CARAVAN CLUB ECOLOGICAL SITE APPRAISAL

Alderstead Heath
Caravan Club Site
Dean Lane
Merstham
Redhill
RH1 3AH

General Information

Site Name and County: Alderstead Heath, Surrey
Grid Reference: TQ 300 555
Area: 11 hectares
Survey date: 09/05/08
Recorder: Mike Lush**,** JUST ECOLOGY
Weather Conditions: Warm, sunny with some cloud

Site Description

Alderstead Heath Caravan Club site is about 5 km north of Redhill, just beyond the outskirts of Greater London. It is a large site, with 156 fairly widely spread pitches. It is roughly rectangular and orientated approximately north to south. A straight entrance road leads along the western edge of adjacent woodland to the southwest corner of the site, from the road to the south. The reception and wardens area is situated at the end of the entrance road, in the southwest corner of the site. The site can almost be characterised into two halves split north to south. The western half is where the majority of hard standing pitches are located, with a network of tarmac access roads. The eastern half is much more open, with less of a road network and primarily grass pitches, though new hard standing pitches were being developed in the central part of the site at the time of the visit. A storage area was situated along the northern two thirds of the eastern boundary and separated from the rest of the site by plantation woodland. Beyond the southeast boundary, but still in Caravan Club ownership, was an area of semi-natural woodland. The site boundaries are fenced and where woodland does not occur adjacent to the fence the boundaries are scrubby, without defined hedges.

Context

Alderstead Heath Caravan Club site is on the boundary between the chalk of the North Downs and the Wealden Greensand. The outskirts of London is only a few kilometres to the north, but this is still an attractive area of rolling countryside, with a mosaic of pastoral land, arable fields and scattered woodland. The woodland along the access road and around the field to the west is listed on the provisional ancient woodland inventory, although the woodland further north and east, including that within the Caravan Club site boundary, is not. The area to the south of the Caravan Club site is a registered common, though it is now dense woodland. To the north of the site is Farthing Downs and Happy Valley Site of Special Scientific Interest (SSSI). Immediately surrounding the site is woodland, arable land and apparently set aside.

Habitat Information

Broad Habitats Present: Improved grassland, neutral grassland, broadleaved, mixed and yew woodland, built up areas and gardens, boundary and linear features
National BAP Priority Habitats Present: Lowland mixed deciduous woodland
Caravan Club BAP features: Broadleaved woodland, scrub, ditches & banks
Subsidiary Habitats Present: Disturbed ground, woodchip, deadwood

Grassland Communities:

The majority of the grassland at Alderstead Heath was the pitch turf. This consisted of the usual grasses, such as Perennial Rye-grass *Lolium perenne*, Annual Meadow-grass *Poa annua*, Common Bent *Agrostis capillaris*, Yorkshire Fog *Holcus lanatus* and Red Fescue *Festuca rubra*. However, in areas that were less heavily used, this turf was considerably richer than on the majority of caravan sites, being patchily very mossy (e.g. Figure 1) and with a wide variety of broad-leaved species. These broad-leaved species included Yarrow *Achillea millefolium*, Bugle *Ajuga reptans*, Sticky Mouse-ear *Cerastium glomeratum*, Cut-leaved Crane's-bill *Geranium dissectum*, Autumn

Hawkbit *Leontodon autumnalis*, Ribwort Plantain *Plantago lanceolata*, Creeping Cinquefoil *Potentilla reptans*, Creeping Buttercup *Ranunculus repens*, Dandelion *Taraxacum officinale* agg., Wall Speedwell *Veronica arvensis*, Daisy *Bellis perennis*, Thyme-leaved Sandwort *Arenaria serpyllifolia*, Spear Thistle *Cirsium vulgare*, Cat's-ear *Hypochaeris radicata*, Common Mallow *Malva sylvestris*, Greater Plantain *Plantago major*, Selfheal *Prunella vulgaris*, Common Ragwort *Senecio jacobaea*, Lesser Trefoil *Trifolium dubium* and Germander Speedwell *Veronica chamaedrys*.

Figure 1: Mossy grassland in the raised square south of the reception.

Three grassland species of moderate value were recorded: Common Bird's-foot-trefoil *Lotus corniculatus* scattered throughout the site, Agrimony *Agrimonia eupatoria* on the bank near the football field and one small patch of Lady's Bedstraw *Galium verum* at the base of a tree in the southwest of the site. The arable weed species Field Madder *Sherardia arvensis* was also present on the slope near the football field. The most unusual species was the orchid Common Twayblade *Listera ovata*, which was found in the small raised square to the south of the reception, though the flower had been mown off.

