hemithea aestivaria	Common emerald
Clyclophora punctaria	Maiden's blush
Timandra griseata	Blood-vein
Scopula imitaria	Small blood-vein
Idaea aversata	Riband wave
I. dimidiata	Single-dotted wave
Xanthorhoe ferrugata	Dark-barred twin-spot carpet
X. spadicearia	Red twin-spot carpet
X. fluctuata	Garden carpet
X. montanata	Silver-ground carpet
Scotopteryx chenopodiata	Shaded broad-bar
Epirrhoe alternata	Common carpet
Ecliptopera silaceata	Small phoenix
Eulithis pyrallata	Barred straw

Thera obeliscata	Grey pine carpet
Hydriomena furcata	July high flyer
Odezia atrata	Chimney sweeper
Philereme transversata	Dark umber
Perizoma alchemillata	Small rivulet
Electrophaes corylata	Broken-barred carpet
Camptogramma bilineata	Yellow shell
Cosmorhoe ocellata	Purple bar
Larentia clavaria	Mallow
Lobophora halterata	Seraphim
Eulithis mellinata	Spinach
Operophtera brumata	Winter
Epirrita dilutata	November
Chloroclysta citrata	Dark marbled carpet
C. truncata	Common marbled carpet
Euphithecia centaureata	Lime speck pug
E. icterata	Tawny speckled pug
E. venosata	
Chloroclystis rectangulata	Green pug
C. vata	V-pug
Aplocera plagiata	Treble-bar
Abraxas grossulariata	Magpie
Lomaspilis marginta	Clouded border
Ligdia adjustata	Scorched carpet
Semiothisa wauaria	V-moth

<i>S. clathrata</i>	Latticed heath
<i>Petrophora chlorosata</i>	Brown silver-line
<i>Plagodis dolabraria</i>	Scorched wing
<i>Opisthograptis luteolata</i>	Brimstone
<i>Ennomos alniaria</i>	Canary-shouldered thorn
<i>E. quercinaria</i>	August thorn
<i>E. fuscantaria</i>	Dusky thorn
<i>Selenia dentaria</i>	Early thorn
<i>S. tetralunaria</i>	Purple thorn
<i>Odontopera bidentata</i>	Scalloped hazel
<i>Crocallis elinguaris</i>	Scalloped oak
<i>Colotois pennaria</i>	Feathered thorn
<i>Ourapteryx cambucaria</i>	Swallow-tailed
<i>Agriopsis leucophaearia</i>	Spring Usher
<i>A. marginaria</i>	Dotted border
<i>Erannis defoliaria</i>	Mottled umber
<i>Apochaima pilosaria</i>	Pale brindled beauty
<i>A. hispidaria</i>	Small brindled beauty
<i>Lycia hirtaria</i>	Brindled beauty
<i>Biston betularia</i>	Peppered
<i>B. strataria</i>	Oak beauty
<i>Peribatodes rhomboidaria</i>	Willow beauty
<i>Alcis repandata</i>	Mottled beauty
<i>Serraca pumtinalis</i>	Pale oak beauty
<i>Aethalura punctulata</i>	Grey birch

Cabera exanthemata	Common wave
C. pusaria	Common white wave
Campaea mrgaritata	Light emerald
L. temerata	Clouded silver
Ematurga atomaria	Common heath

### Sphingidae

Laothoe populi	Poplar hawk
Mimas tiliae	Lime hawk
Smerinthus ocellata	Eyed hawk
Deilephila eipenor	Elephant hawk
D. porcellus	Small elephant-hawk
Hemaris fuciformis	Broad-bordered bee hawk

### Notodontidae

Phalera bucephala	Buff tip
Cerura vinula	Puss moth
Furcula furcula	Sallow kitten
Notodonta dromedarius	Iron prominent
Eligmodonta ziczac	Pebble prominent
Pheosia gnoma	Lesser swallow prominent
P. tremula	Swallow prominent
Ptilodon capucina	Coxcomb prominent
Pterostoma palpina	Pale prominent
Drymonia dodonaea	Marbled brown



D. ruficomis	Lunar marbled brown
Clostera curtula	Chocolate tip
Diloba caeruleocephala	Figure of eight

#### Lymantridae

Orgyla antiqua	Vapourer
Dasychira pudibunda	Pale tussock
Euproctis similis	Yellow tail
Leucoma salicis	White satin

#### Arctidae

Nudaria mundana	Muslin footman
Eilema lurideola	Common footman
Arctia caja	Garden tiger
Spilosoma lubricipeda	White ermine
S. luteum	Buff ermine
Diaphora mendica	Muslin moth
Phragmatobia fuliginosa	Ruby tiger
Tyria jacobaeae	Cinnabar

#### Nolidae

Nola cucullatella	Short cloaked
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#### Noctuidae

Euxoa nigricans	Garden dart
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<i>Agrotis segetum</i>	Turnip moth
<i>A. exclamationis</i>	Heart and dart
<i>A. ipsilon</i>	Dark sword-grass
<i>A. puta</i>	Shuttle-shaped dart
<i>Axylia putris</i>	Flame
<i>Ochropleura plecta</i>	Flame shoulder
<i>Noctua pronuba</i>	Yellow underwing
<i>N. comes</i>	Lesser yellow underwing
<i>N. fimbriata</i>	Broad-bordered
<i>N. interjecta</i>	Least broad-bordered yellow underwing
<i>Rhyacia simulans</i>	Dotted rustic
<i>Graphiphora augur</i>	Double dart
<i>Xestia c-nigrum</i>	Setaceous hebrew character
<i>X. triangulum</i>	Double square-spot
<i>X. sexstrigata</i>	Six-striped rustic
<i>X. xanthographa</i>	Square-spot rustic
<i>Naenia typica</i>	Gothic
<i>Cerastis rubricosa</i>	Red chestnut
<i>Hada nana</i>	Shears
<i>Polia nebulosa</i>	Grey archest
<i>Mamestra brassicae</i>	Cabbage Moth
<i>Melanchra persicariae</i>	Dot moth
<i>Laconobia thalassina</i>	Pale-shouldered brocade
<i>L. oleracea</i>	Bright-line brown eye
* <i>Ceramica pisi</i>	Broom moth

Hecatera bicolorata	Broad-barred white
Hadena rivularis	Campion
H. compta	Varied coronet
Cerapteryx graminis	Antler moth
tholera decimalis	Feathered gothic
Orthosis cruda	Small quaker
O. gracilis	Powdered quaker
O. stabilis	Common quaker
O. incerta	Clouded drap
O. munda	Twin-spotted quaker
O. gothica	Hebrew character
Panolis flammea	Pine beauty
Mythinma conigera	Brown-line bright eye
M. ferrago	Clay
M. impura	Smoky wainscot
M. pallens	Common wainscot
Dicertra trifolii	Nutmeg
Brachylomia viminalis	Minor shoulde knot
Cucullia umbratica	Shark
Brachionychia sphinx	Sprawler
Aporophyla lutulenta	Deep-brown dart
Xylocampa areola	Early grey
Allophyes oxyacanthae	Green-brindled crescent
Dichonia aprilina	Merveille du jour
* Antitype chi	Grey chi

<i>Polymixis flavicincta</i>	Large ranunculus
<i>Eupsilia transversa</i>	Satellite
<i>Agrochola lota</i>	Red-line quaker
<i>A. macilenta</i>	Yellow line quaker
<i>A. helvola</i>	Flounced chestnut
<i>A. litura</i>	Brown-spot pinion
<i>A. lychnidis</i>	Beaded chestnut
<i>A. leporina</i>	Miller
<i>Atethmia centrago</i>	Centre barred swallow
<i>Omphaloscelis lunosa</i>	Lunar underwing
<i>Xanthisa aurago</i>	Barred swallow
<i>X. icteritia</i>	Swallow
<i>Acronicta aceris</i>	Sycamore
<i>A. megacehala</i>	Poplar grey
<i>A. psi</i>	Grey dagger
<i>A. rumicis</i>	Knot grass
<i>Cryphia domestica</i>	Marbled beauty
<i>Amphipyra tragopoginis</i>	Mouse moth
<i>A. pyramidea</i>	Copper underwing
<i>Rusina ferruginea</i>	Brown rustic
<i>Thalpophila matura</i>	Straw underwing
<i>Euplexia lucipara</i>	Small angle shades
<i>Phologophora meticulosa</i>	Angle shades
<i>Cosmia trapezina</i>	Dun-bar
<i>C. pyralina</i>	Lunar spotted pinion

Panemeria tenebrata	Small yellow underwing
Apamea monoglypha	Dark arches
A lithoxylaea	Light arches
A. remissa	Dusky brocade
A. unanimitis	Small clouded brindle
A. anceps	Large nutmeg
A. sordens	Rustic shoulder knot
Mesapamea secalis	Common rustic
Oligia strigilis	Marbled minor
O. fasciunaila	Middle banded minor
Photodes minima	Small dotted buff
Eremobia ochroleuca	Dusky sallow
Luperina testaea	Flounced rustic
Hydraecia micacea	Rosy rustic
Amphipoea oculatea	Ear moth
Gortyna flavago	Frosted orange
Charanyca trigrammica	Treble lines
Hoplodrina alsines	The uncertain
Caradrina morpheus	Mottled rustic
C. clavipalpis	Pale mottled willow
Pseudoips fagana	Green silver lines
Bena prasinana	Scarce silver lines
Calistege mi	Mother shipton
Euclidia glyphica	Burnet companion
Diachrysia chrysis	Burnished brass

Polychrysis moneta

Autographa gamma

Golden plusia

Silver Y

## Appendix 6 Flies

### Trichoceridae

\* *Trichocera major*

\* *T. saltator*

*T. annulata*

### Tipulidae

\* *Tipula truncorum*

*T. melgeni*

\* *T. scripta*

\* *T. cava*

\* *T. fascipennis*

\* *T. pellostigma*

*T. varipennis*

\* *Limonia macrostigma*

\* *L. masoni*

*L. nubeculosa*

\* *L. nigropunctata*

\* *L. stigma*

\* *L. autumnalis*

\* *L. modesta*

\* *L. sericata*

*L. tripunctata*

\* *Pseudolimnophila seplum*

- \* *Limnophila ferruginea*
- \* *Pilaria discicollis*
- \* *Erioptera stictica*
- \* *E. griselpennis*
- \* *E. areolata*
- \* *Ormosia bicornis*
- \* *O. hederæ*
- \* *Molophilus flavus*

#### Psychodidae

- \* *Pericoma blandula*
- \* *P. cognata*
- \* *P. gracilis*
- \* *P. neglecta*
- \* *P. pulchra*
- \* *Telmatoscopus ambiguus*
- \* *T. fratercula*
- \* *T. morulus*
- \* *T. soleatus*
- \* *T. rothschildii*
- \* *Mormia caliginosa*

#### Dixiidae

- \* *Dixa maculata*



\* *D. nebulosa*

\* *Dixella aesthivallis*

### Chaboridae

\* *Chaeoborus crystallinus*

### Culcidae

\* *Aedes cantans*

\* *A. rusticus*

\* *A. geniculatus*

\* *A. vexans*

\* *A. cinereus*

\* *Culiseta fumipennis*

\* *C. morsitans*

### Ceratopogonidae

\* *Forcipomyia brevipennis*

\* *Atrichopogon appendiculatus*

\* *A. minutus*

\* *Dasyhelea notata*

\* *D. scutellata*

\* *Culicoides obidilis*

\* *C. pictipennis*

\* *Palpomyia fulva*

\* *P. nemorivaga*

\* *Bezzia flavicornis*

### Chironomidae

\* *Tanypus punctipennis*

\* *Ablabesmyia phatta*

\* *Cricotopus reversus*

\* *C. sylvestris*

\* *Orthocladus obtexens*

\* *Glyptotendipes pallens*

### Anisopodidae

*Sylvicola cinctus*

### Bibionidae

\* *Bibio lanigerus*

\* *B. lepidus*

\* *B. marci*

*B. nigriventris*

*B. pomonae*

*B. reticulatus*

### Mycetophilidae

\* *Bolitophila saundersi*

\* *B. hybrida*

\* *Symmerus annulatus*

- \* *Macrocera stigmoides*
- \* *M. vittata*
- \* *Orfelia flava*
- \* *Mycomya winnertzi*
- \* *Apolephthisa subincana*
- \* *Boletina gripha*
- \* *Rymosia bifida*
- \* *Exechia dorsalis*
- \* *E. fusca*
- \* *E. parva*
- \* *Allodia lugens*
- \* *Cordyla fissa*
- \* *Dynatosoma fuscicornis*
- \* *Mycetophila curviseta*
- \* *M. stolidia*
- M. fungorum*
- \* *Zygomyia notata*
- \* *Sceptonia concolor*
- \* *S. nigra*
- \* *Platurocypta punctum*
- \* *P. testata*
- Tetragoneum sylvatica*

