

**LOCHGOILHEAD WOODLAND PROJECT**  
**Cormonachan Woods**

**MANAGEMENT PLAN**

**DRAFT 2004**

# **CORMONACHAN WOODS MANAGEMENT PLAN**

## **CHAPTER 1 – Policy Statement**

The project will be undertaken in partnership. Ardroy O.E.C will be the lead partner, Forest Enterprise and Argyll & Islands Enterprise as financial and advisory partners

## **CHAPTER 2 – Description**

### **2.1 General Information**

#### **2.1.1 Location, status etc.**

**Location:** Lochgoilhead is situated in the North of Cowal Forest District within the Argyll Forest Park boundary. The area is now within the bounds of the Loch Lomond and Trossachs National Park. By road Lochgoilhead is some 50 miles north and west of Glasgow. The area is bounded on the east by Glen Goil, Loch Goil and Loch Long, on the west the area is bounded by a ridge of hills of which Beinn Bheula 779m is the principal summit.

**Access:** The main point of access to the site is at the start of the path near to the television repeater station (GR196 975 Sheet56). This path runs north of the television mast giving pedestrian access in all weather conditions. The track is unsuitable for vehicular access.

#### **2.1.2 Land Tenure**

- (i) Owner –The Forestry Commission owns the site.
- (ii) Type of holding:-
- (iii) Date of acquisition:- Unknown (?)
- (iv) Total Area: -20.3 ha (50.2 ac).
- (v) Legal rights of access: - Public access on foot is permitted throughout the wood but vehicular access is denied. Common rights. As far as can be ascertained, no common rights exist.
- (vi) Agreed Management Policy: - The management policy for the site is one of conservation interests with amenity use, largely taking priority over silvicultural interests.

#### **2.1.3 Management Infrastructure**

There is a management agreement between Fife Council's Outdoor Education Centre at Ardroy and the Forestry Commission. There will also be an input from the councils Countryside Rangers in the form of management planning and advice. Such planning and advice will be approved by the senior staff at the centre and permission sought and agreed with the Commission prior to any project work being undertaken

#### **2.1.4 Map Coverage**

The following OS Maps cover Cormonachan woods.

Sheet Number	Scale
GR56	1:2500
GR56	1:10,000
Pathfinder ???	1:25,000
Land ranger	1:50,000

Historical map coverage includes

Title	Date	Scale
J. Bleau	1654	
Roy	1752	

Geological maps of the area are covered by the Soil Survey of Scotland, Soil Survey 1957, sheet 40, the 5<sup>th</sup> edition of the Solid map by the Geological Survey of Great Britain (Scotland), sheet 40 and the Drift map 4<sup>th</sup> edition 1955 – 1970, sheet 40.

### 2.1.5 Photographic Coverage

A number of photographs of the wood are held by Ardroy O.E.C. The photographs have been taken on an ad-hoc basis. It is essential, given the need to maintain a photographic record, and also to provide material for talks, displays etc that the collection is improved. There is also a need to acquire a series of aerial and fixed-point photographs, in order to make comparisons between the current situation of the wood and it's past condition. Slides of the site are held within the general slide collection, rather than catalogued on a site-based method.

### 2.1.6 Compartments

The woodland has not been divided into compartments as yet, and doing so should be a priority. The compartments should be based on permanent features e.g. tracks, internal boundaries and NVC community boundaries, as long as these are unlikely to change.

There is a map available, (map ##) from the SWT Survey of 2000, and this can be used as a provisional outline for compartments and for describing the associated floras of the wood:-

To carry out the survey, the area was split into a series of manageable sections. They were identified as areas, above and below the main track, which cuts through the woodland and further separated by the series of small burns that flow, in most parts, west to east into Loch Goil. Each section was described overall and plant species were listed, with DAFOR ratings. DAFOR stands for Dominant, Abundant, Frequent, Occasional and Rare. These ratings are based on the subjective judgement of the surveyor(s) and are given as a guide to the overall abundance of plant species within each section.

The sections were labelled A through to M and are described here as they were surveyed at the

time. See Map 1, for Section layout.

## DESCRIPTIONS OF SECTIONS

### SECTION ABOVE THE MAIN TRACK

#### Sections A/B

East facing deciduous woodlands inhabiting steep slopes leading down to the lochside. Past management of the area was evident through old hazel coppice, which dominates much of the sections. Oak and birch were recorded as occasional throughout, although they were more frequent in the upper areas of Section A. Bluebells *Hyacinthoides non-scripta* and creeping soft-grass *Holcus mollis* were abundant in the field layer, possibly as a result of the previous management practices.

Interesting feature – large folded, rocky outcrop covered in mosses, ferns, grasses and other flowering plants. The feature, was further enhanced by a rowan and birch tree, which were growing atop the outcrop' a large oak below. The dead deciduous wood around the outcrop was also covered in mosses, providing excellent conditions for invertebrates and fungi.

#### Sections C/D

The sections are similar in aspect and slope to the previous sections (A/B). However, the woodland was wetter with more flushes and streams cutting down through the slope. Due to this, the nature of the terrain was more uneven but it was a more diverse habitat, with interesting feature. Downy birch dominated in the damper areas with hazel, abundant on the higher, drier ground. Oak and common alder were both recorded as frequent throughout, with rowan seedlings abundant in the field layer, most noticeably on the bare patches around the cur rhododendrons. Where the streams pass through the flushes, large mats of Sphagnum mosses have formed, which contrasts well with the purple moor-grass *Molinia caerulea* and the drier areas, where woodland flowers and ferns predominate. Typical also of this Atlantic oak woodland habitat are the mosses, liverworts and lichens, which festoon the trees, rock faces and boulders.

Two features of interest stood out in the section: -

1. Interesting rocky outcrop near upper stream area providing a good viewpoint down the small gully.
2. Large colony of cow-wheat (*Melampyrum pratense*) – 15m in diameter, situated on a rise, visible from the track. Mature oaks dominate the rise, making it stand out visually.

#### Sections E/F

Oak and birch dominated the sections, with rhododendron recorded as frequent. Rowan and hazel both occurred occasionally. Bracken *Pteridium aquilinum* dominated below the canopy in many areas. Where the bracken was sparse or missing altogether, the open clearings tended to be wetter, with sphagna dominant locally or purple moor-grass spreading throughout. Where felling

has taken place the felled timber lies in tangled piles creating difficult conditions for movement through the woodland and hampering development of the ground flora.

## Section G

The section was fairly open throughout with rhododendron having been cleared directly above the main track. Higher up the section, where the land began to level out slightly and the ground was more open; the vegetation had a more healthy nature. Species recorded in the area included deer grass *Trichophorum cespitosus*, bell heather *Erica cinerea*, cross-leaved heath *E. tetralix*, bog asphodel *Narthecium ossifragum* and heath spotted orchid *Dactylorhiza maculata*.

## SECTIONS BELOW THE MAIN TRACK

### Section H

The land at the southern end of the section, where woodland clearance has taken place in the recent past, has a more graduated slope than the land to the north, towards Section I, where it becomes steeper, sloping west to east. Oak and birch were co-dominant, with hazel more abundant than the sections further to the north. Some of the species recorded may be the result of the more open nature of the section at the southern end. Species noted, such as dandelion *Taraxacum officinale*, creeping buttercup *Ranunculus repens*, marsh thistle *Cirsium palustre*, common spotted orchid *D. fuchsii* were all recorded as occasional within the section.

The area where clearance has taken place in the past, especially close to the main road, has a population of Ringlet *Aphantopus hyperantus* butterflies.

A chimney sweeper moth *Odezia atrata* was observed flying along the edge of the main track.

### Section I

Co-dominated by oak and birch, the section sloped steeply, west to east. Hazel *Corylus avellana* was found to be frequent throughout (locally abundant in some areas), as were ash and honeysuckle *Lonicera periclymenum*. There was possible evidence of previous coppicing within the section.

Alder was recorded as frequent in the wetter areas near the streams, with sphagnum species, abundant. Hard fern, *Blechnum specant*, male fern *Dryopteris filix-mas* and beech fern, *Phegopteris connectilis* were all abundant.

Broad buckler fern, *Dryopteris dilatata* was recorded as frequent, as was bracken, which was also locally abundant. Tormentil *Potentilla erecta*, bluebell *Hyacinthoides non-scripta* and wood sorrel *Oxalis acetosella* were all recorded as abundant, with wild garlic *Allium ursinu*), lesser celandine *Ranunculus ficaria* and common cow-wheat *Melampyrum pratense* Or is this *Lousewort?* recorded as frequent throughout. Common cow-wheat was locally abundant in some areas.

## **Section J**

Steeply sloping, west to east, the canopy was principally composed of oak *Quercus sp.* and birch, *Betula spp.* as co-dominant species. Structurally, the woodland had a good diversity of species, over the layers (canopy/shrub/field/ground). Regeneration of trees and shrubs was healthy, with hazel and alder, recorded as frequent; ash and willow spp., recorded occasionally. Bluebell, wild garlic, cow-wheat, wood sorrel *Oxalis acetosella*, lesser celandine, honeysuckle and beech fern were among the plants recorded.

## **Section K**

Good, overall, structure and composition of species. Oak was the most abundant tree species forming the canopy. Bracken was locally abundant with honeysuckle occurring frequently. The area has a range of other fern species, which enhance the diversity of the woodland. The range included hard fern, male fern, lemon scented fern *Oreopteris limbosperma* and beech fern.

## **Section L**

The section was poor overall. This has been, principally, due to the dominance of rhododendron over much of the area, the in the past. The rhododendron has been cut in recent times (6/7 years). However, the ground layer was poor to non-existent, in and around the rhododendron. Closer to the track the area was more diverse, with a mix of species recorded in the better woodland sections.

## **Section M**

Overhead telephone cables pass through this section, with the subsequent way-leave cutting through the woodland. Bracken dominates below the overhead lines, where the trees and shrubs are regularly cut. Where the ground was more open, purple moor-grass was abundant.

The woodland to the north edge of the section was dominated by downy birch, with the occasional oak, rowan and grey willow *Salix cinerea*. Rhododendron was also recorded as an occasional, within the section.

## **2.2 Environmental Information**

### **2.2.1 Physical**

#### **2.2.1.1 Climate**

The climate is Oceanic with cool moist summers and warm wet winters. Rainfall is high at up to 2800mm/pa. As the woods are positioned on the leeward side of the hills they are relatively sheltered from high winds though wetter, owing to the 'relief rainfall' effect

The wood is at low altitude and relatively sheltered. Slopes are generally moderate at 20 30% but there are many steep areas associated with rock outcrops.

### 2.2.1.2 Hydrology

Whilst there are no ponds or substantial rivers within the wood, there are many wet flushes, ditches burns and pools.

### 2.2.1.3 Geology/Geomorphology

The geology is primarily metamorphic, consisting of mica schists, Undifferentiated schists, schistose grits and greywackes.

