

Knepp Castle Estate

Phase 1 Habitat Survey 2016

*Kate Ryland
Dolphin Ecological Surveys
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Dolphin Ecological Surveys
Edgedown
Kammond Avenue
Seaford
East Sussex
BN25 3JL

01323 304180
07437 461433

info@ecodolphin.co.uk

Survey Methodology

This habitat assessment is a repeat of the 2005 Phase 1 Survey that was carried out at around the time that many areas of the Knepp Castle Estate came out of arable production and the near-natural grazing regime began.

Only some parts of the Estate were re-visited for the 2016 habitat survey due to time constraints. Those areas, habitats or features that were identified as being of most actual or potential biodiversity value in 2005 were selected for re-survey.

The field survey was carried out over 6 days between 14th July 2016 and 15th August 2016. The same surveyor (Kate Ryland) used the same method of survey in both 2005 and 2016. In this type of broad, habitat level assessment, no attempt is made to document all species present.

In order to indicate how the habitat and botanical interest has changed over time, the habitats/features were evaluated against the 2005 description and new notes of prominent, characteristic or notable plant species were made along with any other features of interest. Common names are used throughout this report as they were in 2005.

The 2016 target notes for each area or feature of interest are presented below. Some additional interesting features and areas of significant habitat change are shown as new target notes (in blue text) in the report. As in 2005, casual observations of fauna were made and have been added to the target notes.

In the 2005 report some very general comments were made on the potential for different areas or features to support protected species. These comments are not included in the 2016 report because there is now a full time Ecologist at Knepp and much more survey data to confirm where many different species and groups of fauna actually occur on the Estate, included protected species. For example, great crested newt surveys have now been carried out so the distribution of this species across the Estate is much better known. Reptile and dormouse surveys are ongoing and targeted searches for water vole presence have also been carried out.

A new aspect of the 2016 survey was to make a photographic record of the areas visited. Photos were not taken in 2005. As well as photos taken at the target note locations, some general views were recorded of the most significantly changed vegetation in areas that were formerly very uniform arable reversion in the southwestern block. These areas have seen the greatest gross-scale habitat change over the last decade and have developed spectacular amounts of scrub and tall herb vegetation.

Some of the pictures are included in this report with the target notes but the entire set of digital photos taken during the survey will also be submitted to the Knepp Ecologist for the biological monitoring archive.

General observations

Changes in the habitat/botanical interest from 2005 to 2016

In 2016 grazing pressure in the central parkland block was very high due, at least in part, to the massive fallow deer herds in this area. The impacts of grazing and browsing animals were clearly visible along the edges of woodland grazing exclosures. Unfenced woodland blocks in this part of the Estate appear to have rather impoverished ground flora, areas of soil compaction and limited natural regeneration of trees and shrub species. In one copse (Brickyard Wood) the intense browsing has effectively removed a stand of the normally unpalatable rhododendron.

In contrast with the parkland woods of the central block, the large areas of woodland in the northern block seem to be doing well with current levels of cattle grazing. Despite some localised ground disturbance and browsing of the shrub layer, there are still many parts of these woodland complexes where a diverse vegetation structure, species-rich ground flora and other typical features of ancient woodland habitats persist.

In places the change from managing woodland rides by mowing to free-ranging cattle grazing seems to have been very beneficial in creating more varied ride edge vegetation. There are also some excellent glades and sunny open areas in some of these northern woods. Bracken control by cattle trampling is effective and despite heavy cattle grazing in some places there are good areas of natural regeneration of woody species in parts of these woods.

The effect of intensive rabbit grazing on scrub, woodland and grassland habitats was very noticeable in many parts of the Estate in 2016. These include low browse lines in scrub, warrens and associated bare ground in woodland as well as areas of short cropped grassland sward.

In general terms the vegetation around most of the small ponds and the larger waterbodies seems to be equivalent or more structurally varied than they were in 2005 and the pig wallows are new and useful features in the wetlands. Some of the lags are generally wetter and with more diverse wetland vegetation than previously.

In the northern and central parts of the Estate there has been remarkably little change to many habitats, especially the open fields that were either arable reversion or grassland in 2005. After a decade of extensive, mixed grazing one might have expected these areas to develop a more varied sward structure and more in-field scrub. So far only small differences in vegetation cover, height and composition seem to have occurred. However, the spread of scrub is variable and whilst there is less on the edges of some woodland and copses than might be expected, in other areas a wide, dense mantle of scrub is developing.

The exception to this gradual change in vegetation since the last habitat survey is within the southern block of the Estate where significant areas of structurally complex new habitats have developed since 2005. At that time much of the southwestern area was still under arable cultivation or had only recently been brought into arable reversion management. By 2016 large amounts of scrub, especially willow, dog rose and bramble, had grown in this block along with a nectar- and pollen-rich field layer. Wetland creation work has made some large areas of open, shallow water. The vegetation in this area has undergone the most dramatic structural differences since 2005 and has become of very high biodiversity interest.

The same beneficial impact of changed management but at a smaller scale has taken place in areas 60 and 61(north of New Barn). These were formerly managed as part of the stables operation but the vegetation has flourished and become much more structurally complex with the cessation of intensive horse grazing.

Recommendations

Some of these actions may already be in hand or scheduled as part of the ongoing Estate management. They arise from observations made during the 2016 Phase 1 field work.

- ◆ Reduce the size of the deer herd in the parkland area.
- ◆ Remove the many old, redundant tree tubes from plantations where they are littering the woodland floor and failing to photo-degrade.
- ◆ Remove old wire, predator traps and other metal debris associated with pheasant rearing and shooting in areas where this activity has ceased.
- ◆ Check a possible cesspit leakage into the shaw at Target Note 46, just west of Hampshires Farm, in case there is a pollution risk to the watercourse.
- ◆ Extend the dormouse surveys using nest boxes into other woodland areas in the northern block.
- ◆ Carry out halo thinning in selected copses around oaks and other standard trees to promote future open grown veterans in woodland areas.

2016 Phase 1 Survey Target Notes

The target note numbers used are the same as those in the 2005 Phase 1 report.

New target notes are shown in blue.

Fauna observed in each areas is shown in italics.

5. Coates Furzefield. This plantation on an ancient woodland site has a stream valley along its northern edge and a central plateau where the plantation trees are concentrated.

The edges have a more semi-natural character along with old banks and ditches. The damp, grassy rides around and across the copse that were once mown are now unmanaged but subject to cattle grazing and remain species rich with a range of plant species noted including tormentil, water-pepper, marsh thistle, foxglove, greater bird's-foot-trefoil, sharp-flowered rush, creeping buttercup, bog stitchwort, Yorkshire fog, creeping bent, three-veined sandwort, sweet vernal-grass, devil's-bit scabious, selfheal, cock's-foot and lesser stitchwort.

Bracken is frequent in some areas and appears to be prevented from dominating grassy areas by cattle trampling. There is also much evidence of cattle congregating along the stream valley.



The woodland includes a variety of woody species such as ash, elder, blackthorn, wild cherry, oak, hazel, holly, hawthorn, silver birch, sycamore, gorse, grey willow, bramble and honeysuckle over a ground flora containing bluebell, dog's-mercury, dog-violets, pendulous sedge, remote sedge, wood sage, water figwort, tormentil, bugle, common spotted-orchid and hairy woodrush. A stand of rhododendron is present in the southwestern corner of the copse.

A pond located in a sunny glade on the western side of Coates Furzefield has diverse marginal and emergent flora. Wetland plants noted here include grey club-rush, branched bur-reed, common bulrush, lesser spearwort and redshank.

Southern hawkler, brown hawkler, silver-washed fritillary.

