

ECOLOGICAL SURVEY OF HEATHERCOMBE WOODLANDS FOR THE CLAUDE AND MARGARET PIKE WOODLANDS TRUST BY DAVID ROGERS

SUMMER 2005

INTRODUCTION.

Objectives.

The purpose of the survey is to establish an ecological basis for the wildlife conservation objectives of the Trust which will contribute to the proposed management plan for the woodlands. This has involved identifying and mapping the various habitats and their plant and animal species, assessing their importance for wildlife conservation and providing advice on appropriate management. The results will contribute to the process of certification under the UK Woodland Assurance Scheme.

The area covered comprises Heathercombe Valley in the parish of Manaton, including the enclosed fields within the woods and the adjacent moorland areas in the ownership of the Trust, and four small outlying woods which are also owned by the Trust.

Field Survey.

Initial reconnaissance was carried out in May and June, and was unfortunately interrupted by a period of illness. Detailed botanical survey was carried out in July, and observations of birds, butterflies and dragonflies were made at the same time. A few mammal records were made, and reports received from estate staff. Reports from Robin Khan and Andrew Taylor on birds and from Dartmoor National Park staff on the flora of the Orchard are incorporated. Lower plants (mosses, liverworts and lichens), fungi and other terrestrial and aquatic invertebrates were not covered, as they need specialist input which can be expensive and in some cases (e.g. fungi) are best surveyed at other times of year. The results obtained provide a sound basis for assessment and advice, as the vegetation is the major influence on other wildlife. Specialist input on other groups may point up additional features of interest but is unlikely to alter the broad picture.

Results.

Separate reports are provided for each woodland area comprising descriptions, assessments and advice, and supported by habitat maps and species lists. The report for Heathercombe Valley is divided into two sections: the non-commercial areas, comprising amenity woodland, grassland, freshwater habitats and moorland; and the commercial plantations, where the Trust will give priority to growing fine timber.

HEATHERCOMBE VALLEY

1. OVERVIEW

Description.

This main core of the Trust's property is made up of 70.2ha of woodland, together with two fields, gardens, a newly planted orchard and two fringing blocks of moorland, totalling Xha. It lies in a valley running from south to north; the

Heathercombe Burn enters the property from moorland to the west and leaves at the north end. Apart from the moorland, the whole property was formerly farmland which has been planted with trees by successive owners from the 19th century to the 1960s. The earlier plantings were broadleaf or mixed, planted on fields covering somewhat less than half the estate; the post-WWII plantings were entirely coniferous, covering almost all the remaining fields and replanting some of the earlier woodland. The broadleaf and mixed plantings are in the valley bottom, with conifer blocks in the upper valley and on the slopes, including the Newtake on the western side which was the last to be planted. There are small pockets of native woodland and scrub, mainly on wet ground.

Assessment of Wildlife Value.

Over the past 150 years Heathercombe Valley has been transformed from Dartmoor fringe farmland into woodland. How has this affected its value for wildlife?

Obviously much has been lost: the flowers of the pasture fields, the rich bird and insect life of the hedge-banks and copses, and the heather and gorse of the newtakes. It has kept generalist species such as Blackbird and Chaffinch, and has gained woodland species, but to what extent? The native valley woodlands of the area give us a yardstick against which progress can be judged.

Colonisation of new woods by old woodland species is a very slow process, with birds, winged insects and the larger mammals being the quickest colonists, and plants and terrestrial invertebrates following more slowly. Birds are mainly influenced by woodland structure, and the ornamental plantings with various trees, shrubs and open patches have attracted most of the common woodland birds of the area. The conifer plantations have a very simple structure and are relatively poor in bird species.

The tree species planted have had a major influence on the ground vegetation. In the amenity plantings this is relatively poor compared with native woods; some of the commoner species which would have been present in the hedgebanks have colonised where there is enough light, but the scarcity of such characteristic plants as Primrose and Honeysuckle is striking. Under pure Beech stands little but Bluebells survive, and the species range under conifers is very limited. The best represented group of plants is those of wet ground, both woodland and open. This makes sense, as wet ground would have persisted relatively little influenced by the long period of farming activity. Wet woodland is listed as a key habitat in the Devon Biodiversity Action Plan. A less obvious influence of the paucity of native species is on insects, many of which need a particular species growing in precise conditions as larval foodplants. Native trees such as Oak, Ash and Willows support a wide range of insect species, while introduced trees, particularly conifers, support very few. The butterflies seen so far are common species such as Meadow Brown and Speckled Wood whose larvae feed on grasses.