#### Scatopsidae

- \* *Reichertella geniculata*

### Cecidomyiidae

\* Planetella extrema

\* P. funestra

### Stratiomyidae

\* Beris clavipes

\* B. fuscipes

\* B. geniculata

\* Oxycera formosa

O. pulchella

\* Microchrysa cyaneiventris

\* Sargus splendens

\* Stratiomys furcata

S. potamida

### Rhagionidae

\* Rhagio lineola

R. scolapaceus

### Sciaridae

Trichosia viatica

### Tabanidae

\* Hybomtra micans

### Asilidae

- \* *Asilus crabroniformis*
- \* *Dysmachus trigonus*
- \* *Neoitamus cyanurus*
- \* *Leptogaster guttiventris*
- \* *Dioctria atricapilla*
- \* *D. baumhaueri*

### Therevidae

- \* *Thereva plebeia*

### Bombylidae

- \* *Bombylidae canescens*
- B. major*

### Empididae

- \* *Drapetis nigrifella*
- \* *D. ehippiata*
- \* *D. graminum*
- \* *Tachydromia connexa*
- \* *Platypalpus calceatus*
- P. agilis*
- \* *P. candicans*
- P. ciliaris*

\* *P. coarctatus*

\* *P. exilis*

\* *P. fasciatus*

\* *P. flavicornis*

*P. longiseta*

\* *P. maculipes*

\* *P. niger*

\* *P. nigritarsis*

\* *P. optivus*

\* *P. pallipes*

\* *P. pictitarsis*

\* *P. pulicartus*

\* *P. ruficornis*

\* *P. verralli*

*Bicellaria nigra*

*B. pilosa*

\* *B. sulcata*

\* *Trichonomya flavipes*

\* *Trichina flavipes*

*Oedalea flavipes*

*O. holmgreni*

\* *Microphorus holesericeus*

*Gloma fuscipennis*

*Hybos caliciformis*

*H. cuculiformis*

\* *Rhamphomyia dentipes*

\* *R. tarsata*

\* *R. variabilis*

*R. anomalipennis*

\* *R. flava*

\* *R. nigripennis*

\* *R. hybotina*

\* *Empis nigratarsis*

*E. chioptera*

\* *E. concolor*

\* *E. digramma*

\* *E. punctata*

*E. aestiva*

*E. tessellata*

*E. grisea*

*E. albinervis*

*E. livida*

*E. praevia*

*E. planetica*

*Tachypeza nubila*

\* *Hilara chorica*

\* *H. cornicula*

\* *H. curtisi*

\* *H. flavipes*

\* *H. griselfrons*

H. interstincta

\* H. litorea

H. anglodanica

\* Heleodromia immaculata

\* Chelipoda vocatoria

Phyllodromia melanocephala

\* Chelifera precatoria

\* Dolichocephala guttata

\* D. irrorata

\* D. ocellata

Trichoopeza longicornis

#### Dolichopodidae

\* Dolichopus picipes

\* D. trivialis

D. tertivus

\* Hercostomus nigripennis

\* Hydrophorus litoreus

\* Raphium appendiculatum

\* R. auctum

\* R. caliginosum

\* R. commune

Sciapus piatypterus

\* Syntormon monilis

\* S. pallipes



\* *Sympycnus aenicoxa*

\* *S. desoutteri*

### Phoridae

*Gymnophora arcuata*

*G. quartomolis*

*Diplonevra funebris*

*D. nitidula*

*D. florea*

\* *Megaselia campestris*

\* *M. pleuralis*

\* *M. minor*

*M. altiflons*

*M. brevicostalis*

*M. giraudil*

*M. longiscostalis*

*Phora edentata*

### Lonchopteridae

*Lonchoptera lutea*

### Pipunculidae

\* *Verrallia aucta*

\* *V. pilosa*

\* *Pipunculus thomsoni*

- \* *Cephalops furcatus*
- \* *C. semiflumosus*
- \* *Eudorylas fuscipes*
- \* *E. terminalis*
- \* *E. zonatus*

### Syrphidae

*Syrphus ribesli*

- \* *Epistrophe nitidicollis*

*E. elegans*

*E. grossulariae*

- \* *Dasysyrphus albostriatus*

- \* *Leucozona laternarius*

*L. lucorum*

- \* *Melangyna labiatarum*

- \* *M. lasiophthalma*

- \* *M. umbellatarum*

- \* *M. cincta*

- \* *Parasyrphus punctulatus*

*Xanthogramma citrofasciatum*

*X. pedissequum*

- \* *Meliscaeva auricollis*

*M. cinctella*

- \* *Sphaerophoria scripta*

*Episyrphus balteatus*

*Rhingla campestris*

\* *Crysotoxum arcuatum*

\* *Baccha elongata*

\* *Platycheirus angustatus*

\* *P. discimanus*

*P. manicatus*

\* *P. peltatus*

*P. scutatus*

\* *Paragus tibialis*

\* *Pipiza bimaculata*

\* *P. fenestrata*

\* *Pipizella maculipennis*

\* *Parapenium flavitarsis*

\* *Cheilisia bergenstammi*

\* *C. honesta*

\* *C. impressa*

\* *C. intonsa*

\* *C. proxima*

\* *C. scutellata*

\* *C. soror*

\* *C. vermalis*

\* *C. vulpina*

\* *Ferdinanda cuprea*

\* *Chrysogaster chalybeata*

\* *C. solstitialis*

- \* *C. virescens*
- \* *Leojogaster splendida*
- \* *Orthonerva splendens*
- \* *Eumerus strigatus*
- \* *Volucella inanis*
- \* *Sericomyia silentis*
- \* *Criorhina asilica*
- \* *C. berberina*
- \* *Merodon equestris*
- \* *Helophilus hybridus*
- \* *H. parallelus*
- \* *Erastralinus sephulchralis*

*Eristalis pertinax*

*E. tenax*

*El. arbustorum*

*Xylota segnis*

### Conopidae

- \* *Conops ceriaeformis*
- \* *C. flavipes*
- \* *C. quadrifasciata*
- \* *Physocephala rufipes*
- \* *Myopa buccata*
- \* *M. fasciata*
- \* *M. polystigma*

- \* *Thecophora atra*
- \* *Sicus ferrugineus*

### Tephritidae

- \* *Rhagoletis alternata*
- \* *Chaetosomella onotrophes*
- \* *Terellia serratulae*
- \* *Dithryca guttularis*
- \* *Oxyna parietina*
- \* *Tephritis cometa*
- \* *T. hyoscyami*

### Platystomatidae

- \* *Rivellia syngenesiae*

### Ottidae

- \* *Ulidia erythrophthalma*
- \* *Herina frondescentiae*
- \* *H. germinationis*
- \* *H. lugubris*

### Micropezidae

- \* *Micropeza cirrigiolata*
- \* *Calobata ephippium*

## Psilidae

\* *Loxocera albisetata*

\* *Psila atra*

## Chamaemyiidae

\* *Chamaemyla fasciata*

\* *C. polystigma*

## Lauxaniidae

\* *Trigonometopus frontalis*

\* *Minettia fasciata*

*M. longipennis*

\* *M. plumicornis*

\* *M. rivosata*

\* *Sapromyza bipunctata*

\* *S. obsoleta*

\* *Peplomyza litura*

\* *Aulogastromyza anisodactyla*

\* *Lyciella decempunctata*

\* *L. decipiens*

*L. pallidiventris*

*L. rorida*

\* *Homoneura tesquae*

*C. geniculatum*

### Heleomyzidae

\* *Suilla bicolor*

*S. affinis*

*S. pallida*

*S. fuxicornis*

*S. variegata*

\* *Allophyla atricornis*

\* *Eccoptomera microps*

\* *E. ornata*

\* *Scoliocentra scutellaris*

### Sepsidae

\* *Saltella sphondylli*

\* *Themira annulipes*

\* *Sepsis punctum*

### Sciomyzidae

\* *Pherbelia albocostata*

\* *P. dorsata*

\* *P. dubia*

\* *P. pallidiventris*

\* *P. scutellaris*

\* *P. ventralis*

*Coremacera tristis*

- \* *Dichetophora obliterata*
  - \* *Elgiva sundewalli*
  - \* *Hydromya dorsalis*
  - \* *Tetanocera ferruginea*
- Cortemera marginata*

### Sphaeroceridae

- \* *Sphaerocera denticulata*
  - \* *S. pallidiventris*
  - \* *Coproyza flavipennis*
  - \* *C. costalis*
  - \* *C. uncinata*
- C. nitida*
- \* *Leptocera appendiculata*
  - \* *L. bifrons*
  - \* *L. denticulata*
  - \* *L. flavipes*
  - \* *L. vitripennis*
  - \* *L. ochripes*
  - \* *L. lugubris*
  - \* *L. pseudolugubris*
- L. pullula*
- L. fenertralis*



### Pallopteridae

\* *Palloptera arcuata*

\* *P. slatuum*

### Lonchaeidae

\* *Lonchaea fumosa*

\* *L. sylvatica*

### Opomyzidae

\* *Opomyza florum*

*O. geymationis*

### Clusiidae

*Clusiodes facialis*

### Carniidae

\* *Meonura flavifacies*

### Anthomyzidae

*Paranthomyza nitida*

### Asteiidae

\* *Leiomyza laevigata*

### Camillidae

\* *Camilla glabra*

### Ephyridae

\* *Athyroglossa glabra*

\* *Discomyza incurva*

\* *Psilopa nitidula*

\* *Trimerina madizans*

\* *Notiphila cinerea*

\* *Philygria posticata*

\* *P. stictica*

\* *Nostima picta*

\* *Parydra fossarum*

\* *Hyadina guttata*

\* *H. nitida*

\* *Pelina aenea*

\* *P. aenescens*

\* *Limnellia quadrata*

\* *Scatophila caviceps*

\* *S. variegata*

### Diastatidae

\* *Campichoeta obscuripennis*

\* *Diastata fuscula*

\* *D. inornata*

\* *D. unipunctata*

### Drosophilidae

- \* *Scaptomyza graminum*
- \* *D. obscura*
- \* *D. tristis*

### Milichiidae

- \* *Madiza glabra*

### Agromyzidae

- \* *Melanagromyza cunctans*
- \* *Liriomyza orbona*
- \* *Cerodontha luctuosa*
- \* *C. hammi*
- C. hennigi*

### Chloropidae

- \* *Dicraeus raptus*
- \* *D. tiabilis*
- \* *D. vagans*
- \* *Elachiptera megaspis*
- E. cornuta*
- \* *E. luberculifera*
- \* *meromyza saltatrix*

- \* *M. variegata*
- \* *Lasiosina approximatonevis*
- \* *Cetema myopina*
- \* *Chlorops hypostigma*
- \* *C. rufina*
- \* *C. serena*
- \* *Thaumiomyia hallandica*
- \* *T. trifasciata*

#### Tachinidae

*Ernertia laevigata*

- \* *Alophora obesa*
- \* *Dexia rustica*
- \* *Macquartia tenebricosa*
- \* *Solieria fenestrata*
- \* *S. inanis*
- \* *Elfia cingulata*
- \* *Ceromya monstrosicornis*
- \* *Masicera pavoniae*

#### Sarcophagidae

- \* *Mitogramma germari*
- \* *M. punctatum*

*Sarcophaga vulgaris*

## Calliphoridae

Lucilla caesar

L. illustris

L. sericata

L. bufonivora

Calliphora vicina

C. vomitoria

Pollenia rudis

Phormia terraenovae

Melinda gentilis

## Scathiophagidae

\* Norellisoma lituratum

\* Cordiflura pubera

\* Nanna fasciata

\* N. tibiella

## Anthomyiidae

\* Chiroisia parvicornis

\* Myophina myopina

Pegohlemyia fugax

\* Paraprosalphia billbergi

\* Antomyia imbrida

\* Phorbia sepia

\* Leucophora sociata

- \* *L. spona*
- \* *Delia criniventris*
- \* *D. frontella*
- D. platyura*
- \* *Egle parva*
- \* *Pegomyza praepotens*
- \* *Pegomyua nigrisquama*

### Fannidae

- Fannia armata*
- \* *F. hamata*
- \* *F. mollissima*
- \* *F. mutica*
- \* *F. polychaeta*
- \* *F. scalaris*
- \* *F. serna*
- F. sociella*

### Muscidae

- \* *Thricops nigrifrons*
- T. semicinerea*
- \* *Drymela hamata*
- \* *Ophyra capensis*
- \* *Phaonia incana*
- P. populi*

\* *P. signata*

\* *P. trimaculata*

*P. pallida*

\* *Heline atripes*

\* *H. duplicata*

*H. depuncta*

\* *Hebecnema vespertina*

\* *Mydaea scutellaris*

\* *M. urbana*

\* *Limnophora maculosa*

\* *Lispe tentaculata*

\* *Spanochaeta dorsalis*

\* *Coenosia intermedia*

\* *C. lineatipes*

*C. trigrina*

*Alloeostylus diaphanis*

## Appendix 7 Aculeate Hymenoptera

Systematic list of Aculeate Hymenoptera recorded from Shotover. Many of the records are abstracted from the 'Victoria County History of Oxfordshire' and were compiled between the wars by Prof. O W Richards and the late A H Hamm, when these entomologists were associated with the Hope Department of Entomology. All subsequent records have been added by Mr C O'Toole.