6. Coates Wood. A diverse mixture of plantation and coppice stands with frequent wood banks occurs in this area of ancient woodland. Trees and shrubs include gorse, willows, sweet chestnut, broom, holly, oak, field maple, blackthorn, hornbeam, ash, hazel, hawthorn, alder, silver birch and conifers. Old ash and hornbeam stools are present.

There is a significant amount of livestock access and browsing, especially in the south of Coates Wood, which has produced a distinct browse line and extensive poaching with a poor shrub layer and limited natural regeneration. The small stream channel in this area is particularly churned up

but there is a shaded, alder-lined pool that retains water. The ground flora in the south of this woodland is sparse but varied and reflects both the ancient woodland soils and the relatively high levels of disturbance. Sparse bluebell, frequent grasses, nettle, dog's mercury, wood sedge, ground-ivy, dog-violets, bramble, primrose, lesser burdock, hedge woundwort, wood spurge, barren strawberry, enchanter's nightshade, wood dock, foxglove and wood sage occur here. The ground flora is best developed in the south of the wood within canopy gaps and areas of broadleaf plantation.

Bracken is locally frequent below conifers and in an area of hazel coppice, which includes stands of mature, fruiting hazel. Bramble and honeysuckle are both locally frequent. Within the conifer plantation in the south there are several wet, mossy flushes and glades along with a notably species-rich, damp ride with plants such as water mint, common marsh-bedstraw, agrimony, meadowsweet, selfheal, marsh thistle, common spotted-orchid, creeping cinquefoil, fleabane, greater bird's-foot-trefoil, bugle and creeping-Jenny. Some patches of ash regeneration were noted.

Within the central part of this woodland block the ground flora is less patchy and bare ground was only noted within blocks of coniferous plantation. Good amounts of deadwood are present. On the boundary between the conifers and the broadleaved woodland, where an old east-west orientated ride bisects the wood, there is an outstanding, herb-rich woodland glade with dense, graded edges. On the day of the survey (25/7/16) this area was alive with invertebrates including good numbers of silver-washed fritillary and white admiral.



The central north-south ride is also an excellent damp, herb-rich feature with scrubby edges of bramble, bracken, gorse and willow. Wood spurge, dog-violets, primrose, wood anemone and barren strawberry occur on the ride.

The stand of rhododendron below a group of mature oaks is still present and has a well-developed glade structure on its edges. To the north of the rhododendron is an area of ash and oak plantation with huge numbers of old tree tubes, which should be removed.

In the north of Coates Wood the ground slopes down to an area of mature conifers over a distinctly sandy field layer dominated by bracken, bramble and foxglove with frequent hard fern.

Good dormouse potential. Chiffchaff, white admiral, meadow brown, silver-washed fritillary, peacock, purple hairstreak.

Bar Furzefield. This diverse area is a mixture of conifers and broadleaved species with a rich ground flora, especially in the most damp areas. Oak, including old coppice stools, hazel, grey

willow, field maple, hawthorn, crab apple, hornbeam, holly, wych elm, sweet chestnut, silver birch and blackthorn are present.

In damp glades, such as where mature conifers are collapsing, and on rides the ground flora includes common spotted-orchid, water mint, water-pepper, soft rush, enchanter's-nightshade, bugle, silverweed and honeysuckle along with plants of more open situations such as common knapweed, fleabane, agrimony, meadow vetchling and St John's-worts.



In areas with a more closed canopy there are some mature oaks over hazel and hornbeam coppice with a typical woodland ground flora comprising a mixture of species such as dog's-mercury, enchanter's-nightshade, dog-violets, bluebell, wood sedge, primrose, hedge woundwort, creeping-Jenny, barren strawberry and wood spurge. Some parts of the woodland floor appear poached by cattle but the ground flora remains largely intact and the high quality glades and rides are kept open by the animals.

A footpath that runs east-west between coups of hazel and hornbeam coppice meets a series of rides and flushes leading northwards into areas with a well-developed, dense shrub layer. Natural regeneration of several woody species including hawthorn, silver birch, hazel and sweet chestnut was evident here despite cattle presence. The many tree tubes in the block of plantation at the northern end of Bar Furzefield should be removed.

Dormouse potential. Long-tailed tits, speckled wood, silver-washed fritillary.

8. Pollardshill Furze. This is a structurally varied copse, especially in its south. It is a mixture of broadleaves and conifers with sweet chestnut, beech, hawthorn, Scots pine, oak, elder, silver birch, blackthorn, sycamore and hornbeam prominent.



There is a very clear browse line around its edges and the scrubby margins noted in 2005 are now less prominent in the south but remain very well developed around the northern parts of the copse.

The sweet chestnut coppice coup in the south is much affected by high levels of cattle and rabbit activity with a very sparse ground flora. Stands of privet occur in this area.

Away from the sweet chestnut, the north of the copse has a much more varied structure, a higher proportion of scrub, which is locally almost impenetrable, old tree tubes in mixed species broadleaved plantation and a very diverse ground flora especially along the rides. The ground flora includes devil's-bit scabious, betony in some abundance along with agrimony, water mint, heath speedwell, primrose, wood sage, marsh thistle, pendulous sedge, common spotted-orchid, foxglove, garlic mustard, marsh thistle, bugle and many other species. The northern section is beech plantation with scrub.

Dormouse potential.

8b. [Field to the north of Bar Furzefield.](#)



This small field that lies between two blocks of woodland in the north of the Estate has a sward is developing a quite tall and tussocky structure with common herbs such as bugle, creeping cinquefoil, marsh thistle, lesser stitchwort and creeping thistle.

9. A mixed copse on the northeastern corner of Horsham Common, this area has a rather open structure with sparse shrub layer and contains a large, apparently active pheasant rearing pen. The canopy and shrub layer is diverse and includes hornbeam, hazel, field maple, oak, sycamore, pines, alder, hawthorn, ash, holly, crab apple, elder, silver birch and blackthorn.



The ground flora is patchy with locally abundant bracken and dog's-mercury along with three-veined sandwort, ground-ivy, bluebell, bramble, water-pepper, soft shield-fern, male fern, honeysuckle, primrose, dog-violets, wood sedge, barren strawberry, wood sage and greater stitchwort. Sycamore and ash seedlings are abundant.

The gill stream along the northern edge was almost dry in July 2016 and appears to be a favoured spot for the cattle to congregate. The pheasant pen acts as a cattle enclosure and within its fences there is considerably more bramble and a better developed shrub layer than in the rest of this area.

10. This species-rich glade was kept open by mowing in 2005 but now contains a higher proportion of elder and hawthorn shrubs and young oaks in the sward along with stands of bracken on the margins. The stream on the northern edge has mixed scrub of willow, bramble and blackthorn on its banks whilst the southern stream is also scrub-lined with a wet flush dominated by soft rush and remote sedge at one point on its banks.



The glade itself is still an outstandingly herb-rich area of high value to invertebrates and other fauna. It supports a good range of forbs including marsh thistle, germander speedwell, musk mallow, greater bird's-foot-trefoil, perforate St John's-wort, fleabane, agrimony, meadow vetchling, crosswort, bugle, red bartsia, creeping cinquefoil, common knapweed, yarrow, common bird's-foot-trefoil, white clover, tufted vetch, red clover, selfheal, lesser stitchwort, common ragwort, devil's-bit scabious and notably large amounts of betony. Grasses include bents, false oat-grass, sweet vernal-grass and crested dog's-tail.

11. Horsham Common. This large and complex block of ancient woodland and conifer plantation is, broadly, drier in the north and wetter in the south. Small streams with especially diverse woodland ground flora on their margins run along the eastern, western and northern sides of the wood and converge in Alder Copse in the south. Deadwood is abundant throughout Horsham Common.