Near the southern boundary of the site was a steep south-facing bank. This bank was varied, with trees, planted species and recently modified areas. This was similar to the grassland on the rest of the site, but also contained Primrose *Primula vulgaris*, Bluebell *Hyacinthoides non-scripta*, Wood Forget-me-not *Myosotis sylvatica*, Thale Cress *Arabidopsis nigra*, Common Knapweed *Centaurea nigra* and a sedge *Carex* sp. Because of its south-facing aspect, short turf height and varied character, this bank appeared to be very valuable to invertebrates.

The grassy bank to the east of the access road leading into the site was mossier and was probably mown less regularly (Figure 2). Grasses here included Creeping Bent *Agrostis stolonifera*, Yorkshire-fog and Smooth Meadow-grass *Poa pratensis*. Broad-leaved species here included Daisy, Spear Thistle, Ground-ivy *Glechoma hederacea*, Bluebell, Creeping Cinquefoil, Creeping Buttercup *Ranunculus repens*, Common Ragwort, Lesser Trefoil *Trifolium dubium*, Germander Speedwell *Veronica chamaedrys*, Yarrow, Common Knapweed, Cut-leaved Crane's-bill, Hogweed *Heracleum sphondylium*, Field Forget-me-not *Myosotis arvensis*, Selfheal, Broad-leaved Dock *Rumex obtusifolius*, Dandelion, White Clover *Trifolium repens* and Thyme-leaved Speedwell *Veronica serpyllifolia*.

Figure 2: Grassy bank to the east of the access road.

The other area of grassland was a weedy area to the east of the storage area that was partially shaded by trees and scrub on the southern boundary. Species here included Spear Thistle, Germander Speedwell, Selfheal, Creeping Cinquefoil, Thyme-leaved Speedwell, Creeping Bent, Annual Meadow-grass, Daisy, Wild Teasel *Dipsacus fullonum*, Dandelion, Common Nettle *Urtica dioica*, Common Ragwort and Creeping Buttercup. The woodland species Ground-ivy, Lord-and-Ladies *Arum maculatum* and Moschatel *Adoxa moschatellina* were also present in this area.

Woodland:

To the southeast of Alderstead Heath was a large area of broadleaved woodland, part of which was within Caravan Club ownership (Figure 3). The woodland within the site boundary was semi-natural broadleaved woodland, with evidence that it had once been extensively coppiced. More recently, the Caravan Club had cleared large tracts

of the woodland, leaving only standards and abundant Bluebells, and had recommenced coppicing.

Trees here included a species of oak *Quercus* sp., Ash *Fraxinus excelsior*, Field Maple *Acer campestre*, Sycamore *Acer pseudoplatanus*, Hazel *Corylus avellana*, Holly *Ilex aquifolium*, Wych Elm *Ulmus glabra* and Wild Cherry *Prunus avium*. Planted trees and shrubs included a species of fir *Abies* sp, European Larch *Larix decidua* and Rhododendron *Rhododendron ponticum*. The understorey had been mostly cleared out and consisted of only a few small areas of scrub and very low Bramble *Rubus fruticosus* agg. and Honeysuckle *Lonicera periclymenum*.

The ground flora was rich and varied away from the central part, which was dominated by Bluebells. Species found included Enchanter's-nightshade *Circaea lutetiana*, Germander Speedwell, Common Nettle, Broad-leaved Dock, Lords-and-Ladies, Broad Buckler-fern *Dryopteris dilatata*, Wood-sorrel *Oxalis acetosella*, Cleavers *Galium aparine*, Wood Speedwell *Veronica montana*, Creeping Buttercup, Wood Forget-me-not, Thyme-leaved Speedwell, Red Campion *Silene dioica*, Yellow Archangel *Lamiastrum galeobdolon*, Wood Avens *Geum urbanum*, Moschatel, Lesser Celandine *Ranunculus ficaria*, Wood Anemone *Anemone nemorosa*, Dog's Mercury *Mercurialis perennis*, Dandelion and Ivy-leaved Speedwell *Veronica hederifolia*. A patch of the introduced species Rosebay Willowherb *Chamerion angustifolium* was also present in the north of this woodland block.

Figure 3: Part of the ancient woodland.

The woodland in the main part of the site had been planted and was composed mainly of tree species that were also planted more widely throughout the site. These trees included cherry species *Prunus* sp., a species of maple *Acer* sp., Italian Alder *Alnus*

cordata, Ash, Lombardy Poplar *Populus nigra* var *italica*, Hawthorn *Crataegus monogyna*, Goat Willow *Salix Caprea*, a species of oak, a species of apple *Malus* sp., Sycamore, Horse Chestnut *Aesculus hippocastanum* and various conifers. Silver Birch *Betula pendula*, Downy Birch *B. pubescens* and another unidentified species of birch were all present.