Management for Nature Conservation.

Specific policies for the various habitats of Heathercombe are described below. However there are basic principles which apply to all habitats.

Native species should be considered in any new planting. Suitable species are listed below. Increasing attention is being paid these days to the provenance as well as the species of wildlife plantings; stock of local provenance should always be used if possible. One way of ensuring strictly local provenance is to encourage natural

regeneration where it occurs rather than planting; birch and ash will regenerate readily where parent trees are present, but oak regeneration tends to be slow and sporadic.

Locally native trees and shrubs suitable for regeneration or planting:

Pedunculate Oak (<i>Quercus robur</i>)	Hazel (<i>Corylus avellana</i>)
Ash (<i>Fraxinus excelsior</i>)	Grey Willow (<i>Salix cinerea</i>)*
Downy Birch (<i>Betulus pubescens</i>)*	Goat Willow (<i>Salix caprea</i>)*
Silver Birch (<i>B. pendula</i>)	Blackthorn (<i>Prunus spinosa</i>)
Rowan (<i>Sorbus aucuparia</i>)	Hawthorn (<i>Crataegus monogyna</i>)
Holly (<i>Ilex aquifolium</i>)	Guelder-rose (<i>Viburnum opulus</i>)*
Alder (<i>Alnus glutinosa</i>)*	Spindle (<i>Euonymus europaeus</i>)
Aspen (<i>Populus tremula</i>)*	Alder-buckthorn (<i>Frangula alms</i>)*
Wych Elm (<i>Ulmus glabra</i>)	Crab-apple (<i>Malus sylvestris</i>)
Small-leaved Lime (<i>Tilia cordata</i>)**	

* Species suitable for wet ground.

** Lime has been planted extensively at Heathercombe, but it is all Common Lime *T. europaea* (though listed in the Heathercombe book, and labelled on the ground, as Broad-leaved Lime *T. platyphyllos*).

In planting native species the proportion of species in native woods should be followed. The main species on drier ground are Oak, Ash, and Silver Birch in the canopy, with Hazel, Rowan and Holly in the understorey; on wet ground they are Alder and Downy Birch in the canopy and Grey Willow in the understorey. (The predominance of Downy Birch at Heathercombe, even on dry ground, is unusual.) The other species should be added as flavourings rather than treated as main ingredients. A few small specimens of Wych Elm were noted during the survey; these should be protected from competing trees.

Diversity of structure should be a major aim, with a good shrub layer and plenty of canopy gaps. This will provide nesting habitat for birds which nest in bushes or undergrowth or on the ground. An open structure allowing sunlight to reach the ground is more favourable to a varied ground flora and to insects, and therefore to insectivorous birds.

Tidiness is the enemy of nature conservation. Biodiversity operates on a micro-habitat scale as well as more broadly. Invertebrates in particular often need specific niches which can all too easily be eliminated. Two of the best wildlife resources providing food and cover for a wide range of wildlife are Brambles and Ivy, both of which tend to be removed in plantation and amenity woodlands for the sake of tidiness.

One problem that is already being tackled vigorously is the spread of invasive species, notably *Rhododendron*, which is widespread at Heathercombe and in many places dense enough to shade out the ground flora. Cherry Laurel, which has a similar effect, occurs locally near Natsworthy Gate. Both these species should as far as is practical be eliminated rather than merely controlled. In my view treatment of stumps or regrowth with non-persistent chemicals is acceptable, though not all conservationists agree. Sycamore, a long-established introduction, is not undesirable in moderation; it is a good host tree for lichens, and provides a sacrificial species for squirrels to attack.

However the thickets of saplings which it produces should certainly be controlled. This has already been started, but care should be taken not to remove other broadleaf saplings in the process. Ash saplings are often confused with sycamore in winter, though the colour of the buds is different: black in ash, green in sycamore. Indian Balsam and Skunk Cabbage are two more introductions which can crowd out native vegetation in wet places; the former is being controlled and the latter needs to be watched. Pink Purslane, introduced from North America, is widespread at Heathercombe (as in western Britain generally), but there is no effective control method which would not damage other plants.