The northern area comprises a mixture of hazel and hornbeam coppice with oak, blackthorn, ash, elder, alder buckthorn, crab apple, holly and conifers. Bramble, dog rose and honeysuckle are also frequent in places. Rides in the northern area tend to be quite grassy and the ground flora is rich with species such as bluebell, wood melick, primrose, wood sedge, dog's-mercury, bracken, ragged robin, bugle, water-pepper. Creeping-Jenny, giant fescue and pendulous sedge. Dense banks of bramble are present on some ride edges and scrub regeneration is abundant in this area.

An area of hornbeam coppice seems to be well-used by cattle and the ground level vegetation is sparse here but an adjacent block of hazel retains its diverse ground flora, which appears to be analogous to ungrazed woodlands elsewhere on the estate. Overall the impact of the current level cattle access to the Horsham Common woodland appears to be largely benign with well structured

ride edges and natural regeneration of woody species.



There is a large pheasant pen within the northern area of this woodland.

The southern part of Horsham Common, known as Alder Copse, is a mixture of semi-natural wet woodland with predominantly ash and hazel, occasional dry coups of hazel/hornbeam coppice on the stream banks, some stands of conifers and poplar plantation. Ramsons are locally abundant in the wet woodland. This area has some very diverse, wet rides with locally abundant wetland species such as water mint, sedges, rushes, marsh thistle, water-pepper, greater bird's-foot-trefoil, cuckoo-flower, marsh woundwort, meadowsweet and ragged robin.



The pond in the south of Alder Copse was described as overgrown in 2005 but in 2016 it had a diverse marginal flora including branched bur-reed, gipsywort, water forget-me-not, common water-plantain, common bulrush, meadowsweet and marsh woundwort with willows partly shading the banks. The vast, active badger sett is still present on the steep banks adjoining the pond.

The southwestern edge of Alder Copse has particularly good blackthorn scrub extending out into the adjacent field. Between Alder Copse and Hartsgravel Wood to the west is an area of almost impenetrable wet woodland and poplar plantation with a mixture of scrub and tall herbaceous vegetation including bramble, bracken, water mint, meadowsweet, creeping thistle and docks. The grassy ride along the northern edge of the plantation is a well-used deer run with mixed scrub of hawthorn, blackthorn, bramble and spindle.

Dormouse potential. Speckled wood, holly blue, wren, silver-washed fritillary, ringlet, large white, comma.

12. Hartsgravel Wood. This block of woodland seems little changed since 2005. It is a mixture of ancient coppice woodland and blocks of plantation. Oak, ash, hornbeam and hazel predominate over bramble, bracken and bluebell with lesser amounts of holly, silver birch and sweet chestnut. Wood anemone, bugle and wood sage are locally frequent.



A damp ride along the southern edge has locally frequent water-purslane and water-pepper. The rhododendron noted in 2005 is still present and there are thickets of native scrub. It appears that cattle only visit this area infrequently but deer browsing is very evident.. There are some old pheasant feeders along with tree tubes and stakes which could be removed.

13. This series of narrow, sloping wet grassland fields along the streamside were described as poor semi-improved/tall herb transitional habitat in 2005 and were much the same in 2016. The tall, tussocky swards contain a mixture of coarse grasses and widespread herbs, many typical of damp situations. Plants noted included Yorkshire fog, creeping bent, cock's-foot, docks, common ragwort, germander speedwell, greater bird's-foot-trefoil, fleabane, nettle, lesser stitchwort, soft rush, crosswort, Timothy, hemlock water-dropwort, hogweed and creeping thistle. The field edges have bramble beginning to spread into the grassland but otherwise little scrub was evident in the fields. An area rich in grassland invertebrates.



14. Grassland on either side of the tributary stream that leaves Alder Copse in the north and flows southwards towards Pond Lagg and eventually into Knepp Millpond. These strips of streamside grassland between wooded banks have both wet and dry areas of sward. In the north, around the pylon, grazing pressure on the drier sward is quite heavy and creeping thistle is prominent along with locally frequent marsh foxtail, bur chervil and marsh woundwort.



In wetter areas especially further south, creeping bent, floating sweet-grass, water mint, water-pepper, silverweed and hairy sedge are more frequent.

Hazel, ash, hawthorn, alder, grey will and blackthorn occur along the field edge banks whilst the stream has a diverse and locally dense emergent flora that includes meadowsweet, hemlock water-dropwort, reed canary-grass, nettle, branched bur-reed, great willowherb, gipsywort and water chickweed. The bankside and marginal vegetation of the stream is a little more diverse than it was in 2005.

15. Great Cockshill Wood. This wood seems little changed since 2005 though the eastern arm of the wood, which is mixed broadleaved plantation, is quite heavily browsed with a generally poor shrub layer, little natural regeneration but some stands of nettle, bramble and bracken forming thickets. The locally frequent alder buckthorn shrubs in this area are a notable feature.

The central conifer plantation has a dense understorey of bramble. The rides through this woodland are damp, mossy and locally quite diverse with frequent ferns. Male fern, broad buckler-fern, common figwort, wood spurge, wood sedge, pendulous sedge, barren strawberry, creeping-Jenny, bugle, wood sage, common skullcap, bracken and lady fern are all present on the rides and in wet flushes near the wood yard in the south.

Hazel coppice in the north with oak and ash standards has abundant bramble thickets and an area of regenerating ash that is badly affected by ash die-back (*Chalara*).



Cattle appear to stay largely on the rides throughout this part of the wood though there are some areas of bare ground below the woodland canopy. Dormouse boxes are present in Great Cockshill

Wood.

16. Little Cockshill Wood. The willow and poplar plantation in the wet southeastern area has many dead and fallen trees. Willow scrub is spreading outwards into the adjoining grassland (14). The lush, wet ground flora includes much nettle and frequent grasses with alder concentrated along the stream banks. Cattle activity appears to be focused along the stream.



The body of the wood includes coppice coups and plantation of a range of trees and shrubs including hornbeam, field maple, ash, oak, hawthorn, elder, silver birch, hazel, holly, rowan, wild cherry, horse chestnut and conifers. Dense birch and bramble thickets occur in the centre of the wood and the young broadleaf plantation in the southwest has many tree tubes. Regrowth of coppiced hazel and ash seems rather sparse but bramble is plentiful. Ferns are prominent in the ground flora along with typical woodland plants such as bluebell, primrose, dog-violets, dog's-mercury, enchanter's nightshade, wood speedwell and wood sedge. The rides have a diverse flora in canopy gaps.

17. Pond Lagg. An area of very wet, inundation grassland with frequent flushes that is favoured by the cattle. The wet sward typically includes a high proportion of creeping bent along with stands of marsh foxtail, floating sweet-grass, hairy sedge, amphibious bistort, silverweed, water-pepper, redshank, rough meadow-grass, creeping buttercup, white clover, docks, soft rush, perennial ryegrass and Yorkshire fog. Less frequently occurring herbaceous and wetland species noted include water mint, fleabane, sharp-flowered rush, brooklime, common marsh-bedstraw, gipsywort and clustered dock.



The dry, rather trampled stream channel within the field in the south supports a diverse mixture of

wetland plants including reed canary-grass, fool's watercress, sedges, trifid bur-marigold, branched bur-reed, common water-plantain, water mint and fine-leaved water-dropwort. This vegetation extends into the dense marginal fringe of the small pond where additional plants noted include yellow flag, marsh woundwort, meadowsweet and water chickweed.