### Dryinidae

- \* *Chelognus cameroni*
- \* *Agonatopoides striatus*

### Bethylidae

- \* *Cephalonomia formiciformis*
- \* *Bethylus cephalotes*
- \* *B. fusicornis*

### Chrysididae

*Hedychridium ardens*

*Chrysis cyanea*

- \* *C. helleni*
- \* *C. ruddi*
- \* *C. pustulata*
- \* *C. viridula*
- \* *Euchroeus neglectus*

*Clepes Semiauratus*

### Tephiidae

- \* *Tiphia minua*



### Mutilidae

\* *Myrmosa atra*

### Sapygidae

*Sapyga quinquepunctat*

### Formicidae

*Myrmica rubra*

*M. sabuleti*

\* *Leptothorax acervorum*

*Formica fusca*

*Lasius flavus*

*L. fuliginosus*

\* *L. mixtus*

*L. niger*

### Pompilidae

\* *Priocnemis agilis*

\* *P. coriacea*

\* *P. gracilis*

\* *P. parvula*

\* *P. pertubator*

\* *P. schioedtei*

*Pompilus cinereus*

\* *Arachnospila spissa*

\* *A. trivialis*

\* *Evagetes cressicornis*

*Anoplius viaticus*

\* *Ceropales maculata*

### Eumenidae

*Odynberus spinipes*

*Gymnomerus laevipes*

\* *Ancistrocerus antilope*

*A. parietinus*

*A. scoticus*

\* *Symmorphus connexus*

*S. gracilis*

\* *S. mutinensis*

### Vespidae

*Vespa crabro*

*Dolichovespula norvegica*

\* *Vespula germanica*

*V. rufa*

*V. vulgaris*

### Sphecidae

*Tachysphex pompiliformis*

*Tryoxylon attenuatum*

*Crabro cribarius*

*Crossocerus palmipes*

\* *C. vagabondus*

\* *C. varus*

*C. dimidiatus*

\* *C. nigritus*

\* *C. capitosus*

*Ectemnius cavifrons*

*E. lapidarius*

*E. sexcinctus*

\* *E. continuus*

\* *E. rubicola*

*Rhopalum clavipes*

*R. coarctatum*

*Oxybelus argentatus*

\* *Mimesa bicolor*

\* *Psenulus atratus*

\* *Spilomena troglodytes*

*Pemphredon lugubris*

\* *Diodontus luperus*

\* *Passaloecus corniger*

\* *P. gracilis*

\* *P. monilicornis*

*Mellinus arvensis*

\* M. sabulosa

\* Nysson dimidiatus

\* N. interruptus

N. spinosus

\* Gorytes quadrifasciatus

G. tumidus

\* Argogorytes fargei

A. mystaceus

Cerceris arenaria

C. rybyensis

### Colletidae

Colletes fodiens

Hylaeus communis

\* H. cornutus

### Andrenidae

\* Andrena alfkenella

\* A. augustior

\* A. spicata

A. barbilabris

A. bicolor

\* A. bimaculata

\* A. bucephata

A. chrysoceles

*A. clarkella*

\* *A. coitana*

\* *A. denticulata*

\* *A. dorsata*

\* *A. flavipes*

\* *A. fucata*

*A. fulva*

*A. haemorrhhoa*

*A. helvola*

\* *A. humilis*

*A. jacobi*

\* *A. labialis*

\* *A. labiata*

\* *A. nigriceps*

\* *A. nigroaenea*

\* *A. niveata*

\* *A. ocreata*

\* *A. praecox*

*A. saundersella*

*A. subopaca*

*A. thoracica*

\* *A. varians*

### Halictidae

*Halictus rubicundus*

H. tumulorum

Ladioglossum albipes

L. calceatum

L. fulvicorne

\* L. laevigatum

\* L. lativentris

L. leucopum

\* L. minutissimum

\* L. parvulum

\* L. punctatissimum

\* L. quadrinotatum

L. smeathmanellum

L. villosulum

\* Sphecodes crassus

\* S. ferruginatus

S. gibbus

\* S. hyalinatus

\* S. miniatus

S. pellucidus

### Megachilidae

Stelis punctatissima

Osmia bicolor

O. pilicornis

O. rufa

\* Hopilitis spinulosa

\* Meagachile circumcincta

M. willoughbiella

\* Coelioxys elongata

### Anthophoridae

\* Nomada fabriciana

\* N. fulvicornis

N. Goodeniana

\* N. leucophthalma

\* N. obtusifrons

\* N. panzeri

\* N. pleurosticta

\* N. ruficornis

\* N. rufipes

\* N. sheppardana

\* N. striata

Anthophora furcata

\* A. retusa

\* Melecta albifrons

### Apidae

Bombus hortorum

B. lapidarius

B. lucorum

*B. pascuorum*

*B. pratorum*

\* *B. ruderatus*

*B. ruderarius*

\* *B. sorensis*

*B. terrestris*

*Psithyrus bohemicus*

*P. campestris*

\* *P. rupestris*

*P. vestalis*

\* Species not recorded since 1980.

Nomenclature after Kloet, G S and Hinks, W D (1978) A checklist of British Insects. 4

Hymenoptera R.E.S.



## Appendix 8

### LIST OF BEETLES

#### Carabidae

Cicindela campestris

Carabus nemoralis

\* C. monillis

\* C. problematicus

Cychrus rostratus

Leistus ferrugineus

L. fulvibarbis

L. rufomarginatus

Nebria berricollis

Notiophilus biguttatus

N. substriatus

\* N. aquaticus

N. palustris

Loricera pillicornis

Clivina fossor

Trechus quadristratus

T. obtusus

T. secalis

\* Dyschirius politus

\* Patrobus atronufus

Asaphidion flavipes

Bembidion tampros

B. properans

B. tetracolum

B. guttula

\* B. nitidus

\* B. articulatum

Pterostichus madidus

P. malenarius

P. oblongopunctatus

P. strenuus

Abax parallelepidius

Calathus piceus

\* C. ambiguus

Agonum albipes

A. assimile

A. viduum

\* Amara tibialis

A. aenea

Harpalus rufipes

H. aenea

H. azureus

\* H. honestus

H. affinis

H. rubripes

H. rufitarsis

Bradycellus harpalinus

B. sharpi

B. verbasci

B. ruficollis

Dromius linearis

\* Badister bipustulatus

\* Panageus Bipustulatus

\* Chlaenius vestitus

\* Lebia chlorocephala

\* Metabletus truncatellus

#### Dytiscidae

\* Agabus didymus

Ilybius fuliginosus

#### Hydrophilidae

\*Cercyon atomarius

\* C. marinus

\* C. unipunctatus

Sphaeridium scarabaeoides

Anaceana globulus

Helophorus grandis

#### Leiodidae

Leiodes dubia

L. parvula

L. calcarata

Anistoma humeralis

Amphicyllis globus

Sciodrepoides watsoni

S. fumata

Agathidium convexum

\* A. rotundatum

Colon brunneum

Nargus wilkini

#### Leptinidae

\* Leptinus testaceus

#### Histeridae

\* Grammostethus marginatus

\* Peranus bimaculatus

#### Silphidae

Nicrophorus humator

N. investigator

N. vespilloides

Silpha atrata

#### Staphylinidae

Micropeplus fulvus  
Megarthrus sinuatocollis  
\* Proteinus crenulatus  
P. brachyptens  
Anthobium atrocephalum  
Olophrum piceum  
Eusphalerum luteum  
Phloeostiba plana  
\* Acidota cruentata  
\* Acrolocha suicula  
\* Philorinum sordidum  
\* Phloeocharis subtilissima  
\* Pseudopsis sulcata  
\* Bledius femoralis  
\* B. gallicus  
\* B. longulus  
\* B. opacus  
Anotylus rugosus  
A. sculpturatus  
Oxytelus sculptus  
\* Oxyporus rufus  
\* Stennus comma  
S. rogeri  
\* Lathrobium geminum  
L. multipunctem

L. brunnipes  
\* Medon castaneus  
\* Scopaeus sulciollis  
\* Rugilus erchsoni  
Othius myrmecophilus  
O. Punctulatus  
O. angustus  
Atrecus affinis  
\* Xantholinus laevigatus  
\* Philonthus agilis  
\* P. albipes  
P. cruentatus  
P. decorus  
P. intermedius  
P. fimetarius  
P. marginatus  
\* P. puella  
P. politus  
P. sanguinolentus  
P. splendens  
P. succicola  
Platydracus stercorarius  
\* P. latebricola  
Staphylinus compressus  
S. olens