A feature of great value to wildlife, though not loved by orthodox foresters, is standing or fallen deadwood, particularly from broadleaves. A wide range of woodland wildlife depends directly or indirectly on these; fungi and woodpeckers are the most obvious examples. In such recent woods as Heathercombe there will be little deadwood, but the urge to tidy up any that does occur should be resisted. Allied to this is a recent policy to identify and protect "veteran trees", whether over-mature standards and pollards or ancient coppice stools. The only veteran noted in the survey was an ash pollard, probably part of an ancient hedge, at the north end on the west side of the electricity wayleave. This should be duly venerated and any shading conifers should be removed.

Disturbance to wildlife is a factor that should be taken into account in both forestry and visitor management, but not exaggerated; most small birds will tolerate people walking past if they are safe in the canopy. Felling and pruning of trees and shrubs and clearance of undergrowth should be avoided in the breeding season (March to June inclusive for most birds). Nest boxes should be placed out of reach, otherwise people are liable to look in out of curiosity. This is not normally harmful, but can cause young to leave the nest prematurely. Dogs should be kept under reasonable control, but with some owners this is not easy to enforce. Visitors should not be encouraged to stray into the outer parts of the woodlands, so that sensitive species such as breeding birds of prey and deer can be free of disturbance.

2. NON-COMMERCIAL AREAS

a. Amenity Woodland.

Description.

This category comprises broadleaf and mixed plantings, mostly late Victorian in origin, including Fairy Wood, Manwood drive and Arboretum, Mill Wood, Bluebell Wood, Burn Wood and the grounds of Heathercombe Brake. They contain some of the local species which would have been present in the original farmland, such as Pedunculate Oak, Ash, Downy Birch and Hazel, but these are very much in the minority. The woodland canopy is dominated by Beech, which is not native to Devon, introduced species such as Sycamore, Common Lime, Sweet Chestnut, Horse Chestnut and various conifers. The structure is quite open in some places but heavily shaded in others. The ground flora is reasonably varied in species overall but very thin particularly under dense Beech where little but Bluebells can grow, providing a fine show in spring but bare ground for the rest of the year. The Manwood grounds, though mown and planted with specimen arboretum trees, provide a park-like open woodland habitat which is attractive to birds and insects. Some of the common

woodland plants such as Bluebell, Primrose, Herb Robert and Red Campion grow here, and there are wetland plants bordering the stream and ponds.

The varied structure of these stands encourages a good range of common birds such as tits, thrushes, warblers, Robin and Wren. Two of the specialist birds of western oakwoods, Pied Flycatcher and Wood Warbler, also occur in small numbers. The Specked Wood, a butterfly of dappled shade, is common here, but other specialist woodland butterflies seem to be absent. There is a breeding roost of bats in the basement of Manwood, and the surrounding area looks suitable for bats to feed.

Assessment.

The amenity woodlands are structurally varied, with a good range of ages and sizes of trees. While there are good canopy gaps in some parts, the dominance of Beech restricts the ground flora in much of Fairy Wood and Mill Wood, and this effect has been exacerbated by underplanting with conifers in the latter. Their wildlife value, particularly for insects, would be improved if they contained more native trees and shrubs. This is the richest part of Heathercombe for birds and for the two most important mammal species in the valley, dormice and bats. The nest boxes have proved their value in attracting Pied Flycatchers, but the occupancy rate is low. This may be because tits, usually the main occupants, are not numerous compared with local oak woods. They depend on the late spring flush of arboreal caterpillars, particularly the Green Oak Roller Moth, to feed their young, and there are few of these where there are few oak trees.

Management for Nature Conservation.

While the more formal areas around Manwood will remain dedicated to the growing of exotic specimen trees, even here there are a few fine oaks, and there may be opportunities to plant a few more. The rest of the amenity woodland would be improved by reducing the dominance of Beech and Common Lime and planting a range of locally native trees (preferably of local provenance). This would also break up the canopy and provide temporary glades. While individual specimen conifers are acceptable, the underplantings in Mill Wood should be removed. In wet spots native Alder could be planted; there is a suitable site in Fairy Wood near the stream. As these are the areas most visited by the public, the aesthetics of any action will be a major consideration.