Other habitats:

The only other 'habitat' present on the site was woodchip mulch that had been used around some of the planted trees. Such expanses of woodchip can often produce an unusual fungus flora in spring and autumn. The site was checked for such species, though only a single inkcap *Coprinus* sp. was found. Most likely it was too late for spring fruiting fungi at the time of the visit and certainly too early for autumn fruiting species.

Habitat Evaluation

By far the most significant habitat at Alderstead Heath was the area of semi-natural broadleaved woodland, as there is good evidence to suggest that this is ancient woodland. Woodlands that are classed as ancient have been managed as woodlands for at least 400 years. This can be indicated by structural features, such as woodbanks, and also by the plants that are present. A suite of nine species associated with ancient woodlands, 'ancient woodland indicator species', were found within the woodland, with an additional one found elsewhere on the site that may also have been present in the woodland. The woodland is on the 1874 Ordnance Survey map, as are the other woodlands surrounding the site.

However, as has been previously stated, this area of woodland is not listed on the ancient woodland inventory (though this is provisional) and the woodland to the south was once common land. This potential conflict between the ancient woodland indicators and the perceived history of the woodland is perhaps resolved if Alderstead Heath had at one time been a wood pasture. As a historic wood pasture, the area could still have been a grazed common (with heather, gorse or bracken under the trees to give it the name 'Heath'), but could have retained the ancient woodland indicator plants that can now be found. This would mean that it could have retained at least partial tree cover throughout some 400 or more years of history. The alternative is that the woodland is not ancient, but that the ancient woodland species have spread from adjacent ancient woodland. This is less likely, because ancient woodland indicator species are usually classified as such due to known dispersal limitations.

Ancient woodlands have a specialised flora and fauna that it is impossible to reproduce in more recent woodlands. However, the area of ancient woodland declined significantly in the 20th century, due to being under- or re-planted with conifers, or cleared to make way for agriculture; thus the remaining fragments are highly important. In fact, Ordnance Survey maps show some other woodland areas where Alderstead Heath Caravan Club site is currently located; these were cleared some time

between 1879 and 1896[1]. Because of the decline in ancient woodland and the quality of the woodland on the site, the woodland at Alderstead Heath Caravan Club site should be managed sensitively as ancient woodland, in the absence of any evidence to the contrary.

In comparison, the planted woodland and trees (Figure 4) are of low value, as they do not contain the same diversity of plants and are unlikely to support as many animals. In addition, many of the planted trees are non-native, which will not support as much biodiversity as native tree species. However, they will still provide suitable nesting locations for birds and shelter for other animals. In this respect it is unfortunate that some non-native species have been planted in the ancient woodland, as native species plantings or no additional planting at all would have provided better habitat for wildlife.

Figure 4: Plantation woodland in the main part of the caravan site.

Some deadwood was present in the ancient woodland and elsewhere at Alderstead Heath. Bulky deadwood is a rare and declining resource, primarily important for a range of invertebrate species, including the Stag Beetle *Lucanus cervus* (the site is located within the national stronghold for this species). Hollow trees are also used as nesting sites for woodpeckers.

According to a warden at another Caravan Club site who had visited Alderstead Heath in recent years, the clearance of the centre of the ancient woodland had taken place recently. Having seen the woodland prior to and after the clearance, this warden also expressed concern that this recent management intervention was detrimental. Such

[1] http://www.old-maps.co.uk/index.htm.

concerns are probably well founded, as there are now few woodland plants in the centre of this cleared area, in comparison with the surrounding woodland, and this area may now be invaded with weed species, and may serve as a reservoir for such into the future. Such clearance was almost certainly a bad management decision from a conservation point of view, and should not be repeated in the future, particularly as ancient woodland is nationally scarce and irreplaceable habitat.

Probably the most significant habitat in terms of the grassland was the south-facing bank. This supported a visible diversity of invertebrate species, which are discussed below.

The other areas of grassland were also of higher value than usual for a caravan site, particularly in those areas that were less heavily used. The higher diversity of plants will support a wider range of animal species, which will increase biodiversity on the site.

The woodchip mulch may develop an interesting fungus flora, though a large number of woodchip fungi are recent invaders to the British Isles and are therefore of lower value than native species. Nevertheless, they are non-detrimental and add to the biodiversity of such horticultural habitats.