### 2.2.1.4 Soils/substrates

Soil maps for this area are incomplete. The primary soils in most oak woodlands in this area are Brown Earths or Upland Brown Earths of varying depths often very soft and moist. Wet areas either where the slope is less steep or in the presence of a wet flush generally results in a gleyed soil of some description. There are also many rocky outcrops, cliffs and exposed rock within the woods

## 2.2.2 Biological

### 2.2.2.1 Flora

Aside from the list given as a result of the SWT and Broad-leaved Woodland Survey of Cowal Forest District 1995, there appears to be little in the way of recorded data for the site. [Add comment re lichen on hazel](#)

### 2.2.2.2 Fauna

The same comments apply to the range of fauna species recorded on the site as for flora

### 2.2.2.3 Communities:

NVC Communities recorded

The area was subject to survey work carried out in 1995, as part of a broad-leaved woodland survey of the Cowal Forest District. The survey identified the range of NVC community types within the area as – W17a: *Quercus petraea-Betula pubescens-Dicranum majus* woodland, *Isoetecium mysouroides-diplophyllum albicans* sub-community. W11b: *Quercus petraea\_Betula pubescens-Oxalis acetosella* woodland, *Blechnum spicant* sub-community. W9: *Fraxinum excelsior-Sorbus aucuparia-Lysimachia nemorum* woodland. W7: *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland. W4b: *Betula pubescens Molinia caerulea* woodland, *Juncus effusus* sub-community. According to the survey report, the oak woodland communities

(W17a and W11b) made up 70% of the woodland habitat, which was a fair representation of the cover of the two communities. The other three communities W9, W7 and W4b each represented 10% of the overall woodland community group. The quality of the woodland habitat was variable. To the south, it tended to be of a better natural quality than that to the north, which had been more affected by the invasion of rhododendron.

### **2.2.3 Cultural**

#### **2.2.3.1 Archaeology/Past land Use**

It is likely that given the geographical location of these woods and their proximity by water borne transport to the industries of the central belt of Scotland that some form of woodland utilisation took place. The presence of multi-stemmed stools is evidence of probable Hazel coppicing.

Prior to re-establishment of the path, there was evidence of an old pony or cart track with associated dry stone culverts. This may have been used as the old road to Carrick. It is possible that the low stone structures within the wood may have been charcoal burning platforms. More work is required on the history of the site to confirm some elements of past use. Within the last few decades the woods were used to shelter livestock, which has led to lack of natural regeneration and a skewed age structure.

Most recently the woodland has come into Forestry Commission ownership, which has resulted in some planting up of gaps as well as underplanting with exotic conifers. Rhododendron *R. Ponticum* is a more recent invader of these woods.

There are no identified ancient monuments within the wood.

#### **2.2.3.2. Present Land Use**

The principal uses of the site are now for recreation, education and conservation. Less formal recreation also take place, bird watching, walking, mountain biking and exercising dogs are all common place activities.

The wood is also the venue for a wide variety of educational visits. Groups ranging from lower primary to secondary and tertiary education have access to the site, either as an independent visit or via the Outdoor Education Service.

Some production of timber is carried out, but for a variety of reasons this is no longer a primary function for the wood.

#### **2.2.3.3. Past Management for Nature Conservation**

Prior to the management agreement being established the objective for the wood was the production of timber, although some recognition of the conservation value of the wood is

implicit, given the continued existence of the various NVC communities within the site. In recent years the Forestry Commission has changed the focus of its management principles from the creation of conifer monocultures, with clearfell toward mixed woods with a preponderance of broadleaves, felled either in sequential coupes or in a continuous cover system. This has been

#### **2.2.3.4. Past Status/Interest**

As far as can be ascertained, Cormonachan Wood has had little in the way of scientific interest shown in Similarly, the site has had no formal designations placed upon it e.g. S.S.S.I.

There is obvious interest in the site for nature conservation purposes by Fife Council, hence the management agreement being established.

#### **2.2.3.5. Present Conservation Status**

The management agreement placed allows the management the site to be in line with the aims and objectives of other sites under the influence of Countryside Services, e.g. the Country Park – i.e. public enjoyment, recreation and education. These aims and objectives are primarily concerned with, and about, conservation.

The site has no current designation or status and as such no other constraints or obligations arise.

#### **2.2.3.6. Landscape**

The site is placed on the lower part of the hill, which overlooks Lochgoil. The Woodland is a dominant feature of the area and acts as a counter point to the areas of birch and coniferous woodland, along with heath and moorland, which constitutes most of the surrounding land use. The site is also one of the more significant area of broad-leaved woodland within the immediate locality Aside from the hut, 'Jan's hideaway' and the television repeater mast a the entrance to the site, there are no buildings or other large man-made objects within the main portion of the wood.

#### **2.2.3.7. Public Interest**

Informal dialogue between the Countryside Service staff and the public indicates that there is a great fondness for the wood and a strong desire to see it kept in what is perceived as 'good' condition e.g. without areas of clear fell. The carpets of Bluebell *Hyacinthoides non-scripta* are a major attraction for both local people and visitors from further afield. Any work carried out within the wood generated a large amount of interest and queries as to the nature and necessity of the task, along with comments regarding 'my' or 'our' wood.

#### **2.2.3.8. Educational use/facilities**

The educational facilities on the site itself are Jan's hideaway, a hut with a woodburning stove, which is used as a base for educational visits, and a composting toilet adjacent to this. Both are

kept locked when not in use. Also, as an adjunct to the Ardroy Centre the site is used as a venue for many visits, as outlined in 2.2.3.2. There is a woodland pack produced by Fife Ranger Service, which outlines various activities for learning about woodlands at primary level and which, Cormonachan Wood can be utilised as a site for the activities. Earth education forms an important part of the educational resource of Ardroy, and the proximity of the wood, along with the ability to have permanent props set out through the site, enhances this experience-based method of education. For secondary and tertiary education Cormonachan Wood can be used as an outdoor classroom, showing examples of inter-relationships and management techniques.

There is also a potential for groups such as the National Small Woods Association to use the wood for the running of courses, in conjunction with the centre.

#### **2.2.3.9. Research use/Facilities**

The site has not been used for research. No research facilities exist either on the site itself or at the Outdoor Centre. Any requests to use the site for research would need to be considered against other site uses such as recreation and education.

#### **2.2.3.10. Interpretation use/facilities**

As outlined in 2.2.3.2, 2.2.3.9 and 2.2.3.8 the site is used as a venue for guided walks and events.

Display boards are in preparation relevant to the site itself, which will be placed at the main access points. A leaflet about the wood may be produced. These will be aimed at the general public with a view to generating interest in Cormonachan Wood and in the inter-relationships present in mature Woodlands and Trees.

The interest shown in the site reflects the type of visitor the site attracts (see 2.2.3.2 and 2.2.3.7). Loch Lomond National Park is a site visited by people from throughout the Central Belt of Scotland and the Glasgow area in particular across a wide social and educational spectrum. Any interpretative material which is produced should therefore be kept at a more general level, to stimulate interest from as broad a spectrum as possible. Any interpretative projects undertaken will need to fulfil the criteria of Fife Council's interpretative strategy, as well as those of the partner organisations.

#### **2.2.3.11. Recreational use/facilities**

Again, much has been covered in 2.2.3.2 and 2.2.3.7. The informal recreation which is currently carried out is largely acceptable, although there is inevitably some conflict between user groups e.g. mountain bikers and walkers.

The site does have the potential to have some use from off-road motorcyclists and this form of recreation is unacceptable.

## CHAPTER 3

### CONFIRMATION OF IMPORTANT FEATURES

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

The land cover survey (LCS88) data gives Argyll and Bute 183 km<sup>2</sup> of Broadleaved Woodland. This covers a range of habitats and includes areas which are not included within this habitat type. The Ancient Woodland Inventory for Argyll & Bute records an area of 114 km<sup>2</sup>. The costed National Action Plan gives a figure of 700-1000 km<sup>2</sup> for the national resource of Upland Oakwood.

Cormonachan Wood has been managed as woodland for some time, as is shown by the general structure of the wood and the age class of the trees.

The Wood also has many of the ancient woodland indicator species from Peterkin's (1974) studies, which were trialed as a preliminary test in North East Scotland by Miles and Miles (Scottish Woodland History, T.C Smout ed). Of the twenty species used as indicators in this trial, twelve of which were also on Peterkin's list, no more than eight were found in any one Wood. Cormonachan Wood exhibits ???of the species listed.

The indication is that the wood is much older than any of the currently available documentation infers, and that it may well be an ancient woodland site with unsympathetic plantings of tree spp, particularly with regard to the conifer plantings, imposed upon it.

Added to this are the individual community types present, in particular the W17a: *Quercus petraea-Betula pubescens-Dicranum majus* woodland, *Isoethecium mysouroides-diplophyllum albicans* sub-community. W11b: *Quercus petraea\_Betula pubescens-Oxalis acetosella* woodland, *Blechnum spicant* sub-community. W9: *Fraxinum excelsior-Sorbus aucuparia-Lysimachia nemorum* woodland.

Other factors which have implications for management include the inception of the Bio-diversity Action Plan in Argyll and Bute. The Argyll & Bute LBAP lists the following as key species dependant on the habitat;

KEY SPECIES DEPENDANT ON THE HABITAT ( Argyll & Bute LBAP)		
Bats	Black Grouse	Lichen
Nightjar	Otter	Pearl Bordered Fritillary
Red Deer	Red Squirrel	Song Thrush
Wild Cat	Wych Elm	

Species action Plans have been prepared for the above.

At a National level the following species are listed;


Management of the site should take these aspects into account, encouraging good practice to ensure the continued presence of these species and habitats and, where possible and desirable, extend populations. The fact that the site is currently managed by an agreement which involves Fife Councils' Countryside section, which has a remit to educate and advise on such matters, lends even more weight to this.

### 3.2 Provisional list of important features

From the preceding sections, several features are shown to be of importance when considering the value of Cormonachan Wood. In biological terms these include: -

(i) Habitats – Broad leaved woodland

As stated in 3.1 this habitat has a large total area within Agryll & Bute. However, much of this habitat type has been degraded in the past owing to unsympathetic management. Where there is the potential to reverse this trend, the opportunity should be taken.

(ii) Community types

The communities highlighted in the NVC report are typical for the area and land form of the wood, and as such provide a good example of the possible range of communities to be found in Atlantic Oakwoods.

(iii) Species

The site holds one known national rarity, the lichen,?????. A full bryophyte survey may find more there are several biodiversity action plan species present, Song thrush, and Bat and Bumblebee species and in particular Bluebell

In addition to the biological features there are several other areas of interest. These include Landscape, Past Land use, Public interest, Educational use, Public use/access and interpretative use.

Much of the above has been discussed previous sections 2.2.3.1 – 2.2.3.11 and many are inter-

connected.