Bat conservation is a specialist subject, and advice should be obtained from a suitable source. Bat boxes should help to provide breeding sites, though winter roosts are necessary as well. The use of the bird boxes should be analysed to determine which areas are most used; this may help to decide on where they should be sited. Dormice depend on a shrubby structure for climbing and nesting, and on nuts and berries as food. Their numbers could be increased by planting Hazel and allowing Bramble thickets to develop in sunny spots (where they will also attract butterflies).

b. Natural Broadleaf Woodland.

Description.

Woodland composed entirely of self-sown native species is limited to a few small pockets, mostly on wet ground. The two main examples are adjacent to Upper Lake and in the valley above Burn Wood (where the tree cover is recent and patchy). Here native trees such as Downy Birch, Alder and Grey Sallow predominate. Characteristic

ground plants include Marsh Violet, Marsh Thistle, Golden Saxifrage, Valerian, Lesser Spearwort, Hemlock Water-dropwort, and Water Mint, sedges, rushes and mosses including Sphagnum.

Assessment.

Though very limited in extent, this naturally occurring woodland is rich in plant species and is a scarce type of woodland in Devon. It is the only part of the Trust's property which is likely to be managed purely for its wildlife value.

Management for Nature Conservation.

The only management likely to be needed is the removal of invasive species, notably Sycamore, if they become at all dominant. There is some Sycamore by the Upper Lake. Any opportunity to expand this type of woodland along the stream valleys should be taken; it will spread naturally if planted tree cover is removed.

c. Grasslands.

Description.

The grasslands present on the site are small in extent but varied in nature. They comprise the meadows at North and South Heathercombe (which are the only remnant of the original farmland), the Orchard, (a former Larch plantation which has recently been clear-felled and is now predominantly grassland), and the Manwood lawn.

South Heathercombe meadow has not been limed in the past 25 years, and has a varied flora, particularly in the wet ground near the stream, including Heath Spotted Orchids; two wetland plants not found elsewhere at Heathercombe are Ragged Robin and Bogbean. The drier parts have a mixture of grasses and abundant Common Knapweed. North Heathercombe meadow has been limed annually and has far fewer species, though again the interest is greater near the stream. The orchard has been planted with local apple varieties and a very successful sowing of suitable native flowers, which have benefited from the removal of topsoil. The south-west end of this clear-fell, where Beech has been removed, is regenerating naturally with birch and the beginnings of a heathland flora. The Manwood lawn is largely mown, but is quite wet, and the small stream running through it has native water plants such as Bog Pondweed as well as garden plants, and attracts dragonflies. It includes an unmown area of tall mire vegetation dominated by rushes with other wetland plants.

Assessment.

This category adds considerably to the wildlife diversity of the site; the meadows in particular could be expected to have a good range of characteristic plants and invertebrates, as they have been established far longer than the woodland. However recent management also affects their biodiversity, the south meadow being much richer than the north. The open wet ground at Manwood is probably also long-established; it is shown on the Tithe Map as Heathercombe Moor, a term often referring to mire rather than moor in the modern sense. The Orchard grassland is of course very recent, but it is a good example of what can be achieved artificially by careful management and an appropriate choice of seed species.

These open areas can in principle be expected to have a good range of insect life. The limited butterfly data obtained so far includes Orange-tip and Green-veined White butterflies in the South Heathercombe meadow, and Common Blue in the Orchard.

Andrew Taylor has heard the uncommon Grasshopper Warbler in the wet ground adjacent to Fairy Wood.

Management for Nature Conservation.

The low-level grazing currently practised in the valley fields appears to be at about the right level, though the south meadow is somewhat undergrazed; heavier grazing or topping of the dry areas might help smaller plants. If liming can be discontinued in the north meadow it should gradually become more species-rich. Spreading cuttings from the south meadow might speed up the process. The Orchard will need an annual cut after flowering to keep tall plants from swamping the small ones. It would be interesting to treat part of Manwood lawn as a meadow, with just an annual cut; the species mixture would be quite different from the dry fields and to some extent from the mire which is not cut at all

d. Freshwater Habitats.