Species Information

National BAP Species: Dormouse *Muscardinus avellanarius*, House Sparrow *Passer domesticus*
Caravan Club BAP Species: Dormouse *Muscardinus avellanarius*
National BAP Species Potential: Starling *Sturnus vulgaris*, Bullfinch *Pyrrhula pyrrhula*, Song Thrush *Turdus philomelos*, pipistrelle bats *Pipistrellus* sp., Slow Worm *Anguis fragilis*
Caravan Club BAP Species Potential: Bullfinch *Pyrrhula pyrrhula*, Song Thrush *Turdus philomelos*, Kestrel *Falco tinnunculus*, Swallow *Hirundo rustica*, Swift *Apus apus*, House Martin *Delichon urbica*
Other Noteworthy Species: Large Tree Wasp *Dolichovespula media*, Roman Snail *Helix pomatia*

Flora:
The ancient woodland indicators Moschatel, Wood Anemone, Bluebell, Holly, Yellow Archangel, Wood-sorrel, Primrose, Wild Cherry, Wood Speedwell and, nearer to the reception area, Hairy Woodrush *Luzula pilosa* were found at Alderstead Heath.

Two species of orchids were found on the site. The individual plant which has already been mentioned is Common Twayblade, located in the square near the site entrance. The other orchid was present as a colony along the western edge of the storage area and was felt most likely to be a species of helleborine *Epipactis* sp., though it is not possible to speculate which one.

As usual for a Caravan Club site, a range of non-native tree species have been planted, including various conifers, a species of maple, Horse-chestnut, Italian Alder, a species

of apple, Lombardy Poplar and a species of cherry. These occur alongside other planted trees that are native species, but may not be of native stock. Non-native species have been planted or have found their way into the ancient woodland, including European Larch, a species of fir, Rhododendron (which may become a significant conservation threat in the future), and Rosebay Willowherb.

Avifauna:
Bird species observed during the survey include Woodpigeon *Columba palumbus*, Robin *Erithacus rubecula*, Jay *Garrulus glandarius*, Great Tit *Parus major*, Magpie *Pica pica*, Blue Tit *Cyanistes caeruleus*, Chaffinch *Fringilla coelebs*, Pied Wagtail *Motacilla alba*, Green Woodpecker *Picus viridis* and Pheasant *Phasianus colchicus*.

Additional bird species that had been observed by the wardens included Sparrowhawk *Accipiter nisus*, Greater Spotted Woodpecker *Dendrocopos major*, Coal Tit *Periparus ater*, Nuthatch *Sitta europaea*, Goldfinch *Carduelis carduelis*, House Sparrow *Passer domesticus*, Blackbird *Turdus merula* and Ring-necked Parakeet *Psittacula krameri*.

Invertebrates:
Invertebrates were very abundant on the site at the time of the visit. Three butterflies were seen: the Small White *Pieris rapae*, Orange Tip *Anthocharis cardamines* and Holly Blue *Celastrina argiolus*. Numerous flies were seen, including hoverflies (Syrphidae) and a bee fly *Bombylius* sp. A pill bug *Armadillidium* sp. was found, along with the Garden Snail *Helix aspersa* and the Roman Snail *Helix pomatia*.

Bees, wasps and ants (Hymenoptera) were especially abundant, particularly around the south-facing bank, though only a few could be identified. Amongst the bees were mining bees *Andrena* sp., nomad bees *Nomada* sp. and bumblebees *Bombus* sp. A worker of the Large Tree Wasp *Dolichovespula media* was found on the south-facing bank. Mining bees had also started to colonise some of the bare areas created where new hard standing pitches had been built. Ants recorded throughout the site included the Negro Ant *Formica fusca*, Yellow Meadow Ant *Lasius flavus*, Black Garden Ant *Lasius niger* and the red ant *Myrmica scabrinodis*.

Of particular interest, was a fairly nondescript-looking fly that was visibly stalking a solitary bee. The bee was flying across the ground, stopping every few centimetres as though looking for a nest site. The fly was following closely, always stopping a few centimetres behind the bee. Unfortunately, this was interrupted when the surveyor tried to photograph the fly (Figure 5), whereupon it flew away, so the culmination of this hunt was not observed. However, subsequent investigations comparing the photographs taken with images available through online sources suggest that the fly may have been a species of satellite fly *Leucophora* sp.

Figure 5: Satellite fly *Leucophora* sp., a cleptoparasite observed stalking a solitary bee.