- (i) Past land use: - This bears on the importance of the site not because of any particular activity that has occurred or, excepting the potential charcoal platforms and the existence of the old trackway, signs of activity or archaeological remains, but the reverse. The site has not, as far as can be ascertained been used as anything other than woodland; in other words it is an ancient woodland site, which elevates its status within a woodland context.
- (ii) Landscape: - The site is an important feature of both the wooded areas of the locale and the surrounding landscape. It provides a backdrop to Loch Goil and can be visible from the local village dwellings and the high ground round about.
- (iii) Education use: - Given the site's position within the local community, and the use of Ardroy Outdoor Education Centre by Fife schools, it is an obvious focus for educational visits for a variety of age groups and user types and is given preferential use over many other similar sites within the area.
- (iv) Public interest: - Owing to the of the local population centres of Lochgoilhead, with the attendant tourist influx, the number of visitors to the site is high. As such the public interest shown in any operations carried out is proportionally high and must be taken into account in any proposed management activities (2.2.3.7).
- (v) Public use/access: - The level of public use, both on a formal and informal basis is inextricably linked with the level of public interest – people use the wood because they have an interest in it and this interest is maintained due to the level of access allowed and lack of constraints on the frequency of use for individuals. This aspect of the wood is therefore important for continued support, especially from the local community, for any initiative undertaken in the wood.
- (vi) Interpretative use: - the situation of the wood, with its proximity to the Centre, makes it an ideal venue for explaining the value of woodland and the part it has to play within the countryside and society.

### **3.3 Confirmation of features:-previously recognised**

Much of the points raised in preceding section were taken into account at the time of the management agreement regarding site being entered into by the partnership. However, at that point, little time was available to research into the history of the site prior to the wood being on the 1856 O.S. Map. The site has no formal recognition of its importance beyond inclusion within the Country Park. There is no SSSI designation for example, or any other form of designation. This should not, however, be taken as any indication or reflection on the importance or value of the site.

### **3.4 Evaluation**

### 3.4.1 Evaluation for Nature Conservation

#### 3.4.1.1 Size

In the context of nature conservation size is not judged in direct terms, i.e. the physical size of habitat e.g. method cannot be compared directly with the physical size of another type of habitat e.g. woodland. The question that must be asked is whether or not the type of habitat is viable given the size of the site in question.

At 20.3 hectares (50.2 acres ) the site is a large area of broad-leaved woodland and as such will operate as a viable ecosystem. Against this are the problems of the presence of invasive species such as *R ponticum* and *P aquilinum* and some of the tree species contained within it (see also 3.4.1.3).

The size also creates knock on effects for species dependant on the woodland. Some species require home ranges larger than the available habitat. - At 20.3 ha. Cormonachan wood could support up to 3 Tawny owls *Strix aluco* with territories of 8-12 ha whilst sparrow hawk, *Accipiter nisus*, requiring 40-520 ha will require good quality adjacent habitat.

The size of the site as a broad leaved woodland elevates its importance, However, much of the site was planted up with exotic species or non-native varieties of native species. Of particular concern are the areas of Sitka Spruce. These plantings take up approximately half the woodland. This reduces the value of the wood in conservation terms, partially by reducing the available area for natural processes to occur and also by effectively reducing the native diversity of the wood, especially the ground flora and associated fauna.

As described in the report carried out in 1995, as part of a broad-leaved woodland survey of the Cowal Forest District, the community descriptions are based on the existing ground flora or that which was perceived to be present in the absence of exotic conifers.

Fortunately, in terms of nature conservation, the Spruce plantings have been removed in recent years. However, there are still areas with standing, dense spruce and areas where the felled material has been left. Large amounts of the felled spruce has been burned in recent years. This should allow regeneration of pioneer native species throughout the spruce compartments such as Willow, Rowan and Birch, thus increasing the potential area for broad-leaved woodland within the site, and, if combined with planting of oak and hazel, should accelerate the recovery of these areas.

However, for the site to be truly viable, the entire woodland would need to be given over to native broad-leaved sp. with obvious implications for plantings of spruce etc. Ideally, this would be carried out in the near future. If the spruce is to be removed, it is best if this were done before it closes canopy and any natural regeneration is lost. This would be of benefit for the following reasons: -

- (i) There would be sparse/willow/birch/rowan woodland to plant native sp. into and which would act as a 'nursery' for the young trees.

- (ii) Acting quickly will avoid the creation of further areas of complete clear fell which, given the public interest in the site, would create an unfavourable reaction.
- (iii) Areas of spruce, which have been thinned, are showing a rapid return of ground flora, Early felling should be carried out to ensure whilst there is still a viable seed bank within the site.

### **3.4.1.2 Diversity**

In physical terms Cormonachan wood has diversity in altitude, soil type and depth, aspect and hydrology and each of these impacts on the diversity of the wood itself. Plant growths relate to the availability of nutrients, light and water, thus the physical and biological aspects of the site are intertwined. Of the physical aspects, altitude is likely to have the least impact. The variance in altitude within the wood is only in the region of 90m so that there is no zonation of vegetation. The brow of the hill may be exposed enough to have some effect on the plant community, but there is little evidence of this.

There appears to be some correlation between soil types and NVC communities (maps). Within this the variation of soil depth, moisture availability and aspect (affecting the amount of available light) will produce increased diversity throughout the habitat, both of communities and species. The NVC report identified 5 main communities within the main body of the wood, with the oak wood communities comprising approx 70%. The current canopy composition is sometimes at odds with this, particularly in the area largely covered by Sitka Spruce.

This has obvious effects on the ground flora, as mentioned in 3.4.1.1, with an increase in diversity owing to both the canopy composition and to the edge effect caused by the edge – interior ratio. Whilst the edge – interior ratio is fixed (assuming there is no opportunity to extend the area of the wood) the canopy composition and structure can be altered via felling and replanting. The aim being to reduce the diversity of unsuitable community types with the wood primarily by removing those which do not conform with the habitat, and to increase the diversity of stands and species within the desirable communities.

The current diversity of species is assumed to be good, given the results of the 1995 & 2000 surveys. Diversity of mosses and lichens is apparently high, as is the case with many long-term woodland sites on the west coast, with both age and composition of canopy species being contributory factors. Vascular plants are well represented, although distribution of some species is limited, with this linked to canopy composition. The recorded list of fungi poor although as is often the case both this and the vascular plant list may owe more to concentration of effort, rather than a true reflection on the species diversity within the site.

The fauna of the site presents the same problems as the lichen and fungi. Invertebrates are under-recorded and little comment is possible on the range of species present, although certain assumptions can be made. The lack of mature and over-mature trees along with dead wood, snag and dying timber must have a severe limiting effect on the invertebrate population.

Much the same can be said of Birds and Mammals. The lack of structure, age variance of canopy species and ground flora act as a limit on food sources, nest-site potential etc and hence the diversity and density of species.

Against this, the areas of conifer provide feeding for species not normally associated with oak and birch woodland. Some species e.g. Goldcrest *Regulus regulus* has a preference for conifers and nests within the northern portion of the wood, thus increasing the current diversity, Although not in a manner consistent with oak woodland.

Conifers are also known to provide feeding potential for bat species. Bats will preferentially forage over individual conifers in broad-leaved woodland thus the removal of all conifers to achieve a desirable level of diversity in the floristic communities may ultimately limit the diversity of the fauna.

Overall, the current status of the diversity within the site could be summed up as 'good, some room for improvement.'

### **3.4.1.3 Naturalness**

Cormonachan Wood is not classed as ancient woodland, although woodland cover on the site may have been continuous. Along with almost all of the woods of Scotland, the site has had human disturbance impacted upon it and a consequence is not considered natural. It does, however, have a high degree of natural elements present within it and has the potential to be returned to what is perceived to be a more fully natural state.

As with 3.4.1.2. and 3.4.1.1 these natural element relates more to the ground flora than to the canopy species, it is the composition of the canopy in terms of the presence of some exotics and the proportions of the planting mix of various native species that leads it away from being regarded as natural. This, of course, is not the case in the areas of Spruce. These are truly exotic and only the remnants of ground flora indicate any degree of naturalness in these areas. The real indication of naturalness in this area occurs in the process of regeneration within the failed portions of Sitka. Here native pioneer species are establishing which given time, would be a precursor to the oak woodland.

The elements of naturalness within the wood can be easily maintained and in many cases expanded. The artificial communities within the wood have little value, other than providing habitats for some species, which would not otherwise be present, (e.g. Gold-crest) but there are plenty of adjacent sites which provide the same opportunities.

If these artificial communities were removed, (e.g. Sitka Spruce) and replanted with a mix of native broad-leaves proportioned according to the community code e.g. W17a the result would be a net gain in terms of naturalness.

### **3.4.1.4 Rarity**

The lack of formal recording of the sit could lead to the statement that it contains no nationally or

regionally scarce or rare plants, but this is unlikely. One rare lichen species has recently been recorded. No formal data exists for Fungi or Bryophytes.

The same is true of Fauna. No nationally rare mammals, reptiles, amphibians or birds are recorded as present and no data exists for invertebrate populations within the site.

There are, however, many species, both flora and fauna, which are listed in the biodiversity action plan local and national lists. Whilst Bluebell merits being a feature in its own right, as a nationally listed species, all species entered into the biodiversity list display some element of rarity or are under threat.

In cultural and landscape terms, the woodland is rare in that the surrounding area – the wood itself being managed with conservation as a priority objective.

In the long term, the viability of the oak woodland must be considered. As stated in 3.4.1.3. The wood can easily be maintained in its present condition and enhancement of the natural features will contribute to increasing the value of the wood in terms of rarity. Positive management should therefore be carried out in the near future and in the long term to ensure this.

#### **3.4.1.5 Fragility**

All communities are fragile to a greater or lesser extent, as are the species contained within them. In general terms, Woodlands are more intrinsically robust than e.g. grasslands. What should be considered is the fragility of Cormonachan as a woodland site.

As has been shown, some of the ground flora is at a remnant or degraded level, making it much more vulnerable to damage, either intentional, inadvertent or natural. Some species present may be declining (e.g. Ramsons) and so of concern whilst others may be increasing, e.g. *R. ponticum* causing equal concern.

Consideration must also be given to the history of management of the wood. The plantings have, in some of the wood, been unsympathetic to the indicated NVC communities, which has given rise to a variety of problems. The sitka will now be present in the seed bank and will be likely to regenerate freely. This may ultimately threaten the integrity of the wood with reference to the NVC communities. Little thinning has taken place in the remainder of the wood and so the age class is relatively uniform.

#### **3.4.1.6 Typicalness**

Typicalness should be evaluated in several ways e.g.: - Is the site unusual for the area, or a good example of what should be present? If the site is not typical of the community type, can it be restored to a more typical condition?

Cormonachan is valued because of its character as a good example of the community types associated with Atlantic oak woods

At a species level, much of the above holds true. Whilst some areas of the ground flora is currently degraded, restoration is possible with beneficial effects for the associated fauna.

In short, the wood could become typical of the oak wood communities of the area.

#### **3.4.1.7 Recorded History**

Little research has been carried out regarding the recorded history of the wood. In order to gain an insight into the past management and impacts that have occurred on the site, this should be remedied.

#### **3.4.1.8 Position in an Ecological Unit**

Cormonachan lies within Argyll Forest Park boundary. The area is now within the bounds of the Loch Lomond and Trossachs National Park. The area has large amounts of commercial forestry and upland landscape. Unlike woodlands which are in areas of intensive agriculture or urban sprawl, Cormonachan is not an isolated site. It is a part of a larger ecological unit, separated only by physical features such as mountains and lochs from more distant woods. This allows the site to be viewed as not only part of the larger landscape, but intrinsic to it.