*Ontholestes murinus*

*Quedius fumatus*

\* *Q. invreaa*

*Q. boops*

*Q. fuliginosus*

*Q. lateralis*

\* *Q. maurorufus*

*Q. nigriceps*

\* *Q. picipes*

\* *Q. scintillans*

*Mycetoporus nigricollis*

*Boitobius inclinans*

*Tachyporus pallidus*

*T. nitidulus*

\* *T. tersus*

*Tachnius marginellus*

*T. pallipes*

*T. signatus*

*Lordithon trinotatus*

*L. exoletus*

*Myllaena dubia*

\* *M. brevicornis*

\* *M. elongata*

\* *M. gracilis*

\* *M. intermedia*

\* *Gryophaena latissima*

\* *G. minima*

*Bolitochara bella*

*Autalia impressa*

*Cordalia obscura*

\* *Tachyusa constricta*

\* *T. leucopus*

\* *T. scitula*

*Platarea brunnea*

*Arotona fungi*

\* *Notothecta confusa*

\* *Atheta hepatica*

\* *Aleuonota gracilenta*

\* *Allanta incana*

*Drusilla canaliculata*

\* *Lomeschusa emarginata*

\* *Ocalea badia*

*Phloeopora testacea*

*Oxypoda altemans*

\* *Aleochara maculata*

\* *A. spadicea*

*A. ruficornis*

### Pselaphidae

*Bryaxis puncticollis*



\* Claviger longicornis

Pselaphus heisei

### Lucanidae

\* Lucanus cervus

Dorcus parallelepipedus

### Geotrupidae

Geotupes stercorarius

Typhaeus typoeus

### Scarabaeidae

Aphodius rufipes

\* A. rufus

\* A. foetens

\* A. granarius

Serica brunnea

Amphimallon solstitialis

Melolontha melolontha

### Byrrhidae

Byrrhus pilula

### Heteroceridae

\* Heterocerus fenestratus

\* *H. marginatus*

*Limnichius pygmaeus*

### Elateridae

*Agriotes pallidulus*

*A. acuminatus*

*Adrastus pallens*

*Prostemon tessellatus*

\* *Ctenicera cuprea*

*Dolopius marginatus*

*Denticollis linearis*

*Athous haemorrhoidalis*

### Cantharidae

*Rhagonycha femoralis*

*R. lignosa*

*R. fulva*

*Catharis nigricans*

*C. lateralis*

*C. decipiens*

*C. rufa*

*C. pellucida*

*C. cryptica*

### Lampyridae

Lampyris noctiluca

Melyridae

Dasytes aeratus

Malachius bipustulatus

Cleridae

Thanasimus formicarius

Nitidulidae

Meligethes aeneus

M. favinimus

M. fulvipes

\* M. obscurus

\* M. solidus

\* M. umbrosus

M. rufipes

Rhizophagidae

Rhizophagus nitidulus

Cryptophaegidae

Cryptophaagus saginatus

\* C. pubescens

Micrambe villosus

Caenoscelis ferruginea

Byturidae

Byturus tomentosus

Pyrochroidae

Pyrochroa serraticomis

P. coccinea

Coccinellidae

Chilocours renipustulatus

Exochomus 4-pustulatus

\*Antisosticta 19-punctata

Aphidecta obliterated

Tytthaspis sedecimpunctata

Adalia bipunctata

A. 10-punctata

Coccinella 7-punctata

C. 11-punctata

Propylea 14-punctata

Anatis ocellata

Calvia 14-punctata

Thea 22-punctata

Propylea 14-punctata

Psyllobora 22-punctata

### Endomychidae

Endomychus coccineus

### Lathridiidae

Aridius bifasciatus

A. nodifer

Enicmus histrio

E. transversus

### Cisidae

Cis pygmaeus

C. nitidus

### Mycetophagidae

Typhaea stercorea

Mycetophagus quadripustulatus

### Tenebrionidae

Blaps mucronata

\* Tribolium confusum

### Tetratomidae

Tetratoma fungorum

Melandryidae

Orchesia undulata

Scrapidae

\* Anaspis thoracica

A. frontalis

A. garneysi

Meloidae

\* Meloe rugosus

Anthicidae

\* Notoxus monoceros

Cerambycidae

Clytus arietis

Tetropium gabrieli

Agaphanthai villosoviridescens

Phytoecia cylindrica

Stenocorus meridianus

S. maculata

Bruchidae

Bruchus rufipes

Chrysomelidae

Oulema melanopa

Timarcha tenebricosa

\* T. goettingensis

Crioceris asparagi

Chryoslina polita

C. menthastri

\* C. oricalcia

Phaedon tumidulus

Plagioderma versicolora

Phyllodecta vitellinae

P. vulatissima

Phytodecta decemnotata

Sermylassa halensis

Altica brevicollis

Chalcoides aurea

C. aurata

Chaetocnema hortensis

Aphtohna coerulea

Sphaeroderma testaceum

\* Galeruca tanaceti

\* Calomicrus circumfusus

Longitarsus luridus

L. membranaceus

Psylloides chrysocephala

Attelabidae

Rhynchites germanicus

R. cavifrons

Deporaus betulae

Apionidae

\* Apion sanguineum

\* A. cineraceum

\* A. seniculus

\* A. ebenimum

\* A. striatum

\* A. aethips

\* A. ervi

\* A. loti

\* A. reflexum

A. miniatus

\* A. simile

A. ulicis

\* A. virens

\* A. craccae

\* A. subulatum

\* A. dissimile

\* A. varipes



Curculionidae

Barypeithes aranelformis

B. pellucidus

Strophosomus capitatus

Barynotus moerens

Leiosoma deflexum

Grypus equiseti

Rhynchaenus rusci

\* R. salcis

Curcullo glandium

C. venosus

Anthonomus ulmi

Otiorhynchus singularis

Cneorhinus plumbeus

Phyllobius maculicornis

P. viridiaeris

P. parvulus

P. pomaceus

P. pyri

P. roberetanus

Polydrusus cervinus

\* Trachypioeus aristatus

\* T. bifoveolatus

\* T. scabriculus

\* Sitona humeralis

*S. linearis*

\* *S. lepidus*

*S. puncticollis*

\* *S. macularius*

\* *S. sulcifrons*

\* *Clenonus piger*

\* *Hypera punctata*

\* *H. venusta*

\* *Alphus triguttatus*

\* *Dorytomus validirostris*

\* *Coeliodes rubicundus*

\* *Ceuthorhynchidius bamevillei*

\* *Ceutorhynchus triangulum*

\* *Phytobius canaliculatus*

\* *Orobitis cyaneus*

\* *Tychius meliloti*

### Scolytidae

*Scolytus scolytus*

\* Species not recorded since 1980.

Nomenclature after Kloet, G S and Hinks, W D (1977) A Checklist of British Insects 3.

Coleoptera R.E.S.

## Appendix 9 Spiders

### LIST OF SPIDERS FROM BRASENOSE WOOD

#### Family, Genus & Species

#### National Status and Habitat

#### Amaurobiidae

Amarobius fenestralis

#### Dictynidae

Lathys humilis

#### Anyphaenidae

Anyphaena accentuata

#### Thomisidae

Xysticus lanio

#### Philodromidae

Philodromus praedatus

Rare. Nettles, tree trunks etc.

#### Clubionidae

Clubiona corticalis

Clubiona terrestris

Lycosidae

Pardosa pullata

Pardosa prativaga

Pardosa amentata

Pardosa lugubris

Pisauridae

Pisaura mirabilis

Agelenidae

Tegeneria sp.

Tuberta maerens

Rare. Oak trunks.

Therididae

Episinus angulatus

Steatoda bipunctatqa

Anelosimus vittatus

Achaearanea lunata

Theridion sisypium

Theridion mystaceum

Theridion tinctum

Theridion pallens

Enoplognatha ovata

Pholcomma gibbum

Teragnathidae

Tetragnatha sp. probably extensa

Tetragnatha montana

Tetragnatha obtusa

Metidae

Metellina sgementata

Metellina mengei

Metellina merianae

Zygiella stroemi

Rare, new to Oxon. Oak trunks.

Araneidae

Araneus diadematus

Nuctenea umbratica

Araniella opistographa

Cyclosa conica

Linyphiidae

Walckenaeria unicornis

Moebelia penicillata

New to Oxon. Oak trunks.

Gnathonarium dentatum

Gongylidium rufipes

Hypomma cornutum

Diplocephalus picinus

*Erigone detipalpis*

*Erigone atra*

*Porrhomma*

Rare, only about 12 British localities known

*Meioneta innotabilis*

*Meioneta rurestris*

*Microneta viaria*

*Bathyphantes gracilis*

*Bathyphantes nigrinus*

*Lepthyphantes minutus*

*Lepthyphantes alacris*

*Lepthyphantes obscurus*

*Lepthyphantes tenuis*

*Lepthyphantes zimmernanni*

*Lepthyphantes cristatus*

*Lepthyphantes flavipes*

*Lepthyphantes ericaeus*

*Lepthyphantes pallidus*

*Linyphia triangularis*

*Linyphia hortensis*

*Linyphia (neriene) montana*

*Linyphia (Neriene) clathrata*

*Linyphia (Neriene) peltata*

The most notable species so far discovered is *Tuberta maerens*, a species known from only a few sites in the country, but common in Brasenose Wood. It lives on the deeply creviced

trunks of oak trees. It is also known from Little Wittenham Wood. Another uncommon species on oak trunks is Zygiella stroemi; this species has recently been found to be locally abundant on the standard trees at Brasenose, and favours the sunny side of trees with the most highly textured bark; it is also known from Little Wittenham Wood and Blenheim.

Philodromus praedatus is a rare species, and this is the second record for Oxfordshire; it is found on low vegetation such as nettles, and sometimes, as it was here, on tree trunks. It is also known from Wychwood forest and Little Wittenham Wood.

The nomenclature follows Merrett, P, Locket, G H and Millidge, A F (1985) A Checklist of British Spiders. Bulletin British Arachnological Society. 6. 381-403. New country records refer to vice-county 23 (Old Oxfordshire).

## SPIDERS FROM SHOTOVER HILL, HEATHLAND

Collected and identified by Clive Hambler 1986 unless stated otherwise.

### Lycosidae

Trochosa terricola

### Agelenidae

Agelena labyrinthica

### Theridiidae

Theridion sisypium (recorded by Clive Bromhall, 1986)

Theridion impressum (recorded by Clive Bromhall, 1986)

Theridion simile

### Araneidae

Araneus diadematus

### Linyphiidae

Walckenaeria acuminata

Walckenaeria sp. probably antica

Gongylidiellum vivum

Centromerita sp.

Bathyphantes gracilis



Labulla thoracica

Lepthyphantes zimmermanni

Lepthyphantes cristatus

Theridion simile is usually a heathland species but can occur on chalk grassland; this is the second recorded site for it in Oxfordshire, the other being Swyncombe Downs. The list is very short, as I have not spent much time collecting.

## Appendix 10

### GRASSHOPPERS AND CRICKETS

#### Acrididae

Chorthippus brunneus	Common field grasshopper
C. parallelus	Meadow grasshopper

#### Tetrigidae

* Tetrix subulata	Slender groundhopper
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#### Tettigonidae

Leptophyes punctatissima	Speckled bush cricket
Pholidoptera griseoptera	Dark bush cricket
Meconema thalassium	Oak bush cricket

\* Species not recorded since 1980

Nomenclature after Kloet, G S and Hinsk, W D (1964) A Checklist of British Insects. 1.

Small Orders. R.E.S.

## Appendix 11

## REPTILES AND AMPHIBIA

Three species of reptile and five species of amphibia occur at Shotover. Occasional records of adder (*Vipera berus*) have been received but as there is a possibility of confusion with grass snake, they should perhaps be regarded as doubtful. All three species of newt have been seen in the Henry Stephen/C S Lewis pond, The nationally rare crested newt is not uncommon in ponds near Oxford.

### Reptiles

<i>Natrix natrix</i>	Grass snake
<i>Lacerta vivipera</i>	Common Lizard
<i>Anguis fragilis</i>	Slow worm

### Amphibia

<i>Rana temporaria</i>	Frog
<i>Bufo bufo</i>	Toad

## Appendix 12

### VASCULAR PLANTS

#### Lycopodiaceae

Huperzia selago	Fir clubmoss (1822 Baxter)
Lycopodium clavatum	Stag's horn clubmoss (1866 Baxter)

#### Equisetaceae

E. sylvaticum	Wood horsetail (Baxter)
E. arvense	Common horsetail
E. telmateia	Giant horsetail

#### Ophioglossaceae

Ophioglossum vulgatum	Adder's-tongue fern
Botrychium lunaria	Moonwort (1844 Druce)

#### Hypolepidaceae

Pteridium aquilinum	Bracken
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#### Thelypteridaceae

Thelypteris limbosperma	Mountain fern (1858 Boswell)
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#### Aspleniaceae

Phyllitis scolopendrium	Hart's-tongue fern
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### Aspidiaceae

Polystichum aculeatum	Hard shield fern (1884 Boswell)
Dryopteris filix-mas	Male fern
D. borrieri	Scaly male fern
D. cristata	Crested buckler-fern (c. 1890)
D. carthusiana	Narrow buckler-fern
D. dilatata	Broad buckler-fern

### Blechnaceae

Blechnum spicant	Hard fern (1885)
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### Pinaceae

Picea abies	Norway spruce
Larix decidua	European larch
P. nigra	Austrian pine

### Taxaceae

Taxus baccata	Yew
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### Salicaceae

Salix fragilis	Crack willow
S. alba	White willow
S. cinerea	Grey willow
S. caprea	Goat willow
S. viminalis	Common osier

Populus canescens	Grey poplar
P. tremula	Aspen
P. gileadensis	Balsam poplar
P. scanadensis	Italian poplar

### Betulaceae

Betula pendula	Silver birch
B. pubescens	Downy birch
Alnus glutinosa	Alder

### Corylaceae

Carpinus betulus	Hornbeam
Corylus avellana	Hazel

### Fagaceae

Fagus sylvatica	Beech
Castanea sativa	Sweet chestnut
Quercus cerris	Turkey oak
Q. petraea	Sessile oak
Q. robur	Pedunculate oak

### Ulmaceae

Ulmus glabra	Wych elm
U. procera	English elm

### Cannabaceae

Humulus lupulus Hop

### Urticaceae

Urtica dioica Common nettle

### Polygonaceae

Polygonum aviculare Knotgrass

P. hydropiper Water pepper

P. persicaria Redshank

Bilderdykia convolvulus Black-bindweed

Rumex acetosella Sheep's Sorrel

R. Acetosa Common sorrel

R. crispus Cruled dock

R. conglomeratus Clustered dock

R. sanguineus Wood dock

R. obtusifolius Broad-leaved dock

### Chenopodiaceae

C. album Fat hen

Atriplex patula Common orache

A. hastata Hastate-orache

### Portulacaceae

Montia fontana

Blinks (1790 Sibthorp)

Caryophyllaceae

Arenaria serpyllifolia

Thyme-leaved sandwort

A. leptocidos

Slender sandwort

Moehringia trinervia

Three veined sandwort

Minuartia hybrida

Fine-leaved sandwort (1896)

Stellaria media

Common chickweed

S. holostea

Greater stichwort

S. alsine

Bog stitchwort

S. graminea

Lesser stichwort

C. fontanum

Common mouse-ear

C. glomeratum

Sticky mouse-ear

C. semidecandrum

Little mouse-ear

Sagina nodosa

Knotted pearlwort (Sibthorp)

S. procumbens

procumbent pearlwort

Scleranthus annuus

Annual Knawel

Spergula arvensis

Corn spurrey

Spergularia rubra

Sand spurrey

Lychnis flos-cuculi

Ragged-robin

Agrostemma githago

Corncockle (c. 1830 Boswell)

Silene vulgaris

Bladder campion

S. noctiflora

Night-flowering catchfly

S. alba

White campion

S. dioica

Red campion



S. gallica Small-flowered catchfly

### Ranunculaceae

Caltha palustris Marsh-marigold  
Anemone nemerosa Wood anemone  
Clematis vitalba Traveller's Joy  
Ranunculus repens Creeping buttercup  
R. acris Meadow buttercup  
R. bulbosus Bulbous buttercup  
R. arvensis Corn buttercup (1886)  
R. Parviflorus Smal flowered buttercup (1886)  
R. auricomus Goldilocks  
R. ficaria Lesser celandine  
R. flammula Lesser spearwort  
R. aquatilis Water-crowfoot  
Thalictrum flavum Common meadow-rue

### Papaveraceae

Papaver rhoeas Common poppy  
P. hybridum Rough poppy (1860 H Boswell)  
Chelidonium majus Greater celandine  
Fumaria officinalis Common fumitory

### Cruciferae

Sisymbrium officinale Hedge mustard

Alliaria petiolata	Garlic mustard
Barbarea vulgaris	Winter-cress
Nasturtium officinale	Water-cress
C. pratensis	Cuckoo flower
C. flexuosa	Wavy bitter-cress
Arabis hirsuta	Hairy rock-cress
Lunaria annua	Honesty
Erophila verna	Common whitlow-grass
Capsella bursa-pastoris	Shepherd's Purse
Thlaspie arvense	Field penny-cress
Lepidium campestre	Field pepperwort (W Baxter)
Coronopus squamatus	Swine-cress (19c Druce)
Brassica napus	Rape
B. rapa	Wild turnip
Sinapis arvensis	Charlock
Raphanus raphanistrum	Wild radish