Herptofauna:
No species of reptile or amphibian were recorded on the site at the time of survey, though the site may support a range of reptiles, including Slow Worm *Anguis fragilis* and possibly Adder *Vipera berus* and Viviparous Lizard *Zootoca vivipara*. No ponds are known to exist on or in the vicinity of the site, so Alderstead Heath is unlikely to support a significant amphibian population

Mammals:
Rabbit *Oryctolagus cuniculus* and Grey Squirrel *Sciurus carolinensis* were seen during the visit. The wardens reported Wood Mouse *Apodermus sylvaticus*, Brown Rat *Rattus norvegicus*, Badger *Meles meles*, Red Fox *Vulpes vulpes*, Reeves's Muntjac *Muntiacus reevesi* and Red Deer *Cervus elaphus*.

The wardens also reported that a workman on the site had seen a Dormouse *Muscardinus avellanarius* along the eastern boundary of the storage area. However, all of the hazelnuts shells examined in this area had been eaten by Grey Squirrels, mice or birds, with none identified as being Dormouse nuts. Nevertheless, Dormice are known from the area and it is likely that the ancient woodland provides suitable habitat for them.

Fungi:
Three species of fungi were observed at the time of the visit, which was made during a period when relatively few species of fungi are visible. St. George's Mushroom *Calocybe gambosa* were found in grassland near the southern boundary of the site, King Alfred's Cakes *Daldinia concentrica* were found on dead wood in the woodland and an inkcap *Coprinus* sp. was found on woodchip mulch near the southern boundary.

Species Evaluation

The most significant suite of plants at Alderstead Heath were the ancient woodland indicators. Whilst individually these species are fairly common, in combination they indicate that the woodland is of ancient origin, dating back to at least 1600 AD.

Of the orchids on the site, Common Twayblade is a relatively common species of woodland and scrub, but it is unusual to find this species in such an exposed position as the raised square bed, near the site entrance. Unfortunately, in this position the Common Twayblade is prone to being mown before it flowers, as had happened at the time of the survey. The helleborine is likely to be rarer, though many of these species are more common in southeast England and without knowing which species is present, it is impossible to evaluate its importance.

It would have been preferable if the trees that were planted had been native species of local provenance, but most of the non-native trees are approaching maturity and none appear to be causing significant problems. The non-native species in the ancient woodland are of greater concern. The conifers will alter the soil chemistry and thus influence the composition of the ground flora and should therefore be removed. The single Rhododendron presents the greatest risk, as (if it were allowed to spread) this could significantly alter the woodland and come to dominate the understorey; it should therefore be removed, preferably via stump removal. At the moment, the Rosebay Willowherb appears to be limited to a small area, but if it were to spread it could also be ecologically detrimental in the ancient woodland.

Most of the birds present on Alderstead Heath are common garden or woodland species. However, House Sparrow is a UK Biodiversity Action Plan (BAP) species, due to serious population declines in recent years. It is possible that a range of other national and Caravan Club BAP species could also occur on the site, including Starling *Sturnus vulgaris* and Song Thrush *Turdus philomelos*.

Two other species of interest are the Ring-necked Parakeets and the blackbirds. Ring-necked Parakeets started breeding in the UK in 1969 from individuals that had escaped from captivity. Since this time their numbers have increased, so that they now number over 5000 individuals. Their stronghold is around the greater London area and it is believed that they only survive the winter months, when food is otherwise less available, by feeding at bird tables. Despite being an introduced species, there is no evidence to suggest that the Ring-necked Parakeet has had a detrimental effect on native wildlife, though as their numbers increase this may change due to competition for limited food resources[2].

The wardens were particularly interested in the black-and-white Blackbirds that were present in the vicinity. Albinism (where feathers lack pigment) and leucism (where

[2] http://www.rspb.org.uk/wildlife/birdguide/name/r/ringneckedparakeet/feeding.asp.

feathers have weak pigmentation) is common in blackbirds[3], so the partial albinos present at Alderstead Heath are not rare. However, they are moderately interesting from a survival perspective, as it would be expected that white blackbirds would be more easily spotted by predators.

The invertebrate fauna at the site appears to be very good, with a range of thermophilic (heat-loving) species recorded and the likelihood that the woodland supports a range of interesting saproxylic species.

In particular, there appears to be a good community of solitary bees and associated species around the south-facing slope. Species such as mining bees *Andrena* sp. support a range of parasitic species, including the cleptoparasites nomad bees *Nomada* sp., bee-flies *Bombylius* sp. and satellite flies *Leucophora* sp. Mining bees are solitary species that dig burrows in the soil and stock them with pollen, upon which the mining bee larvae feeds as it develops. The cleptoparasites lay their eggs within the burrows created by the mining bees, which hatch and then proceed to feed on the reserves, often eating the egg of the mining bee in the process. Such communities can be diverse and the complex interactions involve a range of species.