The wooded banks on either side of the lagg have patchy mixed scrub of hawthorn, willows, oak, blackthorn and field maple. The northern end of this area adjoins Little Cockshill Wood (see 16) and the ditch between these two areas is shaded by alders and has a very trampled, poached area with a partially blocked culvert where cattle congregate.

Roe deer, grey heron, mallard.

25. Spring Wood & Matches Wood. The Bothy and its car park within Spring Wood have been developed considerably since the 2005 survey.

Spring Wood, parts of which are within a grazing enclosure, has a generally open structure with an oak-dominated canopy, some ash standards and areas of hazel coppice, field maple and hawthorn. Significant thinning of the oak and ash plantation north of the stream has taken place in recent years.



The shrub layer is almost absent in places and the wood margins are heavily browsed by the large deer herd. The late summer ground flora in this area includes areas of dense nettle and bramble but is locally rich in typical woodland species such as wood spurge, dog's-mercury, primrose, dog-violets, wood sedge and some wood sage. In wet flushes around the stream valley soft rush and marsh thistle are locally frequent along with brooklime, water-pepper and hemlock water-dropwort.

The dense and varied shrub layer within grazing enclosure in the west of Spring Wood includes frequent spindle, blackthorn and hawthorn and provides a distinct contrast with the much more open-structured grazed portions.

Matches Wood is predominantly hornbeam, field maple and hazel coppice under oak with grazing enclosures at its north and south ends. Within the fences there is a diverse ground flora and dense shrub layer with stands of bramble. Rhododendron occurs in the northern enclosure.



Outside the fences a more simplified, wood pasture structure is developing and the ground flora is much more grassy with frequent Yorkshire fog, bent-grass and some stands of nettle and dog's-mercury. Deadwood is abundant in this area and extensive bare, compacted ground occurs where deer congregate. The main structural diversity in this area is now found in the contrast between grazed and ungrazed areas.

Silver-washed fritillary.

26. The large pond is fed by streams from Spring/Matches Woods and extends into the open parkland to the east. It still has a very diverse fringe of marginal vegetation, especially in the open, eastern section, that includes brooklime, water mint, false-fox sedge, water-pepper, branched bur-reed, remote sedge, common marsh-bedstraw, amphibious bistort, common water-plantain, gipsywort, watercress, yellow flag, reed canary-grass, common bulrush and fool's watercress.



The rich aquatic flora includes pondweeds and common duckweed. The variety of open and shaded banks and rich wetland vegetation continue to provide good habitat for a range of fauna. The woodland around the Bothy, which is mainly oak and hazel over dense bluebell and dog's-mercury, is fenced from livestock.

27. Brickyard Wood. A small copse with distinct banks around its edges and a very open structure due to heavy grazing and browsing. It contains a mixture of oak, field maple, ash, hawthorn, hornbeam, hazel and elms with abundant deadwood. Bare ground is quite extensive though there are some patches of nettle and grassy vegetation with occasional dog's-mercury, bracken, ground-ivy, enchanter's nightshade and common figwort. The rhododendron noted in 2005 is now largely gone as a result of the heavy browsing of deer and cattle. On the southern edge there is an

overgrown pond and flush with grey willow and wetland species including pendulous sedge, brooklime and water-pepper.



Raven, grey squirrel.

28. Capps Bridge. (Nb this was wrongly named as “Knepp Park Wood” in the 2005 report). This copse is still heavily grazed, as it was in 2005. The canopy species are little changed from that time but the ground flora seems to be more grassy and with more extensive bare ground as a result of deer and cattle seeking shade under the trees and visiting the new wetland (28b) that lies along the eastern edge of the copse. Nettle stands are more extensive and there is much bracken on the east-facing slopes and open glade above the new wetland. The fenced, roadside strip of this copse provides a clear contrast in ground flora and shrub layer structure with the grazed portion.



28b. New wetland habitat has been created since 2005 along a tributary stream of the River Adur between Capps Bridge (28) and Charlwood Wood (29) and extending along the Adur.



A large pond is now present in the low lying grassland between the two woodland blocks and despite an algal bloom at the time of the 2016 survey the water supports a narrow leaved pondweed and common duckweed. The margins include many wetland plants including soft rush, floating sweet-grass, water mint, water-pepper, branched bur-reed and clustered dock.

Grey heron.

29. Charlwood Wood. Charlwood Wood is still fenced to exclude livestock and is largely unchanged since the 2005 survey. It lies on a steep west-facing slope and there is still considerable badger activity in this copse, along with a large population of rabbits.



Deadwood is abundant under the canopy of hornbeam, ash, oak and hazel coppice. Elder and rhododendron are locally frequent. The field layer contains much dog's-mercury, bramble, bluebell, bracken, three-veined sandwort and bugle. There are some thickets of ash regeneration. There is also quite a bit of debris along the eastern edge of the wood near the fence.

30. This small pond seems largely unchanged since 2005. It is still shaded by trees and shrubs including field maple, oak, hawthorn, crack willow, Portugal laurel and elm. The margins are grazed and trampled and it still has little aquatic vegetation evident.



A few fragments of marginal vegetation include remote sedge, soft rush, hard rush, gipsywort, water mint and common marsh-bedstraw. The collapse of a large tree on the eastern side of the pond has added a valuable deadwood feature to the pond.

31. The wet flush that extends westwards from the wooded millpond stream into the parkland is still present but the stream/ditch in it may be rather less wet than it was in 2005. However, there is an additional even wetter flush to its south (along the ditch between 32 Merrick Wood and 34 the millpond wood) that was not noted in 2005.



Typically both areas support dense rushes including stands of sharp-flowered rush, fleabane, water mint, creeping bent, silverweed, false-fox sedge and water-pepper.

Wasp nest in old stump on ditch edge.

32. Merrick Wood. This small, rather damp copse is set within the parkland but fenced and is little changed since 2005 except that the contrast between the ungrazed woodland within the enclosure and the surrounding fringe where animals have access is even more pronounced. Predictably the woodland structure within the fence is much more complicated than outside, the ground flora is more diverse and an impenetrable, mixed shrub layer is present in places. The northern part of the enclosure has a more open structure below a canopy of quite closely spaced oak, ash and sweet chestnut.

The within the fence at Merricks Wood there are diverse canopy and shrub layers with a range of species noted including oak, ash, goat willow, hazel, elder, blackthorn, poplar, spindle, privet, dog rose, grey willow, hawthorn, field maple, crab apple and sweet chestnut. The ground flora includes

pendulous sedge, bramble, enchanter's nightshade, wood sedge, bugle, primrose, bluebell, bracken, male fern and soft shield-fern. Outside the fence the ground flora is inevitably much more grassy.



Outside the fence there are old banks with mature oaks, including stubs, that mark the original extent of the copse. A small pond with a mature oak on its banks at the southeastern corner of the wood is just as was described in 2005. Its shallow water supports rafts of floating sweet-grass with soft rush and common duckweed.

34. This complex area of wet and dry woodland with extensive fen along the millpond feeder stream remains a diverse and structurally varied area of high biodiversity value. The fen and willow carr habitat along the stream supports a mosaic of areas of bare mud, open water pools and dense wetland vegetation with fallen trees and deadwood in many places. Typical plants in this area include yellow flag, branched bur-reed, water mint, water-pepper, floating sweet-grass, reed canary-grass, grey willow, alder, rushes, common skullcap, crack willow, purple loosestrife, creeping-Jenny and bulrushes. A drier, scrubby fringe of blackthorn, hawthorn, oak, ash, field maple, elder and grey willow occurs on the western edge over stands of nettle and dog's-mercury.