Description.

There are three streams in the valley: the Heathercombe Burn, the southern tributary which flows through the Upper Lake, and the stream which forms the northern boundary (Is this within the property?). They are all typical small upland streams, fast flowing and with stony bottoms. As such they would not be expected to support aquatic vegetation, but where there is enough light they enrich the flora of their banks, and probably have a small invertebrate fauna including mayfly and stonefly nymphs. The Heathercombe Burn north of the road has been dammed in four places, creating three ponds and the Lower Lake; these are regularly cleared out and thus have little aquatic vegetation, but they hold some small Trout and attract dragonflies, Grey Wagtails, Dippers and Mallard. The Upper Lake, south of Fairy Wood, was formed where ride construction dammed a small tributary stream; it is more natural in character with richer marginal and aquatic vegetation. The Heatree Leat, which runs through Heatree Down, is also a useful aquatic feature with a good range of plants and also dragonflies, and leakage has led to wetland plants growing in places on the downslope side.

Assessment.

The streams suffer from shading along much of their length; this is likely to reduce their biological potential, both through lack of sunlight and by acidification from fallen conifer needles. The latter effect will be carried though to the lakes and ponds. These, though artificial, are potentially a good wildlife habitat. The Upper Lake has more aquatic plants and probably aquatic invertebrates, though it is rather shaded. The Lower Lake and the ponds are largely open, but their management as an amenity feature prevents aquatic plants from becoming established, and probably removes most of the overwintering aquatic larvae such as those of dragonflies and mayflies. There are presumably enough invertebrates to sustain the trout, though they will also feed on terrestrial invertebrates which fall into the water. The leat, in contrast, is tending to become choked with aquatic vegetation

Management for Nature Conservation.

The streams should be as far as possible cleared of shading trees, so that they receive sunlight for at least part of the day, or have only dappled shade. The Upper Lake should have the overhanging Sycamores removed; it may also be necessary from time to time to clear back the mat of Sweet-grass which is spreading across it. Being deep

it does not otherwise need management. The other ponds, being shallow, will eventually fill up with leaf litter, but management should be much less drastic than it is at present. A belt of aquatic vegetation should be left round the margins, and clearance of leaf litter should be carried out on only half of the remainder in any one winter; this will enable aquatic plants and invertebrates to recolonise the cleared half. The leat would benefit from clearing some of the vegetation, as many aquatic invertebrates prefer some open water. This should be done in alternate lengths so as to allow recolonisation, the remainder being cleared a few years later.

There is already plenty of wetland vegetation in the valley which will naturally colonise cleared banks of water-bodies. There are few species of emergent, floating or submerged vegetation (the last being important for oxygenating the water as well as providing cover for pondlife). Water Starwort (submerged) already exists in the Duckpond, and Bog Pondweed and Water Crowfoot (floating) in the Upper Lake and the leat, from where they could be introduced. Given the amenity aspect of the lower valley, it may be appropriate to introduce species which are not locally native such as Greater Pond-sedge, Flowering Rush and Lesser Reed-mace (commonly known as Bulrush) as emergents, White Water-lily as a floating species and Water Milfoil (submerged). Great care should be taken not to introduce invasive species such as Canadian Pondweed and Parrot's Feather (a non-native Milfoil).

The use of the lakes and ponds by waterfowl can be increased by providing suitable bankside vegetation. Mallard will be safer from foxes if they can be encouraged to nest on islands with dense ground cover, though they will often nest well away from water. Moorhens might colonise if they have thick marginal vegetation to hide in. Mandarin ducks are now widespread in local woodland; they nest high up in holes in trees, and will use open-fronted nest boxes. Amphibians need submerged plants as cover for tadpoles, and newts lay their eggs on water plants. When they reach the adult stage they can leave the water more safely if there is thick vegetation on at least one side of the pond.

e. Moorland.

Description.