Although none of these have been given a conservation status in the UK, satellite flies appear to be rarely recorded. The maps available from the Society for the study of flies[4] show few records for even the most commonly recorded species. Whether this is due to rarity or simply lack of information is not known, but *Leucophora* species may be worthy of conservation concern, as other rarely recorded cleptoparasites already are[5].

Two other species are of particular interest in their own right. The Large Tree Wasp is listed as Nationally Notable A (Na), which means that it was thought to occur in no more than thirty 10 km x 10 km squares in the UK, at the time of the last review. It is mainly distributed in the south east of England and is a recent addition to the British list, but is likely to have made the journey across from the continent naturally. It produces typical wasp nests suspended from twigs and branches in trees, bushes and hedges, mainly in suburban locations in the UK.

The other interesting species is the Roman Snail. The Roman Snail is considered to be an ancient introduction to the UK, having been here for around 2000 years[6]. This is the edible snail of French restaurants and is protected by European law under Annex V of the Habitats Directive. Annex V restricts the collection from the wild of the species listed and, in the case of the Roman Snail and despite its introduced status, this has been incorporated into UK law.

If Dormice are present at Alderstead Heath then they are a very significant feature of the site. Dormice are UK BAP species, due to significant declines. Bat species are also likely to be present in the area and may be roosting and foraging in and around

[3] http://www.garden-birds.co.uk/birds/blackbird.htm.
[4] http://www.dipteristsforum.org.uk/sgb_check_browse.php?id=16880.
[5] The author placed a request for further information on *Leucophora* species on two forums, but has not yet received a useful response.
[6] http://www.jncc.gov.uk/pdf/Article17/FCS2007-S1026-audit-Final.pdf.

the woodland and trees, feeding on invertebrates supported by the site. All bat species are protected by law and many have suffered declines in recent decades.

All reptiles are included in the new list of national BAP species, which means that any reptiles found on Alderstead Heath are now considered to be nationally important. In addition to this, all reptiles are protected by law in the UK.

Management Recommendations

- Manage the grassland without fertiliser or pesticide inputs, as stated in the Caravan Club Biodiversity Action Plan (BAP). After mowing, the cuttings should be removed to prevent the build up of nutrients. This should allow an increase in plant diversity that will benefit many other species.

- Where possible, create and maintain wide margins of longer sward at the edges of the grassland areas, to a width of at least one metre, wherever possible. This will promote a greater diversity of habitat structure and enable plants to flower, providing a vital nectar resource for bees, butterflies and other insects.

- As noted above, the Caravan Club BAP states that herbicide and pesticide use on site should be eliminated. All herbicides contain surfactants that reduce the ability of non-target animal species (including invertebrates and amphibians), to respire and can therefore kill them, while pesticide toxins can accumulate in the tissue of many organisms, causing mortality in non-targeted species elsewhere in the food web.

- The trees should be managed to ensure safety, but otherwise these and their associated ground flora should be left relatively unmanaged. In a few decades many trees on the site could reach veteran status and will then be helping to fulfil the Caravan Club BAP.

- The conifers and Rhododendron in the ancient woodland should be removed as soon as possible, to allow natural regeneration to take place and to prevent the spread of the Rhododendron. The Rhododendron should be entirely removed, including the stump, but this is not necessary for the conifers, which can provide valuable deadwood.

- Unless there are sound reasons for doing so, the kind of widespread clearance that had taken place within the woodland (shown in Figure 6) should be avoided in the future. Such clearance will likely result in short term benefits to certain ground flora species, such as Bluebells that will initially flower more abundantly, but will subsequently allow weed species to become established in the long term. The most interesting ancient woodland indicator plants, such as Wood Anemone, Yellow Archangel and Moschatel, were found away from the cleared area. In addition, clearance of canopy cover can reduce the suitability of the conditions for woodland interior species that are likely to occur within ancient woodland such as that at Alderstead Heath, increasing the edge-area

ratio of the woodland, and increasing associated disturbance into the woodland itself.

Figure 6: Central, cleared part of the ancient woodland.

- There is already some fallen and standing deadwood left in the woodland, but it would still be beneficial to leave more, and coarser (or larger), deadwood *in situ*. This provides habitat for deadwood invertebrates, which in turn provide a valuable food resource for insectivorous woodland birds such as woodpecker and warbler species.

- The south-facing bank should be maintained in its current state, without significant modification. The sward height should be kept short to provide suitable conditions for solitary bees and their associated community.

- It would be beneficial to provide a greater diversity of nectaring plants for the bees and other insects. This could be achieved by reducing the mowing regime in some areas to allow species to flower, or by planting native flowering species. It may be appropriate to sow a meadow seed mix to provide suitable nectar sources. In general, the best nectar producing native species are within the daisy and carrot families (Asteraceae and Apiaceae).