It is essential, therefore, that the management of the wood is not viewed in isolation, but is taken into account when contemplating management of adjacent sites and habitats. Management of the woods itself must also be undertaken in a manner which does not increase the stress on any of the habitats, communities or species which are already under any form of pressure.

#### **3.4.1.9 Potential for improvement/restoration**

As stated earlier Cormonachan wood, despite its likelihood of being an ancient woodland site and having large sections of oak woodland, has areas which are not in a favourable condition. In the context of possible improvement or restoration, this can be viewed in a positive manner. Thinning, felling and replanting works can certainly allow the wood to be brought more into line with the species mix, which the NVC report suggests should be present. This, in turn, will benefit the wood in terms of structure, ground flora, diversity, naturalness and typicalness. The possibility of achieving Grant aid through agencies such as, SNH and Forestry Commission is good and in some cases has already been approved. Woodlands are prominent in the public perception of land and there is, therefore, a much greater awareness of management requirements than there would for other habitats, e.g. grasslands and as a result support for the required works is available both in financial and popular terms.

The site is also a component of the Loch Lomond and Trossachs National Park, which should ensure that there is the will within the management structure to achieve high levels of value in terms of conservation, biodiversity and sustainability in the application of management principles and where possible, to enhance these values.

#### **3.4.2 Evaluation for landscape**

The site forms an essential component of the backdrop to Loch Goil, and is one of the few long-standing or ancient habitats in the area. The Wood can be seen from much of the surrounding countryside and greatly contributes to the atmosphere of the landscape.

The largely unbroken canopy is a major feature of the visual aspect of the wood, whilst the natural of this is diminished by the presence of exotic species such as sycamore. Great care must be taken, therefore, in maintaining as much of the canopy as possible in this area during the restoration to appropriate NVC Canopy mix.

As with wood in general, the remaining conifer plantings have a largely closed canopy, but in this instance the species mix is predominantly comprised of Sitka Spruce. This obviously has severe implications for restoration of the wood to a native mix. The value of the site with an unbroken, but unsuitable canopy must be weighed against the visual impact of the woodland once the Sitka Spruce has been removed.

In this scenario it must be remembered that the areas of Sitka Spruce are not successful in either conservation or commercial terms. The plantations are closed and do not have a good growth form and the timber is, at best, pulp quality only. It should also be borne in mind that the spruce was planted as a commercial crop, with the intent of removal by clear – fell at a future date. If the spruce is left to grow on, then any regeneration will be lost as the canopy finally closes in. A better option for recreating a more native woodland is to remove the sitka spruce as quickly as possible in order that the work results in an open woodland composed of the current regeneration, which can then be allowed to develop by means of natural regeneration with either direct seeding or planting of species which are not likely to regenerate easily into the site, e.g. oak. This action will also minimise the impact of the inevitable future felling works.

### **3.4.3 Evaluation for Public Use, Educational Use, Interpretation**

The wood is utilised in a variety of ways as outlined in 2.2.3.2, 2.2.3.7, and 2.2.3.8. Public use is to be encouraged on the site as this is one of the core functions of the National Park and Countryside Services. However, these uses must be both sustainable and appropriate and should not threaten either the fabric of the site itself or any of the prime features of interest.

Much of the recreational use of the site is benign, but it is inevitable that conflicts will occur, both between the interests of the site and between the various user groups. Obviously certain activities must be prohibited. The use of motor vehicles, include quad bikes and scramble bikes is a prime example. To this end barriers should be erected at the main access points to prevent these vehicles from gaining ingress. These barriers must also be vandal proof.

The permissible activities cover such things as walking, cycling and riding. Of these, mountain biking and riding have the potential to cause the greatest damage, whilst walking is likely to cause the least. It is therefore appropriate to consider some sort of zoning procedure within the path and track network to reduce the level of impact that these activities will cause.

The main access track through the wood is surfaced with 'as dug' and as such can sustain the greatest usage. The new track has a similar surface, but steeper inclines. The temptation is for all users to travel along the most interesting route or, in the case of mountain bikers in particular, to either travel or create the most exciting route.

Within the wood the aim must be to limit the most damaging activities to the main track, thereby helping to reduce conflict between users. The tracks are suitable for mainly pedestrian use. Any off-track use will damage the ground flora and cause rapid erosion. This is also likely to result in disturbance within the inner portion of the wood, which again is to be avoided. Further complications brought about by utilisation of the deeper wood include the impacts on aspects of woodland management.

Whenever new tracks and paths are worn, the ground flora cover is eroded. This is particularly true for Bluebell, which, owing to the epicormic growth form of the plant, is susceptible to damage by any form of trampling pressure. The issue of dead timber must also be addressed. The wood currently has little in the way of dead timber, either lying or standing. At present any standing dead timber adjacent to tracks or footpaths is felled. The more tracks there are the more health and safety implications there will be and the more felling required, further reducing the availability of this wide habitat.

Similar considerations must be taken into account regarding educational use. The Wood is an ideal venue for educational work, with easy access and car parking and a variety of habitats and species available for study. Again, a policy of encouraging appropriate and sustainable educational use of the site, providing this does not compromise the nature conservation features of the site, should be undertaken. Each visit will require to be evaluated on its own merits, and the impact on the site should be judged accordingly. Policies for interpretative use should, again, follow similar principles, particularly in the case of live interpretation, e.g. guided walks. Once

again, each event will require to be judged in isolation, and the precise venue within the wood looked at in terms of fragility and impact. With both the above topics, care should be taken to avoid encouragement of future use of sensitive areas of the wood.

Written interpretation in both leaflet and board form should seek to clarify which areas of the wood are suitable for which purposes, either by direct or indirect means.

### 3.4.4 Evaluation for Research/Study

There are two main areas of research/study which need to be considered – the gathering of information relevant to the habitats present, and the gathering of information specific to the site. Regarding the former, it is generally assumed that sites should be used for research where appropriate and possible in order to further knowledge and thus enable informal decisions to be made. Cormonachan Wood is no exception to this rule, and any external requests to use the site should be accepted providing no features of the site are compromised.

Requests for study originating from the staff responsible for the site should be identified from sections of this plan there is an obvious shortfall of data, e.g. Hydrology, Bryophytes etc.

Site specific information encompasses such topics as the history of ownership and past management, information that does not have any relevance to any other similar sites. Again, research and study should further our understanding of the site and enable us to make some informed decisions regarding the site.

### 3.5 Confirmed list of important features and policies

Feature	National Status	Regional Status	Local Status
Semi-natural Ancient Woodland		*	
Atlantic oak wood communities		*	
Bluebell <i>Hyacinthoides non-scripta</i> dominated ground flora	*		
Historical elements			*
Public, Educational and Interpretative use			*

### Site Specific Policies

From the preceding sections the following policies can be identified.

- (i) To maintain and where possible enhance the range of nationally and locally important Woodland Communities present.
- (ii) To maintain and where possible enhance the range of elements of historical relevance within the site provided this does not compromise the nature conservation features.
- (iii) To maintain and where possible enhance the range and extent of nationally and locally important species present.
- (iv) To maintain the landscape value of the site, where this does not compromise the nature conservation features
- (v) To encourage the appropriate and sustainable educational and interpretative use of the site, providing this does not compromise the nature conservation features.
- (vi) To encourage the appropriate and sustainable public use of the site provided this does not compromise the natural features.
- (vii) To meet all legal and other obligations.

## **CHAPTER 4 Factors which may influence the Features**

### **4.1 Occupiers Objectives**

The site is owned by The Forestry Commission and occupied by the management partnership. As such the objectives set must be approved by all members of the partnership, and fit in with the aims of both the national park and Fife Council Countryside Services. In broad terms, the objectives are therefore those of attaining a desirable condition for the wood with regard to Nature Conservation, Access and Education. As with virtually all sites, the ability to achieve this goal is constrained by finance.

### **4.2 Internal Natural Factors**

There are three principal natural factors operating within Cormonachan – Natural regeneration, invasion by non-native species and seral succession, and the three are inevitably intertwined.

The site consists of a variety of stands of timber, each of which is producing an amount of regeneration. Regeneration has both positive and negative aspects. On the positive side much of the regeneration is of native species. Those species which have regenerated to date are largely pioneer species, with some oak, of varying age throughout the wood. There is also some spruce regeneration and this, in conjunction with the rhododendron, is the negative aspect. Where these non-native species occur, the more desirable native species are excluded reducing the overall quality of the wood for wildlife and in terms of biodiversity. Within the stands of hazel there are few signs of regeneration. The stools are reaching the point of being over-mature for coppicing, and are widely spaced. Re-commencing coppice practices may create the conditions for the hazel to seed successfully.

There is currently limited variety in age or structure within the woodland. This impairs the process of seral succession. If the status quo is allowed to continue the Spruce will gradually close canopy and eliminate the regenerating pioneer species, setting the process back some time. In the broad-leaved woodland the successional process is already underway with the germination of the oak, rowan and birch. Whilst these species are shade tolerant in the early phases, if the canopy remains closed these too will fail. Measures must therefore be taken to allow succession to take place and where possible to accelerate the process.

### **4.2 Internal Man Induced Factors**

There are two main man induced factors which must be considered.

- (a) The plantings undertaken by the Forestry Commission. These plantings were undertaken with the aim of producing a timber crop, resulting in the uniformity of age and lack of structure mentioned in the previous section. The plantings are also the principal cause of the wood diverging from the original community type as indicated by the ground flora.
- (b) The management of the wood since these plantings. Had the management policy continued as one of timber production, then any gaps would have been beaten up,

resulting in a loss of regeneration in the Spruce dominated compartments. A lower input of management has left the wood unthinned to a greater or lesser extent, resulting in trees that have somewhat poorer form, timber content and quality of nature conservation value. However, this has also allowed some of regeneration of native species to take place. Large areas of the sitka were felled to waste in the past ten years, resulting in a loss of ground flora, with no potential for regeneration. Much has been done to remove the brush from this fellin and it remains to be seen how these areas will recover. A future factor will be the creation of brushwood from any further fellings of Sitka Spruce.

This will have an adverse effect on the ground flora if allowed to lie, creating ideal conditions for invasion by Rosebay willow herb *Epilobium angustifolium* with deleterious consequences for the native ground flora. The cost of removing this brushwood will need to be considered against the costs of action required to remove these species.

Additional to this is the factor of vandalism, this whether by wilful destruction to fixtures and fittings, setting of fires or theft of timber for firewood.

#### **4.4 External factors**

Whilst there is always the potential of external factors impacting on the site at a global level, e.g. global warming or acid rain, no obvious change on the site has been noted.

Airborne pollution may be a source of impact on the bryophytes within the wood, although this seems to be unlikely given the location of the site. A proper survey of the mosses and lichens in the wood will provide more information. The most likely source of any problems is the continued presence of commercial woodland plantings directly above the site. These will cause acidification of the soils around them, which will then be carried into Cormonachan as run-off.