Moorland in the Trust's ownership comprises part of Heatree Down and the small area of moorland above Heathercombe Brake. The Trust's section of Heatree Down has been agriculturally improved to some extent, and gorse and bracken have been cleared from the southern half, but it is still a good area of fairly species-rich acidic grassland, and the remaining gorse provides breeding habitat for Whitethroats. The fenced-off area beside the road provides a patch of bramble scrub where a singing Whitethroat was heard, and the road verges and even the central strip of the tarmac have a variety of flowers. The Heatree Leat runs through this area - see under Freshwater Habitats above. The moorland above Heathercombe Brake has had considerable human influence, with the remains of buildings and a levelled area which was constructed as a sports field. This area was fenced off for over 80 years, but is now open to common grazing again. The sports field has a good cover of short Ling and Bell Heather, but the rest of the block is heavily dominated by bracken, with many young rowan trees in the southern half.

Meadow Pipits as well as Whitethroats were noted on Heatree Down, and it is likely that Stonechat and Skylark occur here too. Meadow Brown and Ringlet butterflies, both common species of grassland, were abundant in July, and Large Skipper was also recorded.

Assessment.

Heatree Down would have been heather moorland in the past, but the heather has been eliminated by liming. It still has a moorland character, with gorse and acid-loving plants such as Tormentil, and thus provides a useful addition to the biodiversity of the site as a whole. Management has been uneven, leaving the southern half with no cover for breeding birds and the northern half rather over-dominated by Gorse and Bracken. The small patch of moorland at Heathercombe Brake is heavily dominated by Bracken, which is a common problem on Dartmoor; the heathers on the sports field show the potential.

Management for Nature Conservation.

Gorse in moderation provides good nesting sites for birds such as Whitethroat and Yellowhammer. Bracken, if not so dense as to create a mat of dead litter, provides a mini-woodland environment where woodland plants such as violets will grow; these in turn are food plants for some of the rarer Fritillary butterflies. (There is a small colony of High Brown Fritillary in the locality which depends on just such conditions.) While the management of Heatree Down has created diversity within the site, it would be preferable to see a bit more Gorse in the south, while the north is becoming over dominated by Gorse and Bracken; here they should be controlled but not eliminated. There are Rowan saplings in this area, and some of them should be allowed to grow on as potential song-posts for Yellowhammers and Tree Pipits. Grazing should continue, otherwise the land will eventually revert to woodland. If liming were discontinued, heathers might recolonise, but this may not be acceptable to the grazing tenant.

The moorland area above Heathercombe Brake is a small part of a hillside heavily dominated by bracken. In this case it would be worth while trying to eliminate bracken with Asulox on the Trusts's area to see if the heathers on the sports ground would spread.

3. COMMERCIAL PLANTATIONS

a. Conifers

Description.

Post-WWII conifer plantations cover the major part of the Heathercombe Valley. The oldest of the current plantings (some of which are on previously planted sites), dates from 1949. A few more areas were planted in the 1950s and the majority in the 1960s; the last significant plantings were on the western Newtake and an area fenced off from Vogwell Down in 1968. The main species used in the earlier plantings was Japanese Larch, and this is the predominant species on the western slopes of the valley. Other species used in the valley are Sitka Spruce, Douglas Fir and small amounts of Grand Fir, Western Red Cedar and Western Hemlock. The Newtake plantings are largely Sitka Spruce with some Noble Fir and Larch. (Data from Fountain Forestry map.)

The ground flora has comparatively few species, but the cover varies greatly with the species and age of the conifers and the extent of thinning. At the bottom end in wildlife value are the more recent plantings, mostly Sitka Spruce, in the Newtake areas, where the ground is bare of vegetation. In the more mature plantings on the lower slopes and at the south end of the valley there is usually a good cover of ground vegetation but consisting of very few species, principally Broad Buckler-fern, Wood Sorrel, the introduced Pink Purslane and grasses. Foxgloves can also be common where Rhododendron has recently been cleared. Where the canopy is still dense the cover can be reduced to a scattering of ferns, while a few compartments have a richer species mixture including Male and Lady Ferns, Bluebells and Violets, and sparse natural regeneration of broadleaves including Beech, Sycamore, Ash and Rowan. Larch, being deciduous and having a thin canopy, tends to have a slightly richer flora, though sometimes dominated by grasses. The oldest Larch stands in the Heathercombe Brake area, dating from 1952, have the most extensive natural regeneration (which is unfortunately mostly Sycamore), but a heavy growth of Rhododendron means that there is also much bare ground.