- Wasp nests should not be destroyed, as these may be the rare Large Wood Wasp. In addition, wasps in general are thought to be in decline. Nests should instead be left alone, though, if they are in a position where they will cause a problem, consideration should be given to moving the nest. Wasps are generally unaggressive and, if left alone, it is only in the Autumn months,

when the social structure of the colonies breaks down, that these may cause any problems.

Further Suggestions to Enhance the Wildlife Value of the Site

- All new tree plantings should be of native species of UK, and preferably local, provenance. Generally the commonest native tree and shrub species are most beneficial to invertebrates and many produce autumn nuts and berries that are food for mammals and birds. Oak, Ash, Silver Birch, Downy Birch, Wild Cherry, Field Maple, Holly, Hawthorn and Hazel are all suitable species. In the case of any new hedgerow planting, a mix of the above should be used with occasional standard trees and climbers such as native wild roses.

- Planting of non-native scrub and flower species should be limited to those that are not invasive and should prioritise those that provide a good source of nectar. Many modern varieties do not produce nectar, so traditional varieties are generally more reliable.

- Continue to provide bird and bat boxes to encourage garden and woodland birds and bats to nest and roost on the site. The bird nest boxes can be both open-fronted and conventional single hole (32 mm diam.), and could be added to selected trees in the secluded areas of the site. To encourage ongoing use, nest boxes require cleaning out each autumn.

- Bird feeding stations could be added at three or four places throughout the site. Two or three feeders at each station could hold a variety of food. One with niger seed; one with husked sunflower seed and a third with general purpose food plus fat balls. Large plastic dishes are available to place beneath feeders to catch most of the fallen debris, which attract birds unable to use hanging feeders, these can be cleaned periodically.

- Consider positioning bug boxes in sheltered locations around the site. Boxes containing short lengths of bamboo, reed stems, bramble stems or blocks of wood with holes of varying sizes can be used by insects such as solitary bees and wasps, which use the hollow stems and holes for nesting. These can be fixed onto trees and other structures in sheltered locations around the site.

Further Survey or Information Requirements

- Hold a wildlife records book and/or board for casual observations and sightings. Each record should include the species, date, location, habitat and who recorded it. This will aid monitoring of wildlife on site, promote the role of the Caravan Club members in building biodiversity on site and enthuse visitors about wildlife. These records should be passed on to the Surrey Biological Records Centre at:

Surrey Wildlife Trust,
School Lane,
Pirbright,
Woking,
Surrey
GU24 OJN
Tel: 01483 795448
Email: alistair.kirk@surreywt.org.uk

Species list

Species recorded only by the site wardens are denoted with *; the remaining records were made at time of survey.

Mammals:

Latin name	English name
Apodemus sylvaticus *	Wood Mouse
Cervus elaphus *	Red Deer
Meles meles *	Badger
Muntiacus reevesi *	Reeves's Muntjac
Muscardinus avellanarius *	Dormouse
Oryctolagus cuniculus	Rabbit
Rattus norvegicus *	Brown Rat
Sciurus carolinensis	Grey Squirrel
Vulpes vulpes *	Red Fox

Birds:

Latin name	English name
Accipiter nisus *	Sparrowhawk
Carduelis carduelis *	Goldfinch
Columba palumbus	Woodpigeon
Cyanistes caeruleus	Blue Tit
Dendrocopos major *	Great Spotted Woodpecker
Erithacus rubecula	Robin
Fringilla coelebs	Chaffinch
Garrulus glandarius	Jay
Motacilla alba	Pied Wagtail
Parus major	Great Tit
Passer domesticus *	House Sparrow
Periparus ater *	Coal Tit
Phasianus colchicus	Pheasant
Pica pica	Magpie
Picus viridis	Green Woodpecker
Psittacula krameri *	Ring-necked Parakeet
Sitta europaea *	Nuthatch
Turdus merula *	Blackbird

Invertebrates (within most higher taxa cited more than one species was present, but not identified to species level):

Latin name	English name
Pieris rapae	Small White Butterfly
Celastrina argiolus	Holly Blue
Anthocharis cardamines	Orange Tip
Diptera	Flies
Diptera: Syrphidae	A hoverfly
Bombylius sp.	A bee fly
Hymenoptera: Apidae	Bees
Andrena sp.	A mining bee
Bombus sp.	A bumblebee
Nomada sp.	A nomad bee
Dolichovespula media	Large Tree Wasp[7]
Formica fusca	Negro Ant
Lasius flavus	Yellow Meadow Ant
Lasius niger	Black Garden Ant
Myrmica scabrinodis	A red ant
Armadillidium sp.	A woodlouse
Helix aspersa	Garden Snail
Helix pomatia	Roman Snail[8]