### Resedaceae

Reseda luteola	Weld
R. lutea	Wild mignonette

### Droseraceae

Drosera rotunifolia	Round-leaved sundew (Sibthorp)
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### Crassulaceae

Sedum telephium	Orpine
S. acre	Biting stonecrop
S. album	White stonecrop
S. dasyphyllum	Thick-leaved stonecrop (1886)

### Saxifragaceae

Saxifraga granulata	Meadow saxifrage (1927 Druce)
Chrysosplenium oppositifolium	Opposite-leaved golden saxifrage

### Parnassiaceae

Parnassia paulstris	Grass-of-Parnassus (1896)
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### Grossulariaceae

Ribes rubrum	Red currant
R. nigrum	Black currant
R. sanguineum	Flowering currant
R. uva-crispa	Gooseberry

### Rosaceae

F. ulmaria	Meadowsweet
Rubus idaeus	Raspberry
R. fruticosus agg.	Blackberry
R. caesius	Dewberry

<i>Rosa arvensis</i>	Field rose
<i>R. canina</i>	Dog rose
<i>Agrimonia eupatoria</i>	Agrimony
<i>A. procera</i>	Fragrant agrimony
<i>Sanguisorba officinalis</i>	Great burnet
<i>G. urbanum</i>	Wood avens
<i>Potentilla anserina</i>	Silverweed
<i>P. erecta</i>	Tormentil
<i>P. reptans</i>	Creeping cinquefoil
<i>P. sterilis</i>	Barn strawberry
<i>Fragaria vesca</i>	Wild strawberry
<i>Alchemilla vulgaris</i> agg.	Lady's mantle
<i>Aphanes arvensis</i>	Parsley piert
<i>A. microcarpa</i>	
<i>Pyrus pyraeaster</i>	Pear (1858 H. Boswell)
<i>Malus sylvestris</i>	Crab apple
<i>Sorbus aucuparia</i>	Rowan
<i>S. torminalis</i>	Wild service tree
<i>S. arta</i>	Common white beam
<i>Crataegus laevigata</i>	Midland hawthorn
<i>C. monogyna</i>	Hawthorn
<i>Prunus spinosa</i>	Blackthorn
<i>P. domestica</i>	Wild plum
<i>P. avium</i>	Wild cherry
<i>P. padus</i>	Bird cherry

*P. laurocerasus* Cherry laurel

*P. cerasifera*

Leguminosae

*Cytisus scoparius* Broom (S. Laing)

*Ulex europaeus* Gorse

*Galega officinalis* Goat's rue

*Vicia cracca* Tufted vetch

*V. hirsuta* Hairy tare

*V. terasperma* Smooth tare

*V. sepium* Bush vetch

*V. sativa* Common vetch

*Lathyrus montanus* Bitter vetch (1886 R. C. Pryor)

*L. pratensis* Meadow vetchling

*L. tuberosus* Tuberos pea

*L. sylvestris* Narrow-leaved everlasting pea

*L. nissolia* Grass vetchling

*Ononis repens* Common restharrow

*Melilotus officinalis* Ribbed melilot

*Medicago lupulina* Black medick

*M. sativa* Lucerne

*Trifolium repens* White clover

*T. hybridum* Alsike cover

*T. campestre* Hop trefoil

*T. micranthum* Slender trefoil

T. striatum	Knotted trefoil
T. arvense	Hare's-foot clover (1884)
T. scabrum	Rough trefoil (1823)
T. pratense	Red clover
T. medium	Zigzag clover
T. subterraneum	Subterranean trefoil (1830 Baxter)
Lotus corniculatus	Common bird's-foot trefoil
L. uliginosus	Greater bird's-foot trefoil
Ornithopus perusillus	Bird's-foot
Hippocrepis comosa	Horseshoe vetch

#### Oxalidaceae

Oxalis acetosella	Wood sorrel
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#### Geraniaceae

Gernaium pyrenaicum	Hedgerow cranes-bill
G. molle	Dove's-foot cranes-bill
G. dissectum	Cut-leaved crane's-bill
G. robertianum	Herb-Robert
Erodium cicutarium	Common stork's-bill

#### Euphorbiaceae

Mercurialis perennis	Dog's mercury
Euphorbia helioscopia	Sun spurge
E. lathuris	Caper spurge

E. exigua Dwarf spurge

E. peplus Petty spurge

E. amygdaioides Wood spurge

### Polygalaceae

Polygala vulgaris Common milkwort

### Aceraceae

Acer platanoides Norway maple

A. campestre Field maple

A. pseudoplatanus Sycamore

A. saccharum Sugar maple

### Hippocastanaceae

Aesculus hippocastanum Horse chestnut

### Balsaminaceae

Impatiens parviflora Small balsam

I. glandulifera Indian balsam

### Aquifoliaceae

Ilex aquifolium Holly

### Celastraceae

Euonymus europeus Spindle

### Rhanmaceae

Thamnus catharticus                      Buckthorn

### Tiliaceae

Tilia x vulgaris                              Lime

### Malvaceae

Malva moschata                              Musk mallow

M. sylvestris                                  Common mallow

M. neglecta                                   Dwarf mallow

### Thymelaeaceae

Daphne mezereum                          Mezereon (1832 R.C. Pryor)

D. laureola                                   Spurge laurel

### Guttiferae

Hypericum androseanum                      Tutsan (1831 Baxter)

H. hirsutum                                   Hairy St. John's-wort

H. pulchrum                                   Slender St. John's-wort

H. humifusum                                  Trailing St. John's-wort

H. tetrapterum                                  Square-stalked St. John's-wort

H. maculatum                                  Imperforate St. John's-wort

H. perforatum                                  Perforate St. John's-wort



### Violaceae

<i>Viola odorata</i>	Sweet violet
<i>V. hirta</i>	Hairy violet
<i>V. reichenbachiana</i>	Early dog-violet
<i>V. riviniana</i>	Common dog-violet
<i>V. arvensis</i>	Field pansy

### Cucurbitaceae

<i>Bryonia cretica</i>	White bryony
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### Lythraceae

<i>L. portula</i>	Water pursland (W. Baxter)
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### Onagraceae

<i>Circaea lutetiana</i>	Enchanter's-nightshade
<i>Epilobium angustifolium</i>	Rose bay willowherb
<i>E. hirsutum</i>	Great willowherb
<i>E. parviflorum</i>	Hoary willowherb
<i>E. montanum</i>	Broad-leaved willowherb
<i>E. palustre</i>	Marsh willowherb
<i>E. adenocaulon</i>	American willowherb
<i>E. tetragonum</i>	
<i>E. obscurum</i>	



Torilis nodosa	Knotted hedge-parsley (H. Boswell)
T. arvensis	Spreading hedge-parsley (H. Boswell)
T. japonica	Upright hedge-parsley
Daucus carota	Wild carrot

### Ericaceae

Calluna vulgaris	Heather
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### Primulaceae

Primula vulgaris	Primrose
P. veris	Cowslip
Lysimachia memnonum	Yellow pimpernel
L. nummularia	Creeping jenny
A. arvensis	Scarlet pimpernel

### Oleaceae

Fraxinum excelsior	Ash
Syringa vulgaris	Lilac
Ligustrum vulgare	Wild privet

### Gentianaceae

Centaurium erythraea	Common centaury
Gentianella campestris	Field gentian (1819 Dillenius)
G. amarella	Autumn gentian

### Menyanthaceae

Menyanthes trifoliata Bogbean (1886)

### Rubiceae

Asperula cyanchica Aquinancy wort (1886)

Galium oderatum Woodruff

G. palustre Common marsh-bedstraw

G. verum Lady's bedstraw

G. mollugo Hedge bedstraw

G. saxatile Heath bedstraw

G. aparine Cleavers

Cruciata laevipes Crosswort (1886)

### Convolvulaceae

Cuscuta epithymum Dodder (H E Garnsey)

Calystegia sepium Hedge bindweed

Convolvulus arvensis Field bindweed

### Boraginaceae

Lithospermum officinale Common gromwell (1886)

Myosotis arvensis Field forget-me-not

M. discolor Changing forget-me-not

M. laxa Tufted forget-me-not

Callitriche stagnalis Common water-starwort

C. platycarpa

Labiata

Ajuga reptans	Bugle
Teucrium scorodonia	Wood sage (1860 W. Holladay)
Galeopsis tetrahit	Common hemp-nettle
Lamium maculatum	Spotted dead-nettle
L. album	White dead-nettle
L. purpureum	Red dead-little
Lamiastrum galeobdolon	Yellow archangel
Ballota nigra	Black horehound
Stachys officinalis	Betony
S. sylvatica	Hedge woundwort
S. arvensis	Field woundwort (1974)
Glechoma hederacea	Ground-ivy
Prunella vulagris	Selfhead
Melissa officinalis	Balm
Clinopodium vulgare	Wildbasil
T. pulegioides	Large thyme
Luycopus europaeus	Gipsywort
M. aquatica	Water mint
M. spicata	Spear mint

Solanaceae

Atropa bella-donna	Deadly nightshade
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Hyoscyamus niger

Henbane

S. dulcamara

Bittersweet

### Scrophulariaceae

Verbascum thapsus

Great mullein

Scrophularia nodosa

Common figwort

S. auriculata

Water figwort

Misopates orontium

Lesser snapdragon

Kickxia elatine

Sharp-leaved fluellen

K. spuria

Round-leaved fluellen

Digitans purpurea

Foxglove

Veronica serpyllifolia

Tyme-leaved speedwell

V. officinalis

Heath speedwell

V. chamaedrys

Germander speedwell

V. beccabunga

Brooklime

V. arvensis

Wall speedwell

V. polita

Grey field-speedwell

Melampyrum ptatense

Common cow wheat

Odontites verna

Red bartsia

Pedicularis palustris

Marsh lousewort (1886)

P. sylvatica

Lousewort

Rhinanthus minor

Yellow rattle

### Orobanchaeceae

Orobanche minor

Common broomrape

### Plantaginaceae

Plantago major	Greater plantain
P. coronopus	Buck's-horn plantain (1823 Baxter)
P. media	Hoary palntain
P. lanceolata	Ribwort plantain

### Caprifoliaceae

Sambucus nigra	Elder
Viburnum opulus	Guelder-rose
V. lantana	Wayfaring tree
Symphoricarpos albus	Snowberry
Lonicera periclymenum	Honeysuckle

### Adoxaceae

Adoxa moschatellina	Moschatel
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### Valerianaceae

Valeriana officinalis	Common valerian
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### Dipsacaceae

Dipsacus fullonum	Teasel
Succisa pratensis	Devil's-bit scabious
Knautia arvensis	Field scabiuos
Scabiosa columbaria	Small scabious

### Campanulaceae

Campanula latifolia	Greater bellflower (1890)
C. trachelium	Nettle-leaved bellflower
C. rapunculoides	Creeping bellflower
C. rotundiflora	Harebell
Jasione montana	Sheep's-bit (1886)

### Compositae

Eupatorium cannabinum	Hemp agrimony
Solidago canadensis	Canadian goldenrod
Bellis perennis	Daisy
Aster nove-belgii	Michaelmas daisy
Filago pyramidata	Broad-leaved cudweed (1927 Druce)
Logfia minima	Small cudweed
Omalotheca sylvatica	Heath cudweed
Filaginella unguinosa	Marsh cudweed
Inula conyza	Ploughman's spikehard
Pulicaria dysenterica	Common fleabane
Bidens cernua	Nodding bur-marigold (Sibthorp)
Achillea millefolium	Yarrow
Matricaria perforata	Scentsless-mayweed
Chamomilla suaveolens	Pineappleweed
Chrysanthemum segetum	Corn marigold
Tanacetum vulgare	Tansy



<i>Leucanthemum vulgare</i>	Oxeye daisy
<i>Artemisia vulgaris</i>	Mugwort
<i>Tussilago farfara</i>	Coltsfoot
<i>Senecio fulviatilis</i>	Broad-leaved ragwort (1886)
<i>S. jacobaea</i>	Common ragwort
<i>S. erucifolius</i>	Hoary ragwort
<i>S. squalidus</i>	Oxford ragwort
<i>S. sylvaticus</i>	Heath groundsel (1974)
<i>S. vulgaris</i>	Groundsel
<i>Arctium minus</i>	Lesser brudock
<i>Carduus nutans</i>	Musk thistle
<i>Cirsium eriophorum</i>	Woolly thistle
<i>C. vulgare</i>	Spear thistle
<i>C. palustre</i>	Marsh thistle
<i>C. arvense</i>	Creeping thistle
<i>Onopordum acanthium</i>	Cotton thistle (1884)
<i>Serratula tinctoria</i>	Saw-wort
<i>Centaurea scabiosa</i>	Greater knapweed
<i>C. solstitialis</i>	Yellow star-thistle (1886)
<i>C. nigra</i>	Common knapweed
<i>C. cyanus</i>	Cornflower (1981)
<i>Cichorium intybus</i>	Chicory (1974)
<i>Leontodon autumnalis</i>	Autumn hawkbit
<i>L. hispidus</i>	Rough hawkbit
<i>Picris echiodes</i>	Bristly oxtongue