## 4.5 Factors arising from legislation or tradition

The successful management and safe ground of the site will depend upon compliance with the following legal and non-legal obligations: -

- Wildlife and Countryside Act, 1987

There is an obligation to comply with this act with regard to species and habitat protection.

There is an obligation on the Owners and Managers under the Occupiers Liability Act to ensure that every reasonable care is taken to remove any risk to both legitimate visitors and trespassers. To comply with the Act it will be necessary: -

- (i) Ensure that all footpaths, stiles, gates, culverts, gutters, spoil heaps and landslip areas are not hazardous, or the hazard is made plain.
- (ii) Ensure that there are no dead or dangerous trees or timber, including branches, close to footpaths, roads, tracks, houses or other areas frequented by people.
- (iii) Ensure that equipment left on site e.g. tractors, forwarders etc is not hazardous or the hazard is made plain.
- (iv) Ensure that herbicide treated vegetation (e.g. Rhododendron stool regrowth) does not pose a hazard or the hazard is made plain.
- (v) Ensure that the exact location of overhead or underground cables or pipes is known to staff, contractors and other parties likely to need to know.

- Legal obligations of the Health and Safety at Work Act.

All operations carried out on site must be undertaken by trained personnel using methods and equipment approved by the Health and Safety executive, and also in compliance with both national and local safety procedures. The need for up to date risk analysis, operational procedures and regular safety inspections applies here.

- Accepted practise

There are no items under this heading which refer to National Codes of Practice for various operations. All are covered under separate headings (e.g. operational procedures).

- Non Legal Obligations

Owing to the high intrinsic appeal of the site and its prominent position with the landscape, there is an obligation to ensure that nothing in its management will spoil the appeal and its contribution to the scenery as viewed from the surrounding area.

- Organisational Procedures

The following obligations are placed upon Countryside Services Staff.

To prepare and review at intervals the site management plan.

To maintain records and CMS

#### **4.5 Physical considerations/constraints**

The topography of the site has implications for management. The rocky outcrops and steep slopes preclude the use of vehicles, other than forwarders or harvesters. Any selective felling will therefore include the difficulty of removing the timber thus incurring additional cost.

#### **4.6 Availability of resources**

Resources are available in the form of staff, equipment, grant aid and existing budget. Constraints on these include the proportion of staff time available for administration and practical management of the site; The amount of time that the equipment is available for use on the site and the proportion of budget and grant aid available for use on the site. Forestry Commission monies are awarded as a proportion of the proposed costs, and so are dependent on the availability of the resources mentioned previously.

#### **4.7 Environmental and other relationships which may have implications for management.**

Certain inter-relationships such as that between ground flora communities and canopy species must be considered.

Any work carried out to remove exotic tree species may have an adverse effect on the remnant native ground flora. Should too many canopy gaps be created, light reaching the woodland flora may encourage the spread of species such as Rosebay willow herb, tufted hair grass and Bracken. This is particularly obvious in the case of Bluebell. The woodland is well known for its display of Bluebells and this is a major attraction for the public. This carpet of flowers is particularly susceptible to loss owing to any increase in light penetration.

## 4.9

**Summary of Factors which influence or may influence the features.**

Positive Factors	Negative Factors
<p>The Managers objectives are to provide suitable conditions for conservation, recreational and educational purposes.</p> <p>There are, therefore, no conflicts of interest between these and the conservation objects.</p>	<p>Budgetary and time constraints may limit the amount of work that can be achieved within the plan period</p>
<p>Natural regeneration is occurring of native pioneer and final canopy species.</p>	<p>Regeneration of undesirable species, primarily Sitka and Rhododendron, is occurring and there is poor regeneration of Oak.</p>
<p>The plantings were intended as a timber crop, so suitable felling is not a particular problem. The Oak stands also contribute greatly to the presence of bluebells in the wood.</p>	<p>The planting of Sitka has produced stands of timber of lower quality and which are at odds with the NVC communities as indicated by ground flora.</p>
<p>Brash can be removed with Countryside Services equipment and by volunteers.</p>	<p>The felling of Sitka Spruce will create large quantities of brash and may encourage invasion by Rosebay Willow Herb, Bracken and Tufted Hair Grass.</p>
<p>Topography of the site means felling work will be carried out more sensitively i.e. chainsaw rather than harvester.</p>	<p>Topography of the site limits access by vehicles.</p>
<p>The site has a great deal of public interest and is utilised by a wide range of user groups for both recreational and educational purposes</p>	<p>The sites' popularity for recreational users may lead to erosion of fragile habitats and disturbance to many species.</p>
<p>No grazing occurs in the Woodland</p>	<p>Bluebell populations are susceptible to decline through trampling and if canopy gap creation is too high.</p>
<p>The wood has a good variety of habitats and community types</p>	<p>Little dead wood exists in any category – standing, felled or snagged branches</p>
<p>The wood appears to have had a history of positive management, including coppicing.</p>	<p>Few historical features are present and obvious, those which are, are ambiguous.</p>



## Chapter 5

Within this chapter each of the features identified in the preceding sections will be dealt with in turn through the various sections. This is partly to improve presentation, but, more significantly, it will help focus attention on each feature in turn.

### Feature 1: Semi-Natural Broad-leaved Woodland

W17a: *Quercus petraea-Betula pubescens-Dicranum majus* woodland, *Isoetes myosuroides-diplophyllum albicans* sub-community.

W11b: *Quercus petraea-Betula pubescens-Oxalis acetosella* woodland, *Blechnum spicant* sub-community (According to the survey report, the oak woodland communities (W17a and W11b) made up 70% of the woodland habitat.)

W9: *Fraxinus excelsior-Sorbus aucuparia-Lysimachia nemorum* woodland.

W7: *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland.

W4b: *Betula pubescens Molinia caerulea* woodland, *Juncus effusus* sub-community.

The other three communities W9, W7 and W4b each represented 10% of the overall woodland community group.

### Objective 1:

To maintain and where possible enhance the semi-natural ancient Broadleaved woodland (NVC W17a, W11b, W9 W7 & W4b) in a favourable condition where:

- The extent of the woodland:-  
Target 20.3 hectares (50.2 acres)  
Upper LAC 20.3 hectares (50.2 acres) (current extent)  
Lower extent 19 Ha

#### Monitoring projects

RF13/01 Monitor the extent and composition of the tree canopy from aerial photos.

RV20/01 Aerial photography

- The tree canopy of the woodland is:-

Target 90%

Upper LAC None

Lower LAC 60%

#### Monitoring Projects

RF13/01 Monitor the extent and composition of the tree canopy from aerial photos.

RF13/03 Monitor extent and composition of shrub layer.

- The species composition of the canopy to be surveyed after 5, 10 and every 50 years thereafter is:

Target 15% maximum exotic spp ( Retained stands of sitka & occasional specimen conifers)

Upper LAC 15% exotic species present

Lower LAC 10% exotic species present

Monitoring Projects

RF13/01 Monitor extent/composition of tree canopy from aerial photos.

- 1 Natural regeneration of native trees within areas of felling.

Target 1100 trees/ha

Upper LAC none set

Lower LAC 1100 trees/ha

Monitoring RF14/03 – Survey/estimate natural regeneration.

- Dead wood is present and consists of a mixture of standing and fallen dead Trees (proportions require further definition).

Target not set

Upper LAC 30 m<sup>2</sup>/ha with 6 fallen trees/ha and 6 standing dead trees/ha.

Lower limit 10m<sup>2</sup>/ha.

Monitoring projects

RF13/02 – Survey/estimate dead wood volume.

- The field and ground layer composition of the wood is a mosaic of the Various NVC community or sub-community dominants.

Upper LAC - A mosaic varying in composition and structure, reflecting soil Conditions of the various NVC community or sub-community dominants.

Lower LAC – Ground layer composition and extent at its current level.

Monitoring Projects

RF02/01 Monitor via permanent transects.

RF02/02 NVC vegetation survey every 10 years.

RV10/02 Fixed point photography.

- The fauna of the site is appropriate to the habitats present.

LAC's- Not set.

Monitoring projects

RA12/01 Survey birds, BBS.

### **Current condition:**

The Overall Status of the wood (including areas of Sitka) is UNFAVOURABLE – NO CHANGE: - 2004. (The introduction of silvicultural management will assist recovery).

### **Rationale:**

The status of the woodland is unfavourable with no change. Silvicultural management will be required to ensure that recovery, leading to favourable conditions, is obtained.

The tree canopy cover is above the LAC, but the canopy composition is below the relevant LAC. In order to develop suitable conditions, felling will be required. Appropriate silvicultural management at this stage will have less unfavourable impact on the habitat than prolonged non-intervention. If left unmanaged the present structure will result in loss of existing native regeneration, possible wind throw and possible loss of existing areas of native ground flora, and stands of Bluebell. There will also be continued regeneration of exotic species, particularly Sitka. Removal of the Sitka Spruce will create the potential for invasion by Bracken, Willow herb and Rhododendron. Removal of brash may reduce this problem. No grazing occurs within the wood, and stock must continue to be excluded. Diversity of fauna and ground flora can be further enhanced by managing areas of the canopy as coppice rotation, provide this is carried out in appropriate sections of the wood, i.e. those areas of the wood which indicate that coppicing may have been practised in the past.

### **Economic Constraints:**

Allocation of funding and man -hours is limited by budgetary requirements and staff job plans. This will impact on the amount of work carried out in the wood by non-contracted users.

### **Operational limits:**

Target - Areas of clear fell to be limited to Sitka spruce plantings only.

Upper Limit 7.5 ha

Lower Limit 2.5 ha

Monitoring projects

RF13/02 Monitor canopy composition  
RV20/01 Aerial photography

Target - No more than 20% of the Broad-leaved woodland to be thinned during a 10-year period, thinning focused on Sycamore.

Upper Limit 20% over 10 years  
Lower Limit 10% over 10 years

Monitoring projects

RF13/02 Monitor canopy composition  
RV20/01 Aerial photography

Target - Individual thinning areas – No more than 20% of the canopy in any one operation.

Upper Limit 20%  
Lower Limit not set

Monitoring projects

RF13/01 Monitor canopy composition  
RV10/02 Fixed point photography  
RV20/01 Aerial photography

Target – Rotation of canopy trees to be at least 100 years in areas outwith coppice rotation.

Upper Limit not set  
Lower Limit 100 years

Monitoring projects

RF14/01 Survey trees- age, growth class etc.

Target – At least 10 canopy trees per hectare should be retained beyond maturity and into senescence.

Upper Limit not set  
Lower Limit 10 trees per hectare

Monitoring projects

RF14/01 Survey trees- age, growth class etc

Target – No grazing stock will be permitted within the wood.

Upper Limit no stock  
Lower Limit not set

## Monitoring projects

RA00/30 Monitor grazing.

Target-coppice to be re-introduced within the areas of Hazel stands.

RF13/01 Monitor canopy composition

RF14/02 Survey trees- age, growth class etc

RV10/01 Fixed point photography

Target- Above coppice areas to be managed on a 7 year rotation

Upper limit 10-year rotation.

Lower limit 5-year rotation.