The northern area of wet woodland near Lodge Farm, which is a mixture of willows, poplar and alder, has a lush and grassy wetland ground flora that includes much water-pepper with hemlock water-dropwort, branched bur-reed, reed canary-grass, nettle, wild angelica, marsh woundwort and common hemp-nettle. The stream channel here is quite well-defined with a fringe of wetland species in places. The remains of an old boardwalk are present in the wet woodland and there is very heavy use of this part of the site by the fallow deer herd.

The northeastern part of this woodland block is drier and comprises hornbeam and ash with wych elm and silver birch over a grassy ground flora. A fenced enclosure has pheasant feeders within it under the conifers, oak, ash and hazel coppice. Pendulous sedge is prominent in the field layer here.

The appearance of the eastern edge of the wood has changed since 2005 as there is now a large earth bund outside the perimeter stock-proof fence. There is still a mixture of wet woodland with areas of willow and poplar, some large old poplar trees and alder carr. The drier bank with its mixed, old coppice stools of hazel, field maple, ash and wild service-tree, wych elm, oak, crab apple and diverse scrub of blackthorn, spindle, hawthorn and elder marks the edge of this woodland area. There is a particularly rich wet woodland transition into fen on the millpond edge.

Jay, grey heron.

36. Hillhouse Plantation. This mixed plantation on the edge of the polo grounds has a varied structure with some open and deer-browsed areas but also some dense stands of rhododendron and bramble. It seems to be more affected by deer than it was in 2005.



The southern section is a mixture of horse chestnut, oak, Scots pine, hawthorn, hornbeam, lime, elder, elm, holly, field maple, ash, cherry and blackthorn over a rather coarse grassy ground flora with stands of bluebell and dog's-mercury. The northern arm is dominated by pine plantation with dense bracken, bramble, nettle, elder and patchy natural regeneration of broadleaved species.

43. On the south side of the eastern arm of the millpond the mixed wet woodland that grades into fen and tangled willow scrub on the water's edge is still a diverse habitat.



Deadwood is plentiful. The gentle north-facing slope supports a mixture of oak, ash, beech, field maple, crack willow, hazel, hawthorn, sweet chestnut, alder and grey willow and the ground flora ranges from grassy areas with dense bramble, wood dock, bracken, foxglove, wood speedwell and ground-ivy on the drier slopes to a wetland assemblage including gipsywort, yellow flag, bulrush, water mint, skullcap and water-pepper on the water's edge. There may be rather less open fen that was noted in 2005 as the willow carr has grown up.

44. The 2005 survey includes only sparse details of this area of woodland that extends along the northern side of the millpond's eastern arm.

On the northern edge of this woodland there is now a valuable corner of unmanaged, tall grassland and scrub at the junction of the polo field and the woodland.

There are some areas within the woodland that are heavily deer browsed with disturbed ground and a sparse field layer but also some dense bramble thickets. Deadwood is abundant, both standing and fallen, and the canopy/shrub layer in drier parts includes a mixture of beech, hawthorn, oak, ash, silver birch, horse chestnut, sweet chestnut, grey willow and elder. The ground flora is diverse and rich in typical woodland species including dog-violets, bugle, three-veined sandwort and primrose.



Along the water's edge wet woodland occurs as dense tangles of willows, hawthorn and hazel over wetland plants including yellow flag, meadowsweet, remote sedge, water mint and skullcap.

The eastern edge of this area of woodland has a ditch and a park fence along with old barbed wire fencing that may mark the boundary of Estate land. Rhododendron is present in some abundance in this eastern area.

45. Castle ruins. The semi-improved grassland sward around the castle ruins is quite patchy with some areas of fine-leaved grasses such as red fescue, meadow barley and common bent but elsewhere, especially around the moat, there is a more tussocky structure and enriched sward dominated by creeping bent, cock's-foot, creeping thistle and nettle. Common ragwort is occasional along with crosswort, creeping cinquefoil and locally abundant white clover. Short, rabbit grazed areas occur on the castle slopes. On level ground at the foot of the castle mound there are wet flushes characterised by soft rush, tufted hair-grass, greater bird's-foot-trefoil and water-pepper.



The mature oaks in this area, with their deadwood and fallen limbs, are an excellent feature.

46. The north-south shaw has a central flush and steep banks on either side with an extensive badger sett. Field maple, oak, hawthorn, grey willow, primrose, hazel, holly, bluebell and nettle are all prominent and despite cattle using this feature for shelter it seems very similar to its state in 2005.



There may be some cesspit leakage into the north end of the shaw from the nearby cottages which should be investigated to avoid pollution of the watercourse.

47. Penbridge Lane. In 2005 this old, wooded green lane with its banks and ditches, open and shaded sections, structurally varied vegetation and wet flushes was identified as a valuable corridor habitat. In 2016 it has become one of several important areas on the Estate for purple emperors along with several other butterfly species. Canopy viewing platforms in some of the larger oaks have been constructed to help visitors see and enjoy these woodland butterflies.

Its mixture of broadleaved species includes many oak trees, both veterans and maidens, field maple, grey willow, alder, hawthorn, hazel, blackthorn, elder, dog rose, holly ash and birch. Ivy is abundant in the trees and the ride edges support plentiful nectar- and pollen-rich plants as well as a range of grasses in the small open glades. Bramble, fleabane, nettle, docks, marsh thistle, selfheal, meadow vetchling, hogweed, hedge woundwort, black bryony, creeping thistle, foxglove, bluebell, wood sage, common knapweed, tufted vetch and honeysuckle are all present along the edges of Penbridge Lane.

The northern part of the green lane has quite dense (possibly trimmed?) scrub on its edge which

still resembles a hedgerow. The scrub along its eastern side is much more free-growing and is expanding into the adjacent open fields.



The southern part of the green lane is more heavily used by people than the northern sections but is nevertheless a valuable and structurally varied linear habitat. The ride edges are often especially wide with lush, damp vegetation in this part with abundant water-pepper and silverweed.

The pond on the side of the lane (54) is small and shaded in its north but open and sunny in the south with a good fringe of reed canary-grass, false fox-sedge, fine-leaved water-dropwort, floating sweet-grass and grey willow scrub.

Gatekeeper, comma, purple emperor, purple hairstreak, meadow brown.

49. “Wildflower Field”. This area of grassland together with the “Wildflower Meadow” (50), Oaklands Lagg (51) and the fen to the south form the northern end of a continuous area of very good quality habitat along the tributary streams that cross Penbridge Lane and feed into the Hammer Pond (59) to the east.

The Wildflower Field is still largely open grassland with some areas of scrub on the edges and along the stream valley. It has both wet and dry areas of sward with some flowery and herb-rich areas along with grass-dominated patches that grade into wetland vegetation. Species noted in this area include hairy sedge, selfheal, common ragwort, creeping buttercup, lesser stitchwort, creeping thistle, curled dock, redshank, water-pepper, red bartsia, white clover, and the grasses perennial rye-grass, cock's-foot, rough meadow-grass, creeping bent, sweet vernal-grass and false oat-grass.



Damp flushes have locally frequent marsh foxtail, tall fescue, soft rush, greater bird's-foot-trefoil, marsh thistle and sharp-flowered rush whilst in the drier areas typical meadow herbs present in some abundance include common knapweed, common bird's-foot-trefoil, red clover, common sorrel, fleabane, pignut and hairy tare along with much red fescue. A bank in the south of the field has an especially high proportion of these herbs along with burnet-saxifrage, creeping cinquefoil, musk mallow, yarrow, crosswort, meadow buttercup and smooth hawk's-beard.

There appears to be much more common knapweed and common bird's-foot-trefoil in the sward than was apparent in 2005.

Meadow brown, marbled white, turtle dove.