Tragapogon pratensi	Goat's-beard
Sonchus asper	Prickly sow-thistle
Lactuca serriola	Prickly lettuce
Taraxacum officinale	Dandelion
Lapsana communis	Nipplewort
Crepis biennis	Rough hawk's beard
C. vesicaria	Beaked hawk's beard
Hieracium unbellatum agg.	Leafy hawkweed
H. trickolulon	

Hydrocharitaceae

Elodea canadensis	Canadian pondweed
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Jugaginaceae

Triglochin patustris	Marsh arrowgrass (1926 Druce)
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Potamogetonaceae

Potamogeton polygorifolius	(Dillenius 1744)
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Liliaceae

Ornithogalum umbellatum	Star of Bethlehem
Hyacinthoides non scripta	Bluebell
Allium vineale	Crow garlic
Ruscus aculeatus	Butcher's-broom



<i>F. arundinacea</i>	Tall fescue
<i>F. rubra</i>	Red fescue
<i>F. ovina</i>	Sheep's fescue
x <i>Festulolium loliaceum</i>	
<i>Lolium perenne</i>	Perennial rye-grass
<i>L. multiflorum</i>	Italian rye-grass
<i>Vulpia bromoides</i>	Squirreltail fescue
<i>V. myuros</i>	Rat's tail fescue (1886)
<i>Desmazeria rigida</i>	Hard poa (1886)
<i>Poa annua</i>	Annual meadow grass
<i>P. trivialis</i>	Rough meadow grass
<i>P pratensis</i>	Smooth meadow grass
<i>P. nemoralis</i>	Wood meadow grass
<i>Dactylis glomerata</i>	Cock's-foot
<i>Cynosurus cristatus</i>	Crested dog's-tail
<i>Melica uniflora</i>	Wood mellich
<i>Glyceria fluitans</i>	Floating sweet grass
<i>G. declinata</i>	
<i>Bromus sterilis</i>	Barren brome
<i>B. ramosus</i>	Hairy-brome
<i>B. commutatus</i>	Meadow brome
<i>B. hordeaceus</i>	Soft-brome
<i>Brachypodium sylvaticum</i>	False-brome
<i>Elymus caninus</i>	Bearded couch
<i>E. repens</i>	Common couch

<i>Hordeum murinum</i>	Wall barley
<i>H. secalinum</i>	Meadow barley
<i>Avena fatua</i>	Wild oat
<i>A. pratensis</i>	Meadow oat-grass
<i>Arrhenatherum elatius</i>	False oat-grass
<i>Trisetum falvescens</i>	Yellow oat-grass
<i>Deschampsia cespitosa</i>	Tufted hair-grass
<i>Aira praecox</i>	Early hair-grass
<i>A. caryophylla</i>	Silver hair-grass
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass
<i>Holcus lanatus</i>	Yorkshire-fog
<i>H. mollis</i>	Creeping soft-grass
<i>Agrostis canina</i>	Brown bent
<i>A. capillaris</i>	Common bent
<i>A. gigantea</i>	Black bent
<i>A. stolonifera</i>	Creeping bent
<i>Calamagrostis epigejos</i>	Wood small-reed
<i>Phleum pratense</i> spp <i>pratense</i>	Timothy-grass
<i>P. pratense</i> ssp <i>bertolonii</i>	Cat's-tail
<i>Alopecurus pratensis</i>	Meadow foxtail
<i>A. myosuroides</i>	Black-grass
<i>Phalaris canariensis</i>	Canary-grass
<i>Milium effusum</i>	Wood millet
<i>Nardus stricta</i>	Mat-grass (1886)

### Araceae

Arum maculatum	Cuckoo pint
Lenma minor	Common duckweed

### Sparganiaceae

Sparganium erectum	Branched bur-reed
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### Typhaceae

Typha latifolia	Bulrush
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### Cyperaceae

Scirpus setaceus	Bristle club-rush
Bllysmus compressus	Flat-sedge (1831 Baxter )
Eleocharis palustris	Common spike-rush
Carex otrubae	Flase fox sedge
C. muricata	Prickly sedge
C. divulsa	Grey sedge (1886)
C. remota	Remote sedge
C. ovalis	Oval sedge
C. hirta	Hairy sedge
C. acutiformis	Lesser pond-sedge
C. sylvatica	Wood sedge
C. flacca	Glaucous sedge
C. caryophyllea	Spring sedge
C. pilulifera	Pill sedge

C. nigra Common sedge

C. pulicaris Flea sedge

Orchiadaceae

Epipactis helleborine Broad-leaved helleborine

E. purpurata Violet helleborine

Cephalanthera damasonium White helleborine (1886)

Listera ovata Common twayblade

Spiranthes spiralis Autumn layd's tresses (1833)

Coeloglossum viride Frog orchid (Sibthorp)

Dactylorhiza fuchsii Common spotted-orchid

Ophrys sphegodes Early spider-orchid

## Appendix 13

### BRYOPHYTES

#### \*Anthocerotales

Anthoceros punctatus (W Baxter)

#### Marchantiales

Lunularia cruciata

Conocephalum conicum

Marchantia polymorpha

Riccia glauca

#### Metzgeriales

\*Riccardia sinuata (19th century, Baxter)

Pellia epiphylla

P. fabbroniana

Metzeria furcata

\*Fossombronia pusilla (Sibthorp)

#### Jungermanniales

\*Lophozia incisa (1819 Baxter)

\* Lepidozia reptans (1948 E W Jones)

\* L. setacea (19th century, Sibthorp)

Calypogeia fissa

\*Solenstoma creulata (1821 Baxter)



Plagiochila aspleoides

\*Nardia scalaris (1940s E W Jones)

Lophocolea bidentata

L. cuspidata

L heterophylla

\*Chiloscyphus pallescens

C. polyanthus

Cephalozia bicuspidata

\*C. connivens (1819 Baxter)

\*Diplophyllum albicans (Baxter)

\*Scapania nemorea (1819 Baxter)

\*Radula complanata (Sibthorp)

### Sphagnales

\*Sphagnum subnitens

\*S. squarrosum

\*S. palustre

### Polytrichales

Atrichum undulatum

Polytrichum formosum

\*P. commune (lost in about 1861)

P. juniperinum

\*Pogonatum nanum (Sibthorp)

\*P. aloides (Sibthorp)

### Dicranales

Pleuridium acuminatum

\*P. subulatum (Sibthorp)

Ceratodon purpureus

Dicranella varia

D. heteromalla

\*D. cerviculata (Sibthorp)

Dicranoweissia cirrata

Dicranum scoparium

\*D. bonjeani

D. tauricum (=strictum)

Campylopus pyriformis

\*C. flexuosus

### Fissidentales

Fissidens bryoides

F. taxifolius

\*F. exilis (1940s E W Jones)

### Encalyptales

\*Encalypta vulgaris (Sibthorp)

### Pottiales

Tortula ruralis

T. intermedia

T. muralis

\*T. subulata (Sibthorp)

\*Alina aloides

Pottia truncata

P. lanceolata

P. starkeana ssp. conica

Barbula unguiculata

B. rigidula

B. cylindrica

\*B. fallax

\*B. tophacea

Weissia microstoma

### Grimmiales

Schistidium (=Grimmia) apocarpum

Grimmia pulvinata

\*Racomitrium canescens (extinct by 1856 - Sibthorp)

### Funariales

Funaria hygrometrica

\*Physcomitrium pyriforme (1940s E W Jones)

\*Ephemerum serratum

\*Splachnum ampullaceum (1819)

## Bryales

Orthodontium lineare

Bryum pallens

\*B. tubinatum

B. argenteum

\*B. pseudotriquetrum (Sibthorp)

B. rubens

\*B. affine (Baxter)

B. bicolor

\*B. intermedium

B. capillare

\*B. erythrocarpum

\*Rhodobryum roseum (Sibthorp)

Pohlia carnea (=deliculata)

P. nutans

\*P. wahlenbergii (1858)

Mnium hornum

\*M. cuspidatum (Sibthorp)

Plagiomnium (=Mnium) undulatum

P. affine

Rhizomnium (=Mnium) punctatum

Aulaconmium androgynum

\*A. palustre (1884)

\*Philonotis fontana (Sibthorp)

### Isobryales

Thamnobryum (=Thanmium) alopecurum

\*Cryphaea heteromalia (Baxter)

\*Leucodon sciruoides (Sibthorp)

### Orthotricales

\*Orthotrichum anomalum (Sibthorp)

\*O. striatum (Baxter)

\*Ulota phyllantha

### Hypnobryales

Pseudoscleropodium purum

Amblystegium serpens

\*A. varium

Homalothecium (=Camptothecium) sericeum

\*C. cordifolium

Isothecium myosuroides

I. myurum

Brachythecium albicans

B. velutinum

B. rutabulum

Rhyncostegium (=Eurhynchium) confertum

Eurhynchium praelongum

\*E. pumilum (1940s E W Jones)

Cirriphylum pilliferum

Isopterygium elgans

Plagiotheclum neorale

Hypnum cupressiforme

Pleurozium schreberi

Rhytidiadelphus squarrosus

\*R. loreus (Sibthorp)

\*Species not recorded since 1980.

Moss nomenclature after Smith, A J E (1978) The Moss Flora of Britain and Ireland C U P

Liverwort nomenclature after Watson E V (1968) British Mosses and Liverworts C U P

## Appendix 14

### LIST OF LICHENS

Aspicllia contorta	Hypogymnia Physodes
A. calcarea	Lecanora campestris
Bacidia umbrina	L. conizaeoides
Caloplaca citrina	L. dispers
C. decipiens	L. muralis
C. heppiana	Lecidella stigmatea
C. holocarpa	Lepraria incana
C. aurantia	Parmelia saxatils
C. teichoyta	P. caperata
Candelariella vitellina	P. sulcata
C. aurella	Physcia caesia
C. medians	P. adsendens
Cetraria glauca	P. grisea
Cladonia allosquamosa	P. orbicularis
C. chlorophaea	Physconia grisea
C. coniocraea	Ramalina farinacea
C. fimbriata	Verucaria muralis
C. Polydactyla	V. nigrescens
C. pyxidata	V. viridula
C. rangiformis	Xanthoria parletina
C. subulata	X. aureola
Collema tenax	

*C. auriculata*

*Dimerella lutea*

*Diploicia canescens*

*Evemaria prunastri*



## Appendix 15

### LIST OF FUNGI

#### Agaricales

Amanita muscaria	Fly agaric
A. rubescens	The Blusher
A. citrina	False dath cap
A. fulva	Tawny grisette
Lepiota procera	Parasol mushroom
L. rhacodes	Shaggy parasol
Armillaria mellea	Honey fungus
T. platyphylla	
Melanoieuca melaleuca	
Leucopaxillus giganteus	
Clitocybe geotropa	
C. nebularis	Cluded agric
C. clavipes	Club foot
C. infundibuliformis	Common funnel cap
C. flaccida	Tawny funnel cap
C. fragrans	
C. bicolor	
Cantharellula cyathiformis	The goblet
Laccaria taccata	Deceiver
L. amethystea	Amethyst deceiver
Collybia maculata	Spotted tough-shank

<i>C. fusipes</i>	Spindle shank
<i>C. dryophilla</i>	
<i>C. confluens</i>	Clustered tough shank
<i>C. erythropus</i>	
<i>C. butyracea</i>	Butter cap
<i>C. peronata</i>	Wood woolly-foot
<i>C. acervata</i>	
<i>Flammulina velutipes</i>	Velvet shank
<i>Hygrophorus cossus</i>	Goat moth wax cap
<i>H. leucophaeus</i>	
<i>H. lucorum</i>	Larch wax cap
<i>H. citrinus</i>	
<i>Hygrocybe pratensis</i>	Meadow wax cap
<i>H. coccineus</i>	Scarlet wax cap
<i>H. nigrescens</i>	Blackening wax cap
<i>H. conicus</i>	Conical wax cap
<i>H. chlorophanus</i>	Yellow wax cap
<i>H. nivea</i>	Snowy wax cap
<i>H. psittacina</i>	Parrot wax cap
<i>Hygrophoropsis aurantiaca</i>	Flase chantarelle
<i>Marasmius androsaceus</i>	Hrose hair fungus
<i>M. ramealis</i>	
<i>M. rotula</i>	
<i>M. oreades</i>	Fairy ring champignon
<i>Beaospora myosura</i>	