## Monitoring projects

RF13/01 Monitor canopy composition

RF14/02 Survey trees- age, growth class etc

RV10/01 Fixed point photography

## Action plan-outline prescriptions and projects

1. Monitor the vegetation of the site.
  - RV10/00 Collect photographs, general.
  - RV10 /01 Photography, fixed point.
  - RV20/01 Collect photographs, Aerial.
  - RP15/01 Collect data hydrological.
  - RF00/00 Vegetation, collect data general.
  - RF02/01 Vegetation, transects.
  - RF02/02 Vegetation, NVC Survey.
  - RF13/01 Trees / shrubs canopy.
  - RF13/02 Trees / shrubs dead timber.
  - RF13/03 Trees / shrubs species composition.
  - RF14/01 Trees / shrubs, age/ growth class.
  - RF14/02 Trees/shrubs age/growth class.
  - RF14/03 Trees/shrubs survey/estimate natural regeneration.
2. Monitor the Fauna of the site.
  - RA12/01 Birds, survey
  - RA96/01 Collect data, fauna, list species
3. Carry out appropriate management for the communities present.
  - MH00/01 Manage habitat, woodland/scrub, by coppicing, coppice hazel
  - MH01/01 Manage habitat, woodland/scrub, by planting native species
  - MH02/01 Manage habitat, woodland/scrub, by thinning/group felling.
  - MH03/01 Manage habitat, woodland/scrub, by assisting natural regeneration.
  - MH04/01 Manage Habitat, woodland/scrub, Ride/Path/ Glade maintenance.

MH08/01 Manage habitat, woodland/scrub, manage dead wood  
MH22/01 Manage habitat, bracken herb by mowing/selective cutting  
MH61/01 Manage habitat, open water, by excavation  
ME01/01 Manage estate, fabric, boundary structures, inspect, repair, replace fences  
ME01/02 Manage estate, fabric, boundary structures, inspect, repair/ replace gates/ access points  
ME04/01 Manage estate, fabric, remove rubbish.  
ME40/01 Patrol.  
AF00/01 Finance, general  
AF01/01 Grant applications, Forestry.  
AF01/02 Grant applications, SNH.  
AF01/03 Grant applications, other.

### **MANAGEMENT OPTION**

The management option for this habitat is **A3 Active management**

**Feature 2:** The areas of ground flora dominated by Bluebell *Hyacinthoides non-scriptus*

**Objective:** To maintain the areas of Bluebell dominated ground flora in a favourable condition where:

- The extent of the Bluebell dominated ground flora is:

Target	Not yet set
Upper LAC	Not yet set
Lower LAC	Not yet set

Monitoring projects

RF02/03 Survey Bluebells every 5 years.

- The frequency of Bluebells within the ground flora of the above areas is:

Target	Not set
Upper LAC	Not set
Lower LAC	30 flower spikes/m <sup>2</sup>

- The extent of ground flora with bluebells as a component is:

Target	Not set
Upper LAC	Not set
Lower LAC	Not yet set

### **Current condition:**

The current condition of the Bluebell population is FAVOURABLE, MAINTAINED: - 2004. (The introduction of silvicultural management will assist recovery).

### **Rationale:**

Whilst there is no information currently available for the extent of the bluebell population it is almost certainly within the future setting of the LAC. The extent is inextricably linked to the management of the canopy. The main limiting factor on the population extent is the presence of the sitka spruce, which casts too dense a shade for any ground flora, including bluebells, to survive. In other areas of the wood the presence or absence of oak and hazel dictates the density of the flower spikes. Oak casts enough shade to allow Bluebell to flourish, but without eliminating other ground flora. Areas of oak and hazel dominated canopy should be retained to maintain those parts of the wood which are carpeted by Bluebells.

**Operational limits:**

None set. These are covered by the LAC's and operational limits set for semi Natural Broadleaved Woodland.

**Monitoring projects:**

RF02/01 Monitor via permanent transects.  
RF02/02 Monitor via NVC vegetation survey every 10 years.  
RF02/03 Monitor bluebells via survey, every 5 years  
RV10/02 Fixed point photography.

1. Monitor changes in the vegetation of the site, with particular note to Bluebell populations.

RF02/01 Monitor via permanent transects.  
RF02/02 Monitor via NVC vegetation survey every 10 years.  
RF02/03 Collect data, vegetation, Monitor bluebells via survey, every 5 years  
RV10/01 Collect photographs, general  
RV10/02 List, collect photographs, fixed point every 5 years

2. Monitor changes in the Woodland canopy.  
RV10 /02 List, collect photographs, fixed point every 5 years  
RV20/01 Collect photographs, Aerial.  
RF13/01 Monitor the extent and composition of the canopy/shrub by aerial photography

All other outline prescriptions are covered by those for Semi-Natural Broadleaved Woodland

**MANAGEMENT OPTION**

The Management option for this feature is **A3 - Active Management**

**Feature 3 :**

Historical elements of the Woodland –dykes and old trackways etc.

**Objective 1: To maintain the historical elements within the site in a favourable condition where:**

- The condition of the features is:  

Target	not set
Upper LAC	not set

Lower LAC Existing historical features to be maintained at current (2004) standard

Monitoring projects  
RC10/03 Survey/estimate extent and condition of historical features.

**Current condition:**

The condition of the historical features present within the Wood is FAVOURABLE MAINTAINED: - 2004. Management will be required to ensure that a stable situation is retained.

**Rationale:**

The Historical aspect of the wood assists in defining the age of the wood, which affects the management. These aspects are also features in their own right. Whilst these features are largely in a favourable condition there is the potential for decline, especially if these features are not recognised

**Operational limits :**

Not set, These are covered by the LAC's.

**Action plan – Outline prescriptions and projects:**

1. Monitor changes in the condition of the historical features and record any changes.

RC03/01 Cultural / historic features survey  
RC04/01 Cultural / historic features Measure/ estimate condition  
RV10 /01 Collect photographs, general  
MH04/01 Manage Habitat, woodland/scrub, Ride/Path/ Glade maintenance  
ME01/01 Manage estate, fabric, boundary structures, inspect, repair, replace fences  
ME01/02 Manage estate, fabric, boundary structures, inspect repair/ replace gates/ access points.  
ME04/01 Manage estate, fabric, remove rubbish.ME40/01 Tracks.  
ME50/01 Manage estate, fabric, Maintain drainage systems  
MP00/01 Wardening: patrol Protect site/species by patrol  
AF00/01 Finance, general  
AF01/01 Grant applications, Forestry.  
AF01/02 Grant applications, SNH.  
AF01/03 Grant applications, MFS.  
AF01/03 Grant applications, other.

2. Maintain the historical features within the required limits.

MC00/01 Scrub / sapling control.

MC04/01 Felling / cutting.  
MC10/01 Scrub / sapling control.  
MC17/01 Masonry / stonework repair.  
ME 40/02 Avenue.  
ME50/01 Drainage.  
MP00/01 Patrol.

### **MANAGEMENT OPTION**

The Management options for these features are A3 - Active Management and E4 Open access.

#### **Feature 4:**

#### **Policies for Public, Educational and Interpretive use of the Site.**

**Objective 1:** To enable the appropriate and sustainable public use of the site, providing this does not compromise the nature conservation or historical features.

**Objective 2:** To enable the appropriate and sustainable educational use of the site, providing this does not compromise the nature conservation or historical features.

**Objective 3:** To enable the appropriate and sustainable interpretative use of the site, providing this does not compromise the nature conservation or historical features.

#### **Current condition:**

Public, Educational and Interpretive use of the site is currently within acceptable levels, both in terms of the level of usage the site can withstand without adverse impact and the number of bookings that can be dealt with by the Outdoor Centre under the current staff and time constraints.

#### **Rationale:**

- **Public use:**

The public use of the site inevitably impacts upon the fabric of the site, degrading the ground flora and causing erosion. In contrast to this, one of the aims of the Purposes of the Countryside Services is to “provide educational and recreational opportunities in the countryside for all sectors of the community”. To enable and encourage this, a system of paths and tracks is maintained within the wood, which also allows the possibility of reducing any conflict between the various types of activity carried out and of reducing the potential for damage to the species and habitats present within the site.

- **Interpretative use:**

Interpretation is a useful tool allowing site managers to explain some of the actions being carried out on the site and to encourage positive behaviour by the users of the site. Interpretative use of the site is available in two main forms: Live and written. The live interpretation is carried out via guided walks and events. As with Educational use, there is always the possibility of over use resulting in damage to the site. However, interpretation in any form should also create a forum to explain the fragility of the site, and demonstrate good practice e.g. management and promote responsible use of the site

- **Educational use:**

The site is popular with schools as an outdoor classroom fulfilling many aspects of the curriculum. The greatest amount of requests for visits occurs during the summer term, when the site is most susceptible to disturbance. The effect of concentrated trampling, in terms of both time and numbers, can also have devastating effects on the ground flora, particularly Bluebells. Against this, the function of the centre is to encourage use of the countryside in a responsible fashion, and this has been underlined by the construction of Jan's hideaway, along with the composting toilet. The aim is to maintain a balance between the level of impact the site will support and the desire to encourage its use by the public for the above activities.

### **Operational limits:**

- Public use :-
- Car parking facilities are provided at television repeater station

Target capacity        2 cars

Upper limit            2 cars

2.7 km of permissive trackways are provided.

Target length of track 2.7 km

Upper limit    2.7 km

Lower limit    2.7km

Target width of trackways: 3m

Upper limit    4.5 m

Lower limit    3 m

Target clearance for branches 2.5m

Upper limit    1<sup>st</sup> branch higher than 2.5 m

Lower limit    2.5 m

Monitoring projects:

RH01/01 Survey footpaths, tracks.

**MANAGEMENT OPTION: E3. Potentially open access**

- Interpretative use

Target 10 half- day events per year

Upper limit 10 half- day events per year

Lower limit not set

Monitoring/Surveillance RG33/01 Count use by recreational groups/Events

- Interpretative Boards are available for the site.

Target 2 Boards, one at each entrance

Upper limit 2 Boards, one at each entrance

Lower limit 2 Boards, one at each entrance

Monitoring projects:

RH01/03 Survey interpretative boards

- Interpretative leaflets are available for the site

Target Leaflets on the Wood available via dispenser ??.

Upper limit not set

Lower limit Leaflets on the wood via dispenser

Monitoring projects:

RH01/04 Survey leaflets

**MANAGEMENT OPTION: - D3 Active publicity**Educational use

Target 20 Educational visits (visit = 1 class, approx. 25pupils for ½ day)

Upper limit 25 visits

Lower limit not set

Target, of the 20 visits, no more than 10 to be during summer term time.

Upper limit 10 visits

Lower limit not set

Monitoring/surveillance RH33/01 Count use by educational groups

**MANAGEMENT OPTION: D3 Active publicity**

**Action plan – outline prescriptions and projects:**

1. Monitor the vegetation and fauna of the site, to determine any impact or disturbance occurring via public, educational and interpretative use.