50. "Wildflower Meadow" and pond. This area of tussocky, semi-improved grassland seems very similar to its state in 2005 but appears rather less diverse than the adjoining Wildflower Field (49).

Hairy sedge, silverweed and rushes mark out damp flushes along with much creeping buttercup and white clover but elsewhere, especially on the bank in the north and around the pond, the sward is rich in typical meadow plants, many of which were sown into this and the adjoining area.

This field has a higher proportion of docks (including common sorrel) and creeping thistle than was noted in 2005 and in the south the sward is grazed quite low but has a high proportion of tussocky grasses.

The diverse vegetation in and around the pond has become more profuse since 2005 and there is now little open water, apart from a small cattle drinking spot, and much emergent and marginal vegetation. Plants here include yellow flag, water mint, gipsywort, water forget-me-not, water dock, fine-leaved water-dropwort, branched bur-reed, common marsh-bedstraw, sedges, water horsetail, cuckoo-flower, common water-plantain, watercress, rushes, lesser spearwort, common club-rush, Nuttall's waterweed and a pondweed. Water-violet is still present but seems less abundant than it once was due to the dense, tall emergent species. Dense banks of bramble and scrub with small clearings surround parts of the pond banks.



The scrubby field edge that adjoins Penbridge Lane (47) is a rich and well-structured area and has wet flushes along its length.



The vegetation within the rabbit-proof grazing enclosure in the centre of this quite heavily grazed field includes several oak saplings in the tall false oat-grass sward and provides a striking visual contrast with the surround low sward.

Jay.

51. Oaklands Lagg. Described in 2005 as tussocky, wet, semi-improved grassland with surrounding scrub, bramble banks and hedges, Oaklands Lagg is still a diverse, flowery area of high value to invertebrates. The sward is very herb-rich with some dense stands of fleabane and greater bird's-foot-trefoil especially in the wetter eastern end where soft rush and hairy sedge are also prominent.



Other plants present include common knapweed, burnet-saxifrage, common knapweed, crosswort, marsh thistle, creeping cinquefoil, ground-ivy, water forget-me-not, water-pepper and the grasses false oat-grass, Yorkshire fog and creeping bent.

Grass snake.

52. Fox Covert. This small, roadside block of PAWS woodland is heavily browsed and bare ground is quite extensive except in the grazing enclosure where bramble is abundant. The mix of broadleaved woody species includes blackthorn, field maple, oak, hawthorn, hornbeam, poplar, sycamore and dog rose.

The ground flora is patchy and best developed on the copse edges and in canopy gaps. It includes stands of nettle as well as false-brome, remote sedge, dog's-mercury, wood avens,

enchanter's nightshade, creeping buttercup, common figwort, primrose, bluebell, heath speedwell, common dog-violet and agrimony. Occasional glades have bramble and frequent poplar suckers, foxglove, wood sage and bracken. An open ride along the western, roadside edge has the best range of ground flora species.



Coppice stools below the oak standards in this copse are very spindly and it would be a good area for some halo thinning work.

Hornet.

53. Brookhouse Lagg. The excellent, structurally diverse wetland habitat mosaic noted in the 2005 survey is still present in 2016 and although the balance of open grassland to wetland and scrub vegetation may have shifted it is still very likely to be a biodiversity hotspot. The mixture of herb-rich grassland fragments with numerous mossy anthills, fen vegetation and willow scrub supports a good range of plants. Wetland species noted include water mint, gipsywort, common bulrush, water-pepper, triffid bur-marigold, floating sweet-grass, fool's watercress, hedge bindweed, hemlock water-dropwort, clustered dock, hard rush, common water-plantain, reed canary-grass, soft rush, yellow loosestrife, water chickweed, yellow flag, sedges, meadowsweet, amphibious bistort, branched bur-reed and brooklime.



The drier grassland fragments along the edges of the lagg have an abundance of widespread herbs such as fleabane, common centaury, lesser stitchwort, crosswort, common ragwort, marsh thistle, greater bird's-foot-trefoil, common sorrel, common knapweed, selfheal and meadow vetchling.

The unimproved grassland species pepper-saxifrage was observed here in 2005 but not re-found in 2016. Access is tricky to some parts of the lagg and it may have been overlooked but equally it could have succumbed to the spreading blackthorn scrub that is found on the grassland edges.

The scrubby edges of the lagg are a mixture of woody species such as oak, hazel, blackthorn, elder and bramble. In the north of the lagg the wetland species are extending outwards from the willow scrub into adjoining open grassland areas.

Stoat (scat).

54. The pond on the edge of Penbridge Lane is still a diverse waterbody with some shade cast by grey willow, oak and ash on its wooded side and open, sunny areas. A wide, species-rich fringe of wetland plants extends onto the muddy margins and includes great willowherb, silverweed, water mint, fleabane, soft rush, fine-leaved water-dropwort, water-pepper, gipsywort and false fox-sedge.

The herb-rich bank next to the pond described in 2005 seems little changed and the bramble and willow scrub on its edges add to its value to fauna.



55. The copse and shaw at the southwestern tip of the Estate is not accessible to livestock and is largely unchanged since 2005 though it seemed drier in 2016. The planted oaks don't appear to have grown very much in the shade of the existing canopy and deadwood is abundant throughout the area.



The scrubby edges of the copse and shaw are useful habitat and hazel is locally frequent along the shaw. Plants noted include bracken, honeysuckle, blackthorn, oak, bluebell, hawthorn, dog rose,

hazel, holly, three-veined sandwort, bugle, bramble, male fern, broad buckler-fern and crab apple.

Dormouse potential via the hedgerow links.

56. This small pond in the middle of a large, fenced field, is still present but the very dense scrub of blackthorn, dog rose, grey willow, hawthorn, oak and nettle around its edges prevented access to the central area. It appeared to be completely dry in August 2016 but may hold water at other times of year. The surrounding field had been mown, perhaps as a hay crop.



57. Bentons Gorse. There is a large bank along the western side of this copse with an iron-rich stream and stand of yellow flag. The copse itself is predominantly young plantation and has a mixture of oak, field maple, ash, blackthorn, Scots pine, hawthorn, hazel, elder and willow with an intact semi-natural woodland fringe, widest in the west. The ground flora includes primrose, three-veined sandwort, bramble, bluebell, wood dock, marsh thistle, ground-ivy, common dog-violet and bracken.



Livestock clearly use parts of the copse and have created areas of bare ground especially under spruce and young oak trees, but there are also some very dense thickets and the plantation trees that were newly planted in 2005 are largely surviving quite well. Gorse is still present in the copse but at much lower levels than was noted in 2005. There are some sunny, sheltered rides around the copse where plants such as creeping buttercup, selfheal, water-pepper, wood sedge, common hemp-nettle and nettle are frequent. Piles of old wire are present in this copse and should be removed as they serve no purpose and are a hazard to the livestock that congregate here.

Goldfinch.

58. Northern Wood. This small but varied wood has old oak coppice stools and standard trees along with hornbeam, hazel and field maple coppice, holly, hawthorn, elder, birch grey willow, ash and mature conifers. The ground flora has stands of nettle and creeping bent along with a mixture of dog-violets, ground-ivy, moschatel, dog's-mercury, garlic mustard, foxglove, three-veined sandwort and abundant bramble, bracken and water-pepper.

Livestock clearly visit this copse quite regularly and there is a distinct browse line through the shrub layer as well as some areas of disturbed ground. However there are also some dense bramble thickets and a good scrubby edge along the northern side of the copse. The hornbeam coppice had been cut shortly before the 2005 survey but re-growth since that time has been poor with noticeably spindly coppice stools.