Some of the rides have a significantly richer ground flora. The best examples are those in compartments 8b and 8d, which have wide verges, and at the south end of compartment 1 under thinned Larch. The verges of the road leading up to Heathercombe Brake are particularly good in this respect. Typical ride species include Herb Robert, Self-heal, Wood Dog-violet, and Foxglove, with Golden Saxifrage and Creeping Buttercup in wet spots. The ride east of Fairy Wood is the only location for Stinking Iris and one of the few for Primrose and Pendulous Sedge.

The older plantations attract birds which prefer conifers, such as Siskins and Goldcrests, and a number of generalist species such as Wrens, Blackbirds and Chaffinches, as well as Crows and Woodpigeons. Robin Khan reports two pairs each of Sparrowhawk and Buzzard; these will also nest in broadleaf trees, and their presence in the plantations may be influenced by the lack of disturbance. He has also seen Crossbills, which are conifer specialists, but does not think they are breeding. There are fewer bird species in the Newtakes.

Assessment.

These plantations are characteristically monospecific, even-aged and lacking in structural diversity. The early stages have eliminated the ground vegetation, and recolonisation by woodland plants has been slow and restricted to a few species, particularly where plantings were made on open ground. The Larch plantings avoid the bare ground stage and are more favourable to natural regeneration of broadleaves, but the plant species are still restricted. This may be influenced by the heathy nature of the south-western slopes, indicating a more acidic soil; the north-western Larch plantings tend to be richer, but Rhododendron is severely restricting the vegetation here. The valley bottom and the eastern slopes show signs of developing better where well thinned, but under dense canopy there is still a very sparse ground cover.

The plantings have created a habitat for woodland birds and mammals, including deer. However they provide little opportunity for birds which need low, shrubby cover for nesting, or for those which need large trees with thick bark and dead wood, such as

Woodpeckers and Nuthatches. Woodland butterflies which depend on sunny glades, or on dappled shade in the case of the Speckled Wood, are largely absent.

Management for Nature Conservation.

The single most effective policy to improve the wildlife value of Heathercombe Woodlands would be the replacement of non-native trees by natives, and of uniform woodland structure by an intimate mixture of age classes with a good shrub layer and plenty of open patches. This would be a monumental and very long task, and its desirability will depend on the relative importance given to nature conservation, amenity and commercial forestry in the overall management plan. If it should be adopted, in whole or in part, there is plenty of guidance available. National protocols for conversion of plantations on Ancient Woodland sites have been published, and would be broadly applicable at Heathercombe. Basically they advise gradually clearing or thinning back from existing patches of native trees and ground vegetation, so as to maintain a woodland microclimate while encouraging native plants to spread. The Woodland Trust are currently applying this policy to their plantations in the Bovey Valley. However in the currently poor timber market they have found such intricate felling patterns unaffordable, and have resorted to more clear-felling and uniform thinning than is recommended.

Where conifer plantations are to be retained, their wildlife value can be improved. There are well established principles which can be incorporated into thinning programmes. Rides can be widened by removing adjacent rows of trees, though if this is done too rigidly the effect will be uniform and wind tunnels may be created. On straight rides in particular it is better to create a scalloped edge with wide sunny bays and narrow points. Glades can be created at ride junctions by cutting off the corner of each conifer block. Ride verges and glades may need an annual cut. A further step is to avoid a rigid edge to the plantation by encouraging or planting shrubs between the widened ride verges and the trees. Conifers should be prevented from shading watercourses, as described under Freshwater Habitats. The value of extra light can be seen where the Heathercombe Burn enters the western boundary of the woodlands; there is a canopy gap where wetland plants are becoming established, including Lemon-scented Fern in one of its few locations, at Heathercombe. This gap could be extended downstream to link up with compartment 4c and Burn Wood. Where the original hedges persist on the northern boundary and above Manwood, the outer rows of conifers should be removed before they shade out the hedge plants.