*Mycena polygramma*

*M. galericulata*

Bonnet mycena

*M. galpus*

*M. sanguinolenta*

*M. crocata*

*M. alcalina*

*M. pura*

*M. inclinata*

*M. sepia*

*M. viscosa*

*M. epipterygia*

*M. acicula*

*M. swartzii*

*M. fibula*

*Lactarius torminosus*

Woolly milk cap

*L. pubescens*

*L. chrysorheus*

*L. deliciosus*

Saffron milk cap

*L. blennius*

Slimy milk cap

*L. turpis*

Ugly milk cap

*L. glyciosmus*

Coconut scented milk cap

*L. vietus*

Grey milk cap

*L. rufus*

Rufous milk cap

*L. quitus*

Oak milk cap

*L. volemus*

L. subduicis	
L. tabidus	
L. cemicarius	Watery milk cap
Russula albonigra	
R. delica	Milk white russula
R. nigricans	Blackening russula
R. ochroleuca	Common yellow russula
R. virescens	
R. cyanoxantha	Charcoal burner
R. ionochlora	
R. vesca	Bare toothed russula
R. vesca	
R. parazurea	
R. mairei	Blackish purpose russula
R. sanguinea	
R. rosea	
Volvariella speciosa	
Clitopilus prunulus	The Miller
Lepista nuda	Wood blewit
L. sordida	
L. saeva	Field blewit
E. nidorosum	
E. porphyrophaeum	
Leptonia euchroa	
L. incana	

L. lazulina  
L. sericella  
Nolanea sericea  
Plugeus cervinus  
P. salicinus  
P. lutescens  
Cortinarius lepidopus  
C. armillatus  
C. gladicolor  
C. hemitrichus  
Paxillus involutus  
Gymnopilus penetrans  
G. junonius  
Pholiota ochrochlora  
P. carbonaria                      Charcoal pholiota  
Hebeloma crustuliniforme              Poison pie  
H. sacchariolens  
Inocybe fastigiata  
I. geophylla  
I. griseolilacina  
I. asterospora  
I. petiginosa  
Bolbitius vitellinus  
Galerinia mutabilis  
Macrocystidia cucumis

<i>Tubaria furfuracea</i>	
<i>Hypholoma fasciculare</i>	Sulphur tuft
<i>Agaricus silvaticus</i>	
<i>A. langei</i>	
<i>A. porphyrocephalus</i>	
<i>A. campestris</i>	Field mushroom
<i>A. xanthodermus</i>	Yellow stainer
<i>A. silvicola</i>	Wood mushroom
<i>Agrocybe erebia</i>	
<i>Stropharia aeruginosa</i>	Verdigris agaric
<i>S. cyanea</i>	
<i>S. semiglobata</i>	Dung roundhead
<i>Psathyrella candolleana</i>	
<i>P. hydrophila</i>	
<i>P. gracilis</i>	
<i>P. obtusata</i>	
<i>P. microrhiza</i>	
<i>Lacrymaria velutina</i>	Weeping widow
<i>Coprinus comatus</i>	Shaggy ink cap
<i>C. picaceus</i>	Magpie fungus
<i>C. atramentarius</i>	Common ink cap
<i>C. cinereus</i>	
<i>C. lagopides</i>	
<i>C. lagopus</i>	
<i>C. niveus</i>	

<i>C. radiatus</i>	
<i>C. micaceus</i>	Glistening ink cap
<i>C. plicatillis</i>	
<i>C. disseminatus</i>	Fairies bonnets
<i>Paneolus papilionaceus</i>	
<i>P. sphinctrinus</i>	
<i>Panaolina foenisecil</i>	
<i>Pleurotus ostreatus</i>	Oyster mushroom
<i>P. cornucopiae</i>	
<i>Rhodotus palmatus</i>	
<i>Crepidotus mollis</i>	
<i>Panellus serotinus</i>	
<i>P. stipticus</i>	
<i>Chroogomphys rutilus</i>	
<i>Boletus badius</i>	Bay boletus
<i>B. impolitus</i>	
<i>B. luridus</i>	
<i>B. subtomentosus</i>	
<i>B. chrysteneron</i>	Red cracked boletus
<i>Leccinum versipelle</i>	Orange birch bolete
<i>L. scabrum</i>	Brown birch bolete
<i>Suillus luteus</i>	Slippery Jack
<i>S. bovinus</i>	
<i>S. grevillei</i>	Larch bolete
<i>S. granulatus</i>	

*S. aeruginascens*

Aphylophorales

*Polyporus squamosus*

Dryad's Saddle

*P. badius*

*P. ciliatus*

*Grifola frondosa*

*Meripilus giganteus*

Giant polypore

*Laetiporus sulphureus*

Sulphur polypore

*Fistulina hepatica*

Beefsteak fungus

*Heterobasidion annosum*

Root fomes

*Piptoporus betulinus*

Birch polypore

*Ischnoderma resinosum*

*Inonotus hispidus*

*Daedaleopsis confragosa*

Blushing bracket

*Daedalea quercina*

Maze-gill

*Hymenochaete rubiginosa*

*Coriolus versicolor*

Many zoned polypore

*Chondostereum purpureum*

Silver leaf fungus

*Hirschioporus abietinus*

*Stereum hirsutum*

Hairy stereum

*S. rugosum*

*Thelephora terrestris*

Earth fan

*T. spiculosa*

*Phlebia merismoides*



Merulius tremellosus	
Auriscalpium vulgare	Ear pick fungus
Clavariadelphus junceus	
Clavaria vermicularis	White spindles
Clavulinopsis fusiformis	Golden spindles
C. corniculata	
Clavulina rugosa	Wrinkled club
C. cristata	White coral fungus
C. cinerea	Grey coral fungus
Ramaria stricta	

### Gasteromycetes

Calvatia excipuliformis	
Langermannia gigantea	Giant puff-ball
Lycoperdon echinatum	Spiny puff-ball
L. molle	
L. pyriforme	Stump puff-ball
Scleroderma citrinum	Common earth-ball
S. verrocosum	
Geastrum rufescens	
Crucibulum laeve	Common bird's-nest
Sparassis crispa	Cauliflower fungus
Phallus impudicus	Stinkhorn
Mutinus caninus	Dog stinkhorn

## Tremellales

Auricularia auricula-judae	Jew's ear
A. mesenterica	Tripe fungus
Exidia glandulosa	Witches' butter
Dacrymyces stillatus	
Calocera comea	
C. viscosa	
Tremella mesenterica	Yellow brain fungus
T. foliacea	

## Dicomycetes

Morchella esculenta	Morel
Mitrophora semilibera	
Helvella crispa	Common white helvella
H. lacunosa	Black helvella
Leptopodia elastica	
Peziza vesiculosa	
P. repanda	
Otidea leporina	
Tarzetta cupularis	
Scutellinia scutellata	Eyelash fungus
Humaria hemisphaerica	
Sarcoscypha coccinea	Scarlet elf cup
Aleuria aurantia	Orange peel fungus
Trichoglossum hirsutum	

Bulgaria inquinans	Black bulgar
Leotia lubrica	Jelly babies
Hymenoscyphus fructigenus	Nut cup
Ascocoryne sarcoides	
Chlorosplenium aeriginascens	Green wood-cup

Pyrenomycetes

Xylaria hypoxylon	Candle snuff fungus
X. polymorpha	Dead man's fingers
Hypoxylon fragiforme	
Nectria cinnabarina	Coral spot fungus
Daldinia concentrica	Cramp ball
Cordyceps militaris	Scarlet caterpillar fungus

## Appendix 16

### STATUS OF SPECIES NOW LOST FROM SHOTOVER

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
<u>Bryophytes</u>		
Anthoceros punctatus	Locally or regionally scarce	Probably extinct
Riccardia sinuata	As above	As above
Lophozia incisa	“ “	“ “
Lepidozia reptans	“ “	“ “
L. setacea	“ “	“ “
Solenostomata crenulata	“ “	“ “
Cephalozia connivens	“ “	“ “
Diplophyllum albicans	“ “	“ “
Scapania nemorea	“ “	“ “
Radula complanata	“ “	“ “
Jungermannia pumila	“ “	“ “
Sphagnum subnitens	“ “	“ “
S. squarrosum	“ “	“ “
S. palustre	“ “	“ “
S. capillifolium	“ “	“ “

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
Polytrichum commune	Locally or regionally scarce	Probably extinct
Poganatum Nanum	As above	As above
P. aloides	“ “	“ “
Pseudoephemerum nitidum	“ “	“ “
Pleuridium subulatum	“ “	“ “
Dicranella cerviculata	“ “	“ “
Dicranum bonjeani	“ “	“ “
Campylopus flexuosus	“ “	“ “
Encalypta vulgaris	“ “	“ “
Tortula subulata	“ “	“ “
Aloina aloides	“ “	“ “
Barbula fallax	“ “	“ “
B. tophacea	“ “	“ “
Weissia microstoma	“ “	“ “
Racomitium canescens	“ “	“ “
Ephemerum serratum	“ “	“ “
Splachnum ampullaceum	“ “	“ “
Bryum turvbinatum	“ “	“ “
B. pseudotri- quetrium	“ “	“ “

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
B. affine	“ “	“ “
B. intermedium	“ “	“ “
B.erythrocarpum	Locally or regionally scarce	Probably extinct
Rhodobryum roseum	“ “	“ “
Pohlia wakleubergii	“ “	“ “
Mnium cuspidatum	“ “	“ “
Aulacomnium palustre	“ “	“ “
Philonotis fontana	“ “	“ “
Cryphaea heteromalla	“ “	“ “
Leucodon sciuroides	“ “	“ “
Orthotrichum anomalum	“ “	“ “
O. striatum	“ “	“ “
Ulota phyllantha	“ “	“ “
Rhytidiadelphus loreus	“ “	“ “

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
<u>Vascular plants</u>		
Huperzia selago	Regionally rare	Extinct
Lycopodium clavatum	Regionally rare	Extinct
Botrychium lunaria	Regionally rare	Extinct
Thelypteris limbersperma	Regionally extinct	Extinct
Polystichum aculeatum	Regional rarity	Extinct
Dryopteris cristata	RDB2	Extinct
Blechnum spicant	Regionally rare	Extinct
Montia fontana	Regionally rare	Extinct
Minuartia hybrida	Notable	Extinct
Sagina nodosa	Regionally rare	Extinct
Argostemma githago	Extinct	Extinct
Silene noctiflora	Regionally rare	Extinct
Ranunculus arvensis	Regionally rare	Extinct
R. parviflorus	Regionally rare	Extinct
Papaver hybridum	Regionally rare	Extinct
Arabis hirsuta	Regionally rare	Extinct
Lepidium campestre	Regionally rare	Extinct
Coronopus squamatus	Regionally rare	Extinct

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
Drosera rotundifolia	Regionally rare	Extinct
Sedum dasyphyllum	Regionally rare	Extinct
Parnassia palustris	Regionally rare	Extinct
Pyrus pyraster	Regionally rare	Extinct
Cytisus scoparius	Regionally rare	Extinct
Lathyrus montanus	Regional rarity	Extinct
Trifolium fragiferum	Regional rarity	Extinct
T. averse	Regional rarity	Extinct
Geranium lucidum	Regionally rare	Extinct
Daphne mezereium	Notable	Extinct
Hypericum androgeanum	Locally rare	Extinct
Anthriscus caucaulis	Regionally uncommon	Extinct
Bupleureum rotundifolium	Nationally extinct	Extinct
Petroselinum segetum	Regionally rare	Extinct
Sison amomum	Regionally rare	Extinct
Torilis nodosa	Regionally rare	Extinct
T. arvensis	Regionally rare	Extinct
Gentianella campestris	Regionally rare	Extinct
G. amarella	Regionally rare	Extinct
Menyanthes trifoliata	Regionally rare	Extinct
Cuscuta epithymum	Regionally rare	Extinct
Teucrium scorodonia	Locally rate	Extinct



<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
Misopates orontium	Regionally rare	Extinct
Pedicularis palustris	Regionally rare	Extinct
Plantago coronopus	Regionally rare	Extinct
Campanula latifolia	Regionally rare	Extinct
Jasione montana	Regionally rare	Extinct
Filago pyrmaidata	RDB2	Extinct
Logfia minima	Regionally rare	Extinct
Bidens cernua	Regionally rare	Extinct
Senecio fluviatilis	Regionally rare	Extinct
Centaurea solstitialis	Regionally rare	Extinct
Volupia myuros	Regionally rare	Extinct
Desmazeria rigida	Regionally rare	Extinct
Nardus stricta	Regionally rare	Extinct
Scirpus setaceus	Regionally rare	Extinct
Blysmus compressus	Regionally rare	Extinct
Cephalanthera damasonium	Locally uncommon	Extinct
Spiranthes spiralis	Regionally uncommon	Extinct
Coeloglossum viride	Locally uncommon	Extinct
Ophrys sphegodes	Schedule 8 WLCA (1981)	Extinct

<u>Species</u>	<u>Local/Regional/ National Status</u>	<u>Status at Shotover</u>
<u>ODONATA</u>		
Gomphys vulgatissimus	Notable	Extinct
<u>Coleoptera</u>		
Harpalus honestus	RDB1	Extinct
Meloe rugesus	RDB3	Extinct
Aleochara maculata	RDB"	Extinct
Calathus ambiguus	Notable	Extinct
Claviger longifornis	RDB1	Extinct
Notiophilus aquaticus	Nationally uncommon	Extinct
Dyschirus politus	Notable	Extinct
Panageus bipustrulatus	Nationally uncommon	Extinct
Metabletus truncatellus	Nationally uncommon	Extinct
Corabus monillis	Notable	Extinct
<u>Diptera</u>		
Tipula truncorum	RDB3	Extinct
T. peliostigma	RDB3	Extinct
Ormosia bicornis	RDB3	Extinct
Criorhina asilica	Notable	Extinct
C. berberina		Extinct
Limonia masoni	RDB3	Extinct
Dixa maculata	RDB3	Extinct