The wide, wet ride and parallel deep ditch on the western side of the copse has lush vegetation and damp patches. The stand of yellow flag noted in 2005 is still present in a widening of the ditch.

The shaw that links Northern Wood with Benton's Gorse (57) has a very rich ground flora under its old, mixed coppice stools of field maple, hazel, and ash with oak standards and crab apple, hawthorn and holly. Wood spurge, dog's-mercury, three-veined sandwort, bugle, primrose, enchanter's nightshade, common dog-violet, bluebell and bracken are all present.



In areas where soil disturbance by pigs and badgers within the shaw is most pronounced there are stands of elder shrubs. The large badger sett on the ditch banks is still present and very active. The shaw has dense scrub along both its outer edges. This area may have a lower proportion of bluebell in the ground flora than it did in 2005 but it remains a diverse and interesting habitat.

59. Hammer Pond. The Hammer Pond is a less manicured area than it was in 2005 and there is a much more gradual transition between the marginal fen and scrub habitats around the open water.

The scrubby margins of blackthorn, bramble, field maple, hawthorn, willow and gorse below widely spaced mature oaks have extended outwards from the raised banks on either side of the pond and there is a well-developed fringe of willow scrub on the water's edge in places. These shaded areas next to the open water are clearly very attractive to cattle and other animals.

The path along the northern edge of the pond is no longer mown but is instead grazed and trampled by animals and the dense nettle and hemlock water-dropwort of 2005 has become a more diverse mixture of tall herbs and bramble scrub with small sunny bays. Grassy glades with a mixture of common herbs such as common ragwort, fleabane, creeping thistle, silverweed, creeping cinquefoil, greater bird's-foot-trefoil and white clover grade into the wide fringes of marginal vegetation around the Hammer Pond.

The fen vegetation around the pond margins is still abundant and diverse with many of the same species noted such as common club-rush, yellow loosestrife, soft rush, water forget-me-not, reed canary-grass, water mint, common bulrush and branched bur-reed along with purple loosestrife, yellow flag, common water-plantain, sedges and marsh woundwort. The floating aquatic vegetation is now dominated by rafts of amphibious bistort.



The fen and developing carr at the western end of the Hammer Pond and the wet grassland lagg to its west were noted in 2005 and these areas remain very high value habitats under the changed management regime. Extensive wet grassland and fen vegetation is present with a very wide range of characteristic plants such as reed canary-grass, water-pepper, gipsywort, fleabane, trifid bur-marigold, soft rush, yellow loosestrife, water forget-me-not, meadowsweet, water horsetail, wood club-rush, marsh foxtail, water mint, hemlock water-dropwort and many more.



Fragments of slightly drier sward on the edges of the lagg have a range of widespread herbs, clustered dock, silverweed, hedge bindweed and some stands of toad rush and mayweed in disturbed ground. Orthoptera are abundant in these areas. Black poplar trees have been planted in the lagg and at the most western end these young trees occur with increasingly dense willow scrub in a very wet and partially inaccessible tangle.

The scrubby bank on the south edge of the lagg adjoins the plantation of Wagstaffs Wood and has a rich mixture of scrub and flowery grassland sward.

Coot, great crested grebe, mallard, mute swan, reed warbler, many odonata, cinnabar moth, meadow brown, common frog, slow-worm, beautiful demoiselle, gatekeeper, buzzard.

59b. Areas around the Hammer Pond along with many other fields throughout this part of the Estate which have extensive developing grey willow, bramble, rose and hawthorn scrub are now of very high biodiversity value and show some of the most striking habitat changes since 2005.



60. & 61. In 2005 this area was described as two separate habitats; wet horse grazed fields with a stream and an area of poplar-dominated plantation. Since that time this area, which lies downstream of the Hammer Pond (59), has developed into a much more complex and interesting wetland habitat of scrub, tussocky grassland and fen. It seems to be on its way to becoming a rich wet woodland area.



The dense young plantation of mostly willow and poplar has turned into a tangle of willow scrub with a distinct browse line. Many of the planted older willow trees are dead or dying so deadwood is abundant. Rabbit grazing is intense here, along with deer and pig activity. The grassland sward height is very varied with some short turf and other tall, weedy areas with ragwort, nettle, hemlock and creeping thistles.

Wet flushes support many wetland species such as redshank, water-pepper, yellow flag, soft rush, creeping bent, meadowsweet, greater bird's-foot-trefoil, tufted hair-grass, marsh woundwort, water mint, gipsywort, common reed, reed canary-grass, water chickweed, triffid bur-marigold, wild angelica and yellow loosestrife. The stream along the western side of this area has a lush and diverse marginal flora. Scrubby edges have much blackthorn, ash, hawthorn, spindle and oak.

Banded demoiselle, comma.

62. Pond Field Lagg. The southeastern arm of this lagg links Wick Wood with the main part of the lagg and comprises damp, tussocky grassland with planted black poplars and a ditch that contains wetland species including water mint, hemlock water-dropwort and water-pepper. A dry bank in the southeastern corner has an abundance of agrimony and drier grassland along the scrub edges is semi-improved but with a range of widespread herbs. Scrub has extended further into the dry grassland in this area since 2005.

The southwestern arm of the lagg extends northwards from Benton's Place Farm. The tiny tributary of the Lancing Brook lies in a deep, shaded gill of oak, ash, hazel, alder, hornbeam, hawthorn, holly and blackthorn with bluebell, enchanter's nightshade and primrose in the ground flora. There is a wide pool of water where the farm track crosses the gill stream. The southern tip of the gill is fenced to exclude grazing animals but the fencing ends at an area of conifers and cherry laurel with old parkland fencing on the eastern edge of the lagg. This area appears to be the remains of a formal garden area, along with some oak plantation, within the surrounding coppice woodland. Cattle have had a noticeable impact in this area and the ground flora is locally coarse and enriched with much nettle, dock and creeping bent.



The banks of the southwestern tributary become less steep downstream towards the main part of Pond Field lagg and the fringing trees and scrub thin out. Old ash stools, crack willow and guelder-rose are locally frequent and the banks support much nettle and hemlock water-dropwort. This gives way to more open, grassy, wetland vegetation with some tall herb fen in a mosaic with willow scrub and alders along the stream. Reed canary-grass, marsh woundwort, gipsywort, water-pepper and small balsam occur here. Much of this wetland area is an impenetrable but very diverse habitat with some excellent features such as the partly collapsed willow pollard that has fallen across the stream channel.



The main part of Pond Field Lagg, where the two tributary arms meet, has changed in character since the 2005 survey following some wetland creation work that has resulted in extensive areas of open water and scrapes. This very rich wetland area supports an abundance of fen and marsh plants, is sheltered by the trees and shrubs along its edges and is much favoured by the Tamworth pigs for wallowing. Some of the many wetland and wet grassland plants in this area include soft rush, sharp-flowered rush, gipsywort, fleabane, marsh foxtail, alder scrub, purple loosestrife, water mint, lesser spearwort, brooklime, sedges, common marsh-bedstraw, common club-rush, plicate sweet-grass and reed canary-grass. Pondweeds and common duckweed occur in the open water.



There is an old pheasant release pen on the eastern edge of the lagg on a dry bank. This now acts as an impromptu grazing enclosure and is full of dense scrub. At the eastern, downstream end of Pond Field Lagg there is a patchwork of very silty, wet grassland with rafts of sweet-grass and soft rush with damp interspersed with tussocky grassland where white clover, hairy sedge, fleabane and docks occur. The stream channel is more clearly defined in the east where it runs through dryish improved grassland and has willow scrub on its banks with occasional branched bur-reed, hemlock water-dropwort, fool's watercress and gipsywort on its edges. This area is also very well-used by pigs and cattle.