- RV10/01 Collect photographs, general.
- RV10/02 Photography, fixed point.
- RV20/01 Collect photographs, Aerial.
- RP12/01 Collect data hydrological.
- RF00/01 Vegetation, collect data general.
- RF02/01 Vegetation, transects.
- RF02/02 Vegetation, NVC Survey.
- RF13/01 Trees / shrubs canopy.
- RF13/03 Trees / shrubs species composition.
- RF14/01 Trees / shrubs, age/ growth class.
- RA12/01 Birds, survey

2. Monitor the level of use of the site by the various user groups.

- RH01/01 Survey footpaths, tracks
- RH01/03 Survey interpretative boards
- RH01/04 Survey leaflets
- RH32/01 Collect data, public use, count educational groups
- RH33/01 Count use by recreational groups/Events

3. Provide information to and advice for the visiting public.

- MI00/01 Inform visitors, offsite.
- MI10/01 Inform visitors, general.
- MI20/01 Inform visitors, educational.
- MI30/01 inform visitors, specialist.
- MI40/01 Inform visitors, recreational.
- MI50/01 Provide interpretive material, leaflets.
- MI50/02 Provide interpretive material, signboards.

4. Maintain the Fabric and infrastructure of the site to allow suitable access and recreational and interpretative use.

- ME01/01 Fencing.
- ME01/02 Gates / access points.
- ME02/01 Other structures, car park.
- ME12/01 Maintain buildings, Jan's hideaway
- ME12/02 Maintain buildings, composting toilet
- ME04/01 Rubbish.
- ME40/01 Tracks.
- ME40/02 Rides.

**Feature 5:**

Legal and Administrative Obligations.

**Objective 1:**

To meet all Legal and other obligations and to ensure the competent administration of the site.

AP10/01 Prepare / revise work programme.

AP20/01 Prepare / revise plan, site management

AP60/01 Prepare plan, annual work.

AS00/01 Protect site by promulgating / enforcing laws.

AS40/01 Protect site, by prosecution.

AS50/01 Protect species, by prosecution.

AR00/01 Prepare report, project recording.

AR20/01 Prepare report, annual progress.

AR30/01 Prepare correspondence, general.

AF00/01 Finance, general.

AF01/01 Grant applications, Forestry.

AF01/02 Grant applications, SNH.

AF01/03 Grant applications, other.

## CHAPTER 6: Project register and Work programmes.

### 6.1 Project Register.

<b>Project no./description</b>	<b>Comps.</b>	<b>Yr. active</b>	<b>Agent</b>
RV10/01 Collect photographs, general	All	All	Staff
RV10/02 Photography, fixed point	All	'04	Staff
RV20/01 Collect photographs, Aerial	All	'05	Staff
RP12/01 Collect data hydrological	All	'04	Cont.
RF00/01 Vegetation, collect data general.	All	All	Staff
RF02/01 Vegetation, Monitor via permanent transects.	To be set	'06	Staff
RF02/02 Vegetation, NVC Survey every 10 years.	All	x	Cont.
RF02/03 Monitor bluebells via survey, every 5 years.	All	x	Cont.
RF04/01 Collect data, Vegetation, set up Compartments	All	'05	
RF13/01 Trees / shrubs canopy.	All	'06	Staff
RF13/02 Trees / shrubs dead timber.	All	'05	Staff
RF13/03 Collect data trees/shrubs species composition	All	'08	Staff
RF14/01 Collect data trees/shrubs estimate timber	All	'05	Cont.
FR14/02 Trees / shrubs, age/ growth class	All	'05	Cont.
RF14/03 Survey/estimate natural regeneration	All	'05	Staff
RF32/00 Collect data, Bryophytes, Survey.	All	'06	Cont.
RF52/00 Collect data, lichens, Survey.	All	'06	Cont.
RF66/00 Collect data, fungi, Survey.	All	'05	Staff
RA12/01 Birds, survey	All	All	??
RA96/01 Collect data, fauna, list species	All	All	Staff
RH01/01 Collect data, Human impact, survey paths, tracks and rides.	All	All	Staff
RH01/03 Collect data, human impact, survey interpretive boards		All	Staff
RH01/04 Collect data, human impact, survey leaflets	All	All	Staff
RH32/01 Collect data, public use, count educational groups	All	All	Staff
RH33/01 Collect data, public use, recreational/events	All	C	Staff
RC10/01 Cultural / historic features Measure/ estimate condition.	All	'07	Staff
ML30/01 Liaise, neighbours, meet on informal basis		All	Staff
ML40/01 Liaise, local/national authorities on ad hoc basis		All	Staff
ML50/01 Liase local community/groups via community newsletters.		All	Staff
ML60/01 Liase, emergency services via formal and		All	Staff

informal meetings.			
ML80/01 Liase others, encourage any volunteers to become involved with monitoring schemes.		All	Staff
MI00/01 Inform visitors, offsite.	All	x	Staff
MI10/01 Inform visitors, general.	All	All	Staff
MI20/01 Inform visitors, educational.	All	All	Staff
MI30/01 inform visitors, specialist.	All	All	Staff
MI40/01 Inform visitors, recreational.	All	All	Staff
MI50/01 Provide interpretive material leaflets.	x	All	Staff
MI50/02 Provide interpretive material, signboards	1,8	All	X
MP00/01 Patrol.	All	All	Staff
MH00/01 manage habitat, woodland/scrub, by coppicing, coppice hazel	To be set	'07 '14 '21	Vol,Cont/
MH01/01 Manage habitat, woodland/scrub, by planting native species	All	'00 '01 '02	Vol, RS,
MH02/01 Manage habitat, woodland/scrub, by thinning/group felling.	To be set	'00	Staff, Vol Cont.
MH03/01 Manage habitat, woodland/scrub, by assisting natural regeneration	All	'00 '01 '02 '03	Staff, Vol, Cont.
MH04/01 Manage Habitat, woodland/scrub, Ride/Path/ Glade maintenance	To be set	'01	Staff, Vol Estates,
MH08/01 Manage habitat, woodland/scrub, manage dead wood	All	'02	Staff, Vol,
MH09/01 Manage habitat, other activities, tree surgery.	To be set	As nec.	Cont.
MH22/01 Manage habitat, bracken herb by mowing/selective cutting	To be set	'00, '01, '02	Staff, Vol,
MH61/01 Manage habitat, open water, by excavation	To be set	'02	Cont.
ME01/01 Manage estate, fabric, boundary structures, inspect, repair, replace fences	All	As nec.	Estates, Cont.
ME01/02 Manage estate, fabric, boundary structures, inspect repair/ replace gates/ access points.	To be set	As nec.	Estates, Cont.
ME02/01 Manage estate, fabric, other structures, compartment boundary markers.	To be set	As nec.	Estates
ME02/02 Manage estate, fabric, other structures, car park	To be set	As nec.	Estates, Cont.
ME04/01 Manage estate, fabric, remove rubbish.	All	As nec.	Staff, Vol, Estates.
ME12/01 Maintain buildings, Jan's hideaway	To be set	As nec.	Cont, Estates
ME12/02 Maintain buildings, composting toilet	To be set	As nec.	Cont, Estates
ME40/01 Manage estate, fabric, provide/maintain paths/tracks	All	All	Estates, /Cont
ME50/01 Manage estate, fabric, Maintain drainage	All	As nec./All	Staff /

systems			<b>Estates,</b>
AP10/01 Prepare / revise work programme.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AP20/01 Prepare / revise plan, site management	<b>All</b>	<b>'05</b>	<b>Staff</b>
AP60/01 Prepare plan, annual work.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AS00/01 Protect site by promulgating / enforcing laws.	<b>All</b>	<b>All</b>	<b>Staff / Manag</b>
AS40/01 Protect site, by prosecution	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AS50/01 Protect species, by prosecution.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AR20/01 Prepare report, annual progress.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AR30/01 Prepare correspondence, general.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AF00/01 Finance, general.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AF01/01 Financial planning and recording, Grant applications, Forestry commission.	<b>All</b>	<b>All</b>	<b>Staff /Manag</b>
AF01/02 Financial planning and recording, grant applications, SNH	<b>All</b>	<b>As nec.</b>	<b>Staff /Manag</b>
AF01/03 Financial planning and recording, grant applications, other	<b>All</b>	<b>As nec.</b>	<b>Staff /Manag.</b>

## 6.1 Project Register

### **R; Records: Projects relating to the collection and collation of information.**

- RV10/01     **List/collect photographs, general**  
A general record should be maintained of species, communities, visiting groups management, repairs etc as part of the recording process.
- RV10/02     **List/Collect photographs, general, fixed point, every 5 years.**  
As part of the site recording system, the current fixed point recording methods should be continued, adhering to the 1986 instructions. In addition to this, further points should be added to the process, to allow the recording of change in areas where direct management is carried out.
- Slides of fixed point photography will be held in general slide files in the Outdoor Centre, under H-01.
- As part of the wider monitoring programme within the site, permanent transects are to be set up within the wood. As each transect is recorded, a photograph is taken from the start and finish points, sighting along the transect. The photographs are to be taken using a 70-210 mm lens with the lens set at 70 mm. Full details are given in the lever arch file Botanical Recording, Transects, permanent.
- RV20/01     In order to ascertain any major changes in site, e.g. the canopy, collect any available photographs, particularly from OS flyover (these are produced approx. every nine years).
- Physical:     Description of Physical Environment**
- RP12/01     **Collect data, hydrological.**  
Little hydrological data is available for the site and this should be redressed at the earliest opportunity. Data is required on the extent of the ditches within the wood and the feasibility of constructing a pond.
- Flora -       Description of the vegetation**
- RF00/00     **Vegetation, collect data, general.**  
A record of the survey results, monitoring and ad hoc sightings should be maintained, in order to assist with upkeeping species lists.
- RF02/01     **Collect data, vegetation. Monitor communities every 3 years.**  
To ascertain the impacts of management actions, and as a tool for making

management decisions, permanent transects should be placed within the wood.

- RF02/02      **Collect data, vegetation, Survey every 10 years.**  
In order to ascertain what work would be required to return the woodland to a more 'natural' composition a NVC Survey should be undertaken. This survey should be repeated at 10 year intervals to identify any changes in the ground flora and communities present.
- RF02/03      **Collect data, vegetation, monitor Bluebells every 10 years.**  
A base line NVC survey could also produce a map showing the extent of the bluebell cover within the woods. Future surveys should also incorporate this element, along with information on population density in terms of plant species per m<sup>2</sup>.
- RF04/01      **Collect data, Vegetation, set up Compartments**  
In order to orientate management operations within the site, compartments will need to be organised. These should be based upon the permanent physical features of the site (e.g. footpaths, road boundaries, outcrops of rock tec.) with reference to the communities present on the site. Where there is an obvious division between communities, but no obvious feature to use as a guide, markers may need to be placed. (see ME02/01)
- RF13/01      **Collect data, trees/shrubs Canopy.**  
Information regarding the composition of the canopy shrub layer should be collated using a combination of aerial photographs, felling planting records and from surveys. (see RF14/01).
- RF13/02      **Collect data, trees/shrubs, dead timber.**  
Survey wood to ascertain current extent of dead standing, snagged and lying timber and discrepancy between current levels and 'ideal' levels. Also maintain records of any trees felled to waste and 'ringed'. In addition a sampling method for standing timber should be carried out at regular intervals. This is particularly important when making grant applications. Sampling methods and tariff charts are given in Forestry Commission Field book no. 2 and booklet no. 39. Copies of both these publications are held in the Rangers Study, Lochore Meadows Country Park.
- RF13/03      **Collect data trees/shrubs Species composition**  
Information from the NVC survey, along with specific surveys/estimations, should be used to ascertain the species composition within the various compartments and to ensure that the actual composition is in accordance with the NVC category assigned as being desirable for that area
- RF14/01      **Collect data trees/shrubs estimate timber**  
A sampling method for standing timber should be carried out at regular intervals.