<i>Rymosia bitida</i>	Notable	Extinct
<i>Mycetophila stolidia</i>	Notable	Extinct
<i>Sceptonia concolor</i>	Notable	Extinct
<i>Beris claripes</i>	Notable	Extinct
<i>B. fuscipes</i>	Notable	Extinct
<i>Oxycera nigricornis</i>	RDB3	Extinct
<i>Statiomys singulrior</i>	RDB3	Extinct
<i>Hybomitra micans</i>	Notable	Extinct
<i>Asilus crabroniformis</i>	RDB3	Extinct
<i>Eudorylas terminalis</i>	RDB2	Extinct
<i>Platycheirus discimanus</i>	Notable	Extinct
<i>Volucella inanis</i>	Notable	Extinct
<i>Miltogramma gemmaii</i>	Nationally uncommon	Extinct
<i>Ulidia erythrophthaima</i>	RDB3	Extinct
<i>Sapromyza bipunctata</i>	RDB3	Extinct
<i>Pipizella maculipennis</i>	RDB3	Extinct
<i>Eccoptomera oinata</i>	RDB3	Extinct
<i>Ceromya monstrosicornis</i>	Nationally extinct ?	Extinct

Aculeate Hymenoptera

Status (not recorded since 1980)

Chrysis helleni	Local rarity
C. ruddi	Rarity
Euchroeus neglectus	Rarity
Tiphia minuta	Local rarity
Myrmosa atra	Local rarity
Leptothorax acervorum	Local rarity
Priocnemis agilis	Local rarity
P. coriacea	Local rarity
P. gracilis	National rarity (RDB 3)
P. parvula	Local rarity
P. pertubator	Local rarity
P. schioedtei	Local rarity
Arachnospila spissa	Local rarity
A. trivialis	Local rarity
Evagetes crassicornis	Local rarity
Ceropales maculata	Local rarity
Symmorphus connexus	National rarity (RDB3)
S. mutinensis	Local rarity
Mimesa bicolor	Local rarity
Diodontus luperus	Local rarity
Melinus sabulosa	National rarity (RDB1)
Andrena bimaculata	Local rarity
A. bucephala	National rarity (RDB3)
A. niveata RDB3	

A. dorsata	Local rarity
A. libialis	Local rarity
A. labiata	National rarity (RDB3)
A. alkenella	RDB3
Eucera longicornis	Local rarity
Anthopora retusa	National rarity (RDB3)
Bombay sorodensis	Local rarity
Psithyrus rupestris	Local rarity
Ancistrocerus antelope	(RDB3)
Crossocerns vagaburdum	(RDB1)
Nysson interruptus	(RDB3)
Argogorytes forgei	(RDB3)
Hylaeus cornutus	(RDB3)
Nomada fulvicolnis	(RDB3)

### Lepidoptera

Hamaeris lucina	Notable	Extinct
Boloria euphrozyne	Regionally rare	Extinct

### Arachnida

Philodromus praedatus	Locally rare	On tree trunks
Tuberta maerens	Nationally rare	On tree trunks
Zygiella stroemi	Locally rare	On tree trunks
Moebiella unicornis	Locally rare	On tree trunks#

### Avifauna

Nightjar	Regionally rare	Extinct
Wheatear	Regionally rare	Extinct
Whinchat	Regionally rare	Extinct
Stonechat	Regionally rare	Extinct
Red backed shrike	Nationally rare	Extinct
Woodlark	Nationally rare	Extinct
Redstart	Nationally rare	Extinct

### Diptera

Leptogaster gulliventus	Notable	Extinct
Bombylius canescens	Notable	Extinct
Tachydromia connexa	“	“
Platypalpus fasciatus	“	“
P. pictitarsis	“	“
P. Pulicarius	“	“
P. Ryfucirbus	“	“
Dolichocephala ocellata	RDB3	“
Raphium auctum	Notable	“
Syntormon monilis	“	“
Epistrophe nitidiocollis	“	“
Xanthogrammon citrotasciatum	“	“
Porargus tibialis	“	“
Pipiza bimaculata	“	“
Cheilosia soror	“	“
Chrysogaster virescens	“	“
Conops ceriaeformis	“	“

Myopa fasciata	“	“
M. Polystigina	“	“
Herina germinationis	“	“
H. Lingubsis	“	“
Chamaemyla fasciata	“	“
Sapromyza obsoleta	“	“
Aulogashomyla anisodactyla	“	“
Homoeura tesquae	“	“
Eccoptomera microps	“	“
Scoliocentra scutellaris	RD3	“
Pherbelia dorsata	“	“
Dichetophora obliterated	Notable	“
Dicraeus raptus	“	“
D. tibialis	“	“
Lasiusina approximatonevis	“	“
Ceteina myopina	“	“
Chlorops rufina	“	“
Alophorea obesa	“	“
Mitogramma germari	RDB3	“
Spanochaeta dorsalis	Notable	“

Appendix 17  
Category definitions and criteria

These categories are based on degree of threat, and not on degree of rarity.

Category 1  
ENDANGERED

**Definition.** Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating.

Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are taxa that are believed to be extinct.

**Criteria.** Species which are known as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid and continuous decline over the last twenty years and now exist in five or fewer 10 km squares.

Species which are believed extinct but which if rediscovered would need protection.

Category 2  
VULNERABLE

**Definition.** Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are **decreasing** because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

**Criteria** Species declining throughout their range.

Species in vulnerable habitats.

Species whose populations are low.

Category 3  
RARE

**Definition** Taxa with small populations that are not at present endangered or Vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

This category also includes taxa which are believed to be rare but are too recently discovered or recognised to be certain of placing (designated 3\*).

**Criteria** Species which exist in only fifteen or fewer 10 km squares.

Category 4  
OUT OF DANGER

Taxa ?????

categories, but which are now considered relatively secure because effective conservation measures have been taken or the previous threat to their survival has been removed.

Category 5  
ENDEMIC  
APPENDIX

Taxa which are not known to occur naturally outside Britain.

Taxa within this category may also be in any of Categories 1 - 4.

Taxa which were formerly native to Britain but have not been recorded since 1900. (This definition is slightly modified for the Lepidoptera.)

Notable species occur in 16-100 10 km<sup>2</sup> in Britain

Diptera



Leptogaster gulliventus	Notable	Extinct
Bombylius canescens	“	“
Tachydromia connexa	“	“
Platypalpus fasciatus	“	“
P. pictitarsis	“	“
P. pulicarius	“	“
P. ryfucirbus	“	“
Dolichocephala ocellata	RDB3	“
Raphium auctumn	Notable	“
Syntormon monilis	“	“
Epistrophe nitidicollis	“	“
Xanthogrammon citrotasciatum	“	“
Porargus tibialis	“	“
Pipiza bimaculata	“	“
Cheilosia soror	“	“
Chrysogaster virescens	“	“
Conops ceriaeformis	“	“
Myopa fasciata	“	“
M. polystigina	“	“
Herina germinationis	“	“
H. lingubsis	“	“
Chamaemyla fasciata	“	“
Sapromyza obsoleta	“	“
Aulogashomyla anisodactyla	“	“
Homoneura tesquae	“	“
Eccoptomera microps	“	“
Scolioentra scutellaris	RDB3	“
Pherbelia dorsata	“	“
Dichetophora oblityerata	Notable	“
Dicraeus raptus	“	“
D. tibialis	“	“
Lasiusina approximatonervis	“	“
Ceteina myopina	“	“
Chlorops rufina	“	“
Alophora obesa	“	“
Mitogramma germari	RDB3	“
Spanochaeta dorsalis	Notable	“

## Appendix 18

### OXFORD CITY COUNCIL

#### BYELAWS

made under Section 41 of the Countryside Act 1968, by the Oxford City Council with respect to Shotover Country Park in the County of Oxfordshire.

1. Throughout these byelaws the expression “the Council” means the Oxford City Council and the expression “the park” means the country park at Shotover in the County of Oxfordshire as shown on the plan attached to these Byelaws.
2. No person shall in the park without reasonable excuse
  - i. climb any wall or fence on or enclosing the park, or any barrier, railing, post or other erection.
  - ii. remove or displace any barrier, railing, post or seat, or any part of any erection or ornament, or any implement provided for use in the laying out or maintenance of the park.
3. No person shall affix or cause to be affixed any advertisement, bill, placard or notice upon any building, wall, fence, gate, door, pillar, post, tree, rock or stone on or enclosing the park.
4.
  - a. No person shall light a fire in the park, or place or throw or let fall a lighted match or any other thing so as to be likely to cause a fire.
  - b. This byelaw shall not prevent the lighting or use of a properly constructed camping stove or cooker in any area set aside for the purpose, in such a manner as not to cause danger of or damage by fire.
5.
  - a. No person shall ride or drive a mechanically propelled vehicle or a pedal cycle in any part of the park where there is no right of way for vehicles.
  - b. This byelaw shall not extend to any invalid carriages which may legally be driven on a highway.
  - c. If the Council has set apart a space in the park for use by vehicles of any class, this byelaw shall not prevent the riding or driving of vehicles of that class in the space so set apart, or on the direct route between it and the entrance to the park.
6. Where the Council indicate by a notice conspicuously exhibited on or alongside any gate in the park that leaving that gate open is prohibited, no person having opened that gate shall leave it open.
7. No person shall without the consent of the Council erect a tent or use any vehicle, including a caravan, or any other structure for the purpose of camping in the park

except on any area which may be set apart and indicated by notice as a place where camping is permitted.

8. No person shall carry or discharge any firearm or air weapon in the park.
9. No person shall cause or suffer a dog belonging to him or in his charge to enter or remain in the park, unless such dog be and continue to be under proper control, and be effectually restrained from causing annoyance to any person, and from worrying or disturbing any animal.
10. No person shall without lawful excuse or authority in the park kill, molest or intentionally disturb any animal, bird or fish or engage in hunting, shooting or the setting of traps or nets or the laying of snares.
11. No person shall, turn out or permit any animal to graze in the park without the Council's consent.
12. No person shall in the park sell, or offer or expose for sale, or let or hire, or offer or expose for letting to hire any commodity or article without the Council's consent.
13. No person shall foul or pollute or obstruct the flow of any drain or water-course, or open, shut or otherwise interfere with any sluiceway or similar apparatus in the park.
14. No person shall in the park remove or displace any soil or turf or cut, maim, remove or displace the whole or part of any tree, shrub, plant or flower.
15. No person shall without the permission of the Council fly a powered model aircraft above the park.
16. No person shall ride a horse in the park except on a road or bridleway or on an area, path, track or route set aside by the Council for the riding of horses.
17. No person shall in the park intentionally obstruct or disturb a ranger or other officer of the Council in the proper execution of his duty, or any person or servant of any person employed by the Council in the proper execution of any work in connection with the laying out or maintenance of the land.
18.
  - a. An act necessary to the proper execution of his duty in the park by an officer of the Council, or by any person or servant of any person employed by the Council, shall not be deemed an offence against these byelaws.
  - b. Nothing in or done under any of the provisions of these byelaws shall in any respect prejudice or injuriously affect any public right of way through the park or the rights of any person acting legally by virtue of some estate, right, or interest in, over, or affecting the park or any part thereof.
19. Every person who shall offend against any of these byelaws shall be liable on summary conviction to a fine not exceeding £100.

Appendix 19

SHOTOVER CONSULTATIVE COMMITTEE - TERMS OF REFERENCE

- i. To define the areas having particular interests;
- ii. to investigate and describe flora and fauna of the area (see (i) above);
- iii. to advise on the management of woodlands and grasslands bearing in mind the existing and future use of such areas and the needs for conservation;
- iv. to advise on remedial work necessary to specific features, e.g. osier beds, ochre pits and ponds;
- v. to advise on tree planting to ensure the continuity of the landscape;
- vi. to explore the possibility of creating an Interpretative Centre at low cost using existing buildings;
- vii. to be involved in the supervision of volunteer groups carrying out specific projects;
- viii. to monitor the effect of the existing uses on vegetational and animal life, and
- ix. to advise on the pattern and intensity of use for recreational activities.

RECREATION AND AMENITIES (SHOTOVER CONSULTATIVE) SUB-COMMITTEE

Resolved -

- I. to receive and adopt the minutes (previously circulated and now appended) of the Recreation and Amenities (Shotover Consultative) Sub-Committee held on 24th November, 1983;
- ii. that the following paragraph be added to the Terms of Reference of the Sub-Committee  
-

“(x) that an Annual Tour of Shotover be held and the Chief Leisure Services Officer submit details of the work programme for Shotover to the Sub-Committee each year”

and that a note be added to the Management Plan to this effect.