Bullfinch, southern hawk, tawny owl, grey heron, slow-worm.

63. Pond in Pond Field. This field pond is now dominated by emergent vegetation including common club-rush, common bulrush and branched bur-reed with marginal species including hard rush, soft rush, gipsywort, water mint, floating sweet-grass, water forget-me-not, common marsh-bedstraw and greater bird's-foot-trefoil.



Common duckweed and water-lily are present on the open water where shade from overhanging oak and field maple trees have suppressed emergent growth on the pond's east side.

The wet margins of the pond grade into some diverse wet flushes within Pond Field where plants such as sharp-flowered rush, oval sedge, common marsh-bedstraw and fleabane are prominent.

63b. There is a small-leaved lime tree in the corner of the fenced cottage property to the southeast of the pond in Pond Field (63) at TQ14359 19536. The tree looks to be in poor health and is the only example of this species, typical of Wealden ancient woodland, that has been noted during the phase 1 surveys.

64. Wick Wood. The broadleaved fringe on the eastern side of this plantation is growing out into an excellent graded profile edge habitat comprising oak, bramble, hazel, hawthorn, elder, grey willow, holly, field maple, crab apple, hornbeam, birch and gorse. The interior of the copse is mixed aged conifers over a disturbed and enriched field layer with much nettle, bramble, creeping bent and curled dock along with some woodland species such as wood spurge, dog-violets, bugle, enchanter's nightshade, three-veined sandwort, ground-ivy and yellow archangel. A grazing enclosure within the mature conifer block shows good natural regeneration of elder, hawthorn and bramble.



The central area of young plantation has extensive bare ground due to intense deer presence. The northern area has a more open canopy with bramble, bracken, water-pepper, three-veined sandwort and nettle prominent below. Some old field maple stools are present along a bank on the copse's northern edge.

The western side of the copse has a surprisingly intact, relict ancient woodland ground flora that includes wood sedge, barren strawberry, primrose, wood spurge, dog-violets and betony. Old oak stools and a pollard occur in this area.

This copse was used for pheasant rearing and old spring traps indicate that it was an area where predator control took place.

65. Tory Copse. This small fragment of ancient woodland has been subject to substantial amounts of grazing, browsing and pig rooting. Large rabbit burrows are also present. The most dense patch of shrub layer is now largely restricted to its eastern edge where there is a thicket of grey willow and elder which grades into the adjoining plantation. The field layer in the north under oak and hazel is mostly bare with intense rabbit activity though tiny amounts of bluebell, creeping soft-grass and wood millet occur along with some stands of nettle. The southern section has oak and ash standards over hazel coppice stools and a more varied shrub layer of field maple, elder, hawthorn,

midland hawthorn, crab apple and blackthorn along with some wild service-trees stools. Ash seedlings are abundant but no saplings were observed.



Whilst the ground flora is sparse with some coarse plants indicative of disturbance present creeping such as buttercup, dock and common chickweed, there are still numerous woodland species present including much three-veined sandwort and dog's-mercury along with bramble, foxglove, red campion, honeysuckle and bugle.

An excellent standing dead oak on the western side of the copse has dense holly and bramble in the canopy gap below, which suggests that vegetation is able to regenerate where sufficient light reaches the ground level even when grazing and browsing is intense. Some old barbed wire should be removed from this copse.

Roe deer.

66. Middle Link Lagg. This small lagg that was formerly heavily grazed by horses is now clearly favoured by cattle and the grassland sward is very short in places though stands of tall, coarse herbaceous vegetation such as ragwort, creeping thistle, hemlock, teasel and nettle are developing in the northern end. One of the vegetation monitoring transects runs through the grassland and ditch in this field.

The grassy sward includes common and widespread species including white clover, creeping buttercup, lesser trefoil, creeping cinquefoil, selfheal, hairy sedge, Yorkshire fog, meadow foxtail, Timothy, bird's-foot-trefoils, lesser stitchwort, red clover, perennial rye-grass and occasional agrimony.



The ditch that bisects the lagg had little or no standing water for most of its length in 2016 and was locally quite trampled but had structurally varied wetland vegetation including soft rush, water-pepper, gipsywort, clustered dock, fool's watercress, hemlock water-dropwort and brooklime.

The sward in Middle Link lagg appears to have developed a more varied structure and a higher proportion of herbs are able to flower under less intensive grazing by cattle rather than by horses as before. A valuable patch of scrub is developing mid field.

The hedgerow along the eastern edge has stock-proof fencing to exclude cattle from the camping ground and shrubs have not grown outwards from the fence. The western hedgerow is much less manicured and is spreading outwards with patches of blackthorn, hawthorn and bramble appearing in the southern part of the lagg.

The old pond in the south of the lagg is now a damp, shaded muddy area of willow, blackthorn and bramble scrub with no open water that provides a well-used shade area for the cattle.

Meadow brown, green woodpecker, cinnabar moth, Essex skipper.

69. This small tussocky pasture and its pond look as if they are grazed and poached mostly by cattle and ponies. The eastern half of the field had a low sward in July 2016, probably due to weed control mowing along the road edge, but the western side has a taller sward with some bracken and creeping thistle. The hedges and shrubs to the north and south are patchy and there is a dense roadside hedge and bank to the east.

The grassland sward is quite grassy and seems much as it was in 2005 with much perennial ryegrass, common bent, white clover, creeping thistle, creeping buttercup, Timothy, Yorkshire fog, yarrow, soft brome, rough meadow-grass, lesser stitchwort, common sorrel, creeping cinquefoil, common bird's-foot-trefoil and common mouse-ear.



The roadside bank is a much more interesting fragment of relict herb-rich sward with a good stand of betony, common knapweed, barren strawberry, red fescue, false oat-grass and wood sage.



The pond is shaded by willow, blackthorn and hawthorn scrub on its eastern side but open and sunny on the west where it is very poached and the water is locally turbid.



Aquatic and marginal vegetation includes water-starwort, water-violet, a water-crowfoot and lesser spearwort.

70. The vegetation around this small pond has a varied structure including bramble banks and willow scrub. The pond has open water surrounded by much emergent and marginal vegetation such as common bulrush, grey club-rush, purple loosestrife, soft rush, branched bur-reed, gipsywort, common water-plantain, brooklime, sedges and water mint.



71. Jacksons Wood. The mixture of plantation and semi-natural woodland species in this copse includes conifers, field maple, hawthorn, willows, blackthorn, oak, crab apple and hazel. The wild service-tree noted in 2005 was not re-found but is probably still there.



The ground flora seems very grassy and impoverished compared with the previous survey with patches of bracken, soft rush, water-pepper, ground-ivy and foxglove. Rabbit activity is very intense in this copse and combined with livestock access this has simplified the woodland structure and reduced ground flora diversity.

72. The green lane still has dense scrub along banks on both its edges. Field maple, hazel, ash, oak, blackthorn and hawthorn were noted in the edge zones. The grassy central strip is damp with stands of water-pepper and some creeping thistle.



The pond at the southern end of the green lane has a diverse emergent and marginal flora that includes common bulrush, soft rush, common water-plantain, yellow flag, gipsywort and great willowherb. Rafts of white water-lily are also present.

73. Swallow Furzefield. This copse is still a mixture of sweet chestnut coppice and conifers and has a huge amount of deadwood present. Much of the sweet chestnut appears to be dead or dying, possibly as a result of *Phytophthora* infection.



The ground flora is generally grassy with stands of water-pepper, creeping bent, bluebell and scattered common figwort, broad buckler-fern, enchanter's nightshade, nettle, bramble and foxglove. Patches of bare ground also occur and cattle appear to use the area regularly for shelter.