Normal forestry thinning of the crop has been the main influence in encouraging the spread of woodland ground flora so far, and will continue to do so. Priority should be given to thinning those stands where the ground vegetation is still sparse or absent. Thinning has recently been carried out in the western Newtake, and it can be expected that recolonisation here will be by moorland plants such as Tormentil, Heath Bedstraw, Wavy Hair-grass and Heath Woodrush, and possibly by Heather where there is enough light, as well as the inevitable Bracken. Where natural regeneration of broadleaves has started in the older plantations, all species except Sycamore should be retained as far as possible.

A further method of improving conifer plantations for wildlife is to adopt a continuous cover system. This provides a much more varied structure, which is important for birds, and temporary glades which can attract insects and may allow

ground plants which can persist in the seed bank to flower for a few years. The decision whether to adopt this policy depends on the practicalities of forestry management.

Management practices in the plantations should bear in mind the requirements of specialist bird species. Birds of prey are very vulnerable to disturbance when establishing territories as well as when nesting; felling and any use of machinery should be avoided between 1st February and 30th June in areas where they are seen to be breeding. Crossbills require Scots Pine for food during part of the year, and Robin Khan suggests planting clumps of these and letting them grow on past commercial maturity. Larch is also a major seed source for Crossbills and Siskins, but it seems unlikely that there will ever be a lack of these at Heathercombe.

b. Broadleaf and Mixed Plantations.

Description.

Within the conifer plantations there is a broadleaf element. Much of this is provided by late Victorian Beech plantings which are now mature and of no commercial value. There are pure Beech stands, typically with a bare floor except for Bluebells in the spring, in compartments 8d and 6b, and scattered Beech among conifers elsewhere on the eastern slopes. There are also linear plantings of Beech on both external and internal boundary banks, and along ridesides. There are mature Common Limes on parts of the north-eastern boundary, and occasional trees of this species have been planted in recent years on the south-western slopes under Larch.

Assessment.

These plantings have an amenity function rather than a commercial one. In nature conservation terms they provide an element of structural diversity and food sources in the form of lime nectar and beech mast. They also are the only mature trees in the plantations, and will begin to provide micro-habitats such as rot-holes and rainwater hollows. As they mature further they will become a source of deadwood, a valuable element which is currently rare at Heathercombe.

Management for Nature Conservation.

In the pure Beech stands, consideration will have to be given at some point to their replacement. It would be preferable to do this selectively rather than by clear-felling. This will provide temporary glades which will allow ground plants to colonise, and will provide an opportunity to diversify the species range. The same approach could be applied to the boundary plantings. Where there are scattered mature Beech among conifers it would be preferable to leave them to become senescent where this does not compromise public safety.

SUGGESTIONS FOR FURTHER SURVEYS.

Birds:

A more systematic survey of breeding birds would be useful, and should be carried out in April and May when song is at its height. This would give a better indication of which species breed in the various habitats. David Rogers and Andrew Taylor (nest box survey).

Butterflies and Dragonflies:

The current survey has been limited; further work should be carried out over a longer season, and concentrating on the most likely, areas. Simon Mitchell and/or Kevin Bastow.

Moths:

Andrew Taylor is willing to do some light trapping. It will take many sessions at different seasons to build a full picture of the species present.

Bats:

The breeding site at Manwood and the roost in North Heathercombe's porch should be checked by a qualified person (e.g. Miriam Glendell, DNP). It would be helpful to have the valley areas checked with a bat detector to ascertain what species use it for feeding. So far nobody has been found to do this at a reasonable cost.

Fungi:

Jeff Benn of the Devon Fungus Group has agreed to carry out a preliminary survey in October 2005, free of charge. Mosses and Liverworts: Martin Holt from Bovey Tracey is willing to carry out a preliminary survey in autumn or winter 2005/6, probably without charge.

Lichens:

A suitable specialist has yet to be found.

Freshwater habitats:

A survey of the invertebrates is desirable, but nobody has yet been found to do this at a reasonable cost.

Other Invertebrates:

The range of species is vast, and the specialists who can identify them are scarce and unlikely to be attracted by sites where the species range is not exceptional. However there are generalised guidelines for providing invertebrate habitat which can be applied.

Further records:

Additional species records in all groups will no doubt occur in the future, and a database should be maintained and added to as necessary (including dates). Advice on a suitable IT system may be needed.