Plants (non-native or probable introduced species are denoted with ♦; Ancient Woodland Indicators are denoted with ♣):

Latin	English
Abies sp. ♦	A fir
Acer campestre	Field Maple
Acer pseudoplatanus ♦	Sycamore
Acer sp. ♦	A maple
Achillea millefolium	Yarrow
Adoxa moschatellina ♣	Moschatel
Aesculus hippocastanum ♦	Horse-chestnut
Agrimonia eupatoria	Agrimony
Agrostis capillaris	Common Bent
Agrostis stolonifera	Creeping Bent
Ajuga reptans	Bugle
Alnus cordata ♦	Italian Alder
Anemone nemorosa ♣	Wood Anemone
Arabidopsis thaliana	Thale Cress
Arenaria serpyllifolia	Thyme-leaved Sandwort
Arum maculatum	Lords-and-Ladies
Bellis perennis	Daisy
Betula pendula	Silver Birch
Betula pubescens	Downy Birch
Bryophyte	Moss
Carex sp.	A sedge
Centaurea nigra	Common Knapweed

[7] Nationally Notable A (Na).
[8] Annex 5 of Habitats Directive

Cerastium glomeratum	Sticky Mouse-ear
Chamerion angustifolium ♦	Rosebay Willowherb
Circaea lutetiana	Enchanter's-nightshade
Cirsium vulgare	Spear Thistle
Corylus avellana	Hazel
Crataegus monogyna	Hawthorn
Dipsacus fullonum	Wild Teasel
Dryopteris dilatata	Broad Buckler-fern
Epipactis sp.	A helleborine
Festuca rubra	Red Fescue
Fraxinus excelsior	Ash
Galium aparine	Cleavers
Galium verum	Lady's Bedstraw
Geranium dissectum	Cut-leaved Crane's-bill
Geum urbanum	Wood Avens
Glechoma hederacea	Ground-ivy
Heracleum sphondylium	Hogweed
Holcus lanatus	Yorkshire-fog
Hyacinthoides non-scripta ♣	Bluebell
Hypochaeris radicata	Cat's-ear
Ilex aquifolium ♣	Holly
Lamiastrum galeobdolon ♣	Yellow Archangel
Larix decidua ♦	European Larch
Leontodon autumnalis	Autumn Hawkbit
Listera ovata	Common Twayblade
Lolium perenne	Perennial Rye-grass
Lonicera periclymenum	Honeysuckle
Lotus corniculatus	Common Bird's-foot-trefoil
Luzula pilosa ♣	Hairy Woodrush
Malus sp. ♦	An apple
Malva sylvestris	Common Mallow
Mercurialis perennis	Dog's Mercury
Myosotis arvensis	Field Forget-me-not
Myosotis sylvatica	Wood Forget-me-not
Oxalis acetosella ♣	Wood-sorrel
Pinopsida ♦	Conifers
Plantago lanceolata	Ribwort Plantain
Plantago major	Greater Plantain
Poa annua	Annual Meadow-grass
Poa pratensis	Smooth Meadow-grass
Populus nigra var. *italica* ♦	Lombardy Poplar
Potentilla reptans	Creeping Cinquefoil
Primula vulgaris ♣	Primrose
Prunella vulgaris	Selfheal
Prunus avium ♣	Wild Cherry
Prunus sp. ♦	A cherry
Quercus sp.	An oak
Ranunculus ficaria	Lesser Celandine
Ranunculus repens	Creeping Buttercup
Rhododendron ponticum ♦	Rhododendron

Rubus fruticosus agg.	Bramble
Rumex obtusifolius	Broad-leaved Dock
Salix caprea	Goat Willow
Senecio jacobaea	Common Ragwort
Sherardia arvensis	Field Madder
Silene dioica	Red Campion
Taraxacum officinale agg.	Dandelion
Trifolium dubium	Lesser Trefoil
Trifolium repens	White Clover
Ulmus glabra	Wych Elm
Urtica dioica	Common Nettle
Veronica arvensis	Wall Speedwell
Veronica chamaedrys	Germander Speedwell
Veronica hederifolia	Ivy-leaved Speedwell
Veronica montana ♣	Wood Speedwell
Veronica serpyllifolia	Thyme-leaved Speedwell
Viola riviniana	Common Dog-violet

Fungi:

Latin name	English name
Calocybe gambosa	St. George's Mushroom
Daldinia concentrica	King Alfred's Cakes
Coprinus sp.	An inkcap