This is particularly important when making grant applications. Sampling methods and tariff charts are given in Forestry Commission Field book no. 2 and booklet no. 39. Copies of both these publications are held in the Rangers Study, Lochore Meadows Country Park.

- RF14/02     **Collect data, trees / shrubs, age/ growth class**  
As part of any woodland grant application, or felling licence, the volume of standing timber will need to be calculated
- RF14/03     **Survey/estimate natural regeneration**  
In order to claim against woodland grant, and to give an idea of what thinning/control is needed, an estimation of regeneration will need to be undertaken within the relevant compartments.
- RF32/00     **Collect data, bryophytes – survey.**  
No data exists for bryophytes on the site. A survey should be commissioned to rectify this situation.
- RF52/00     **Collect data, lichens – survey.**  
Little data exists for lichens on the site. A survey should be commissioned to rectify this situation.
- RF66/00     **Collect data, fungi – survey.**  
Little data exists fungi Little data exists for lichens on the site. A survey should be commissioned to rectify this situation.  
on the site. A survey should be commissioned to rectify this situation.

#### **Fauna, description of the fauna.**

- RA12/01     **Collect data, birds. Carry out Breeding Bird Survey.**  
As part of the general monitoring schemes within the Regional Park East several Breeding Bird transects are carried out.

This system is a relatively simple and rapid method of obtaining information on how management of the stie is affecting bird populations, and can be a useful tool in the decision making process. All details of methodology, field and summary sheets are held in the Breeding Bird Survey lever arch file in the Rangers office.

- RA96/01     **Collect data, fauna, list species.**  
Each year collate any reptile, amphibian, bird and mammal diary entries, ranger patrols, reports by members of the public etc and update species lists.

#### **Human Impact: Effect of people and their activities.**

- RH01/01     **Collect data, human impact survey paths / tracks rides and avenue.**

In order to ensure effective maintenance of the paths and tracks regular surveying will be required. This will be set up utilising the standard footpath recording methodology for Countryside Services and records kept in the access route inspection system.

Copies of the survey details to be filed within the Cormonachan file under RH01/01.

RH01/03 **Collect data, human impact, survey interpretive boards**

RH01/04 **Collect data, human impact, survey leaflets**

RH32/01 **Collect data, public use, count educational groups**

RH33/01 **Collect data, public use, recreational/events**

**Information on historical and cultural features.**

RC10/01 **Cultural data / historic features, survey/estimate extent and condition**

Advice should be sought regarding methods suitable for surveying the extent and condition of the historical features and a subsequent survey carried out .

**M: Management Projects relating to the practical implementation of management decisions.**

**Rangering: Liaison, Contact with owner, neighbour etc.**

- ML30/01      **Liase, neighbours, meet on informal basis**  
Continue to liase with neighbours on informal basis when on patrol/during meetings, etc. Record salient information in landowners file.
- ML40/01      **Liase, local/national authorities on ad hoc basis**  
Liase with local authority, SNH, etc. as the need should arise. Record salient information under ML40/01.
- ML40/02      **Liase, local/national authorities via BBS**  
Maintain contact with BTO, RSPB using BBS as medium. Record salient information under ML 40/02, ML30/01.
- ML50/01      **Liase local community/groups via community newsletters.**  
When requested, supply articles to local newsletters.
- ML60/01      **Liase, emergency services via formal and informal meetings.**  
Maintain contact via informal meetings and when necessary, call out to incidents. File details under RH35/01, RH35/02, landowners file or ML60/01 as appropriate.
- ML80/01      **Liase others, encourage any volunteers to become involved with monitoring schemes.**  
Liase with biodiversity groups, local volunteers, tertiary education groups, , etc. regarding monitoring methods, analysis and persons willing to conduct monitoring. Record under relevant monitoring file.

**MI - Wardening: Information and education.**

- MI00/01      **Inform public, offsite**  
Include information regarding the site, where appropriate, in talks, slide shows, stands etc.
- MI10/01      **Inform visitors, general.**  
Provide information to visitors by informal means, e.g. whiteboard in Centre, conversations on patrol etc. Also by providing notice boards and leaflets. Record any information regarding boards and leaflets under MI50/02 and MI50/01 respectively.

- MI20/01      **Inform visitors, educational.**  
 Within limits set by the Job plans and with the LAC's utilise the site for educational groups.
- Within these parameters, use the site as an example of conservation issues and implications to raise awareness for educational groups, particularly for tertiary education. Record no. of visits to wood.
- MI30/01      **Inform visitors, specialist.**  
 Within limits, set by the Service Job plans, utilise the site for field visits and for specialist groups, e.g. National Small Woods Association training days etc. Record details under Ranger Service time analysis and MI30/01.
- MI40/01      **Inform visitors, recreational and informal users.**  
 Ensure that suitable signs, leaflets etc. are available both on the site and at the Centre.
- MI50/01      **Provide interpretation material – leaflets.**  
 In order to raise awareness of biodiversity issues and responsible behaviour within the site a leaflet shall be produced. The design of the leaflet must conform with Fife Council interpretive group guidelines and comments sought from any grant providers prior to production.
- The design should also link into existing interpretive boards within the Centre and the interpretive boards for the site. Record any quotes for priority under MI50/01 or within the central administration system for the Centre.
- MI50/02      **Provide interpretive material, signboards.**  
 In order to raise awareness of biodiversity issues, provide location information and promote responsible behaviour, interpretive boards will be provided at two points The boards design shall conform to Fife Council interpretive group guidelines and will link with existing designs for interpretive boards within the Centre. Comments on the design will be sought from any grant providers etc prior to production. Correspondence, quotes etc relating to the boards shall be kept in the Central administration system and copies filed in MI50/02.

### **Rangering Patrol: Routine inspection and policing**

- MP00/01      **Protect site/species, by patrol.**  
 Maintain a presence on site to provide information to visitors, uphold bye-laws, and maintain familiarity with site. Regularity of visits will vary with season and other pressures on Ranger Service.

### **Estate: Practical aspects (physical input) of site management.**

**Estate: Habitat manipulation, management of habitats.**

- MH00/01     **Manage habitat, woodland/scrub by coppicing Hazel.**  
Commence coppice cycle within Compartment of Hazel understorey. Cycle to be approximately 7 years, depending on growth. If necessary, increase plantings to a max. density of 2 m. centres. (record plantings under MH01/01). Cutting of Hazel to be carried out in early spring, prior to bird breeding season.
- MH01/01     **Manage habitat, woodland/scrub, by planting native woodland species.**  
Once thinning of felling works have been carried out, natural regeneration will take place, however, this regeneration will need to be augmented to both (i) achieve 1600 stems per should regeneration fails and (ii) to introduce native species appropriate to the desired NVC community which are not present as present stock.
- Records of purchase will be kept on both the Central administration system for the Centre and under MH01/01.
- Records of planting to be kept under MH01/01.
- MH02/01     **Manage habitat, woodland/scrub by thinning/group felling.**  
Felling and thinning works are central to the achievement of the desired NVC communities.
- Felling and thinning works are central to the achievement of the desired NVC communities.
- Felling and thinning works have already been calculated when assembling the woodland grant application. Details can be found in AF01/01.
- Records of felling to be kept under MH02/01 and to detail:
- Dates of work carried out
  - Costs
  - Contractual details
  -
- MH03/01     **Manage habitat, woodland/scrub, assist natural regeneration**  
After felling works have been carried out, brush will require removal by either chipping, burning or a combination of the two. If a sales source can be found, and if the chippings are of high enough quality, then this option should be pursued. Where burning is on the only option, single burn sites should be chosen which have the least impact on the site, e.g. where close sitka has been felled and no ground flora is present. Relevant permissions must be obtained from the relevant environmental authority (currently SEERAD (2004) prior to operations being carried out. Monitoring of the ground flora will indicate where harrowing of the mat of needles is required. If possible, a horse-drawn harrow of the H.R.M. type.

(Enact Vol 7 no. 4 p 4&5) should be used, to minimise the level of impact on the ground.

**MH08/01 Manage habitat, woodland/scrub, manage dead wood**

Once results have been obtained from RF13/03, work may be required to obtain the desirable level of dead timber within the wood. Information should be sought on the suitable proportions of dead standing, snagged and lying timber for the habitat and measures taken to achieve this. Standing dead timber will be created by ring-barking suitable trees. These trees will be no closer than 2x tree height from any path on track and will be biased toward these species which are non-native and which do not exhibit good form.

Records of work to be registered under MH08/01 and used to update RF13/03. Standing dead timber should be mapped and held under RF13/03. Periodic checks of all standing dead timber should be made and any which are deemed dangerous should be felled to waste.

**MH09/01 Manage habitat, woodland/scrub, other activities, tree surgery**

From data collected under RF13/01 and RF14/01 information regarding the condition of the trees along the paths will be available. This should indicate if any of the trees require surgery. If this is the case, expert advice should be sought and, if possible, grant aid applied for to carry out the work. Data gathered to be held under the relevant RF and AF files and contractual details held under AT files and MH09/01.

**MH22/01 Manage habitat, bracken herb, by mowing/selective cutting**

Where bracken is undesirable and dominant, treatment will be required to restrict the growth of bracken to prevent it suppressing other ground flora and any regeneration which may occur. Bracken is not particularly shade tolerant and once the canopy has closed the problem should diminish greatly.

**MH61/01 Manage habitat, open water, by excavation.**

Should it prove feasible, a pond should be dug. The pond should conform to the following criteria;

- (i) The maximum depth should be 1.5m
- (ii) The profile should be gently sloping, from the margins to the deepest point.
- (iii) The margins should be irregular
- (iv) 35% of the pond should have a depth of less than 20cm to allow seasonal inundation, and create a more natural transition from dry land to open water.
- (v) If necessary, suitable plant species may be introduced. It may also be necessary to introduce amphibian spp.

Record all salient data under MH61/01. Introduction of any amphibian spp. will

require the creation of a relevant MS file.

**Manage estate, fabric.**

ME01/01 **Manage estate, fabric, boundary structures, inspect, repair and replace fences**

Any defects in the boundary fencing should be reported, so as immediate repairs can be undertaken. Fences should be replaced as necessary, with any large-scale replacements being planned in advance. Grant aid should be sought for this project.

Record all details under ME01/01 and any grant applications under the relevant AF file.

ME01/02 **Manage estate, fabric, boundary structures, inspect, repair and replace gates and access points**

Any defects in the gates and access points should be reported, so as immediate repairs can be undertaken.

Record all details under ME01/02.

ME02/01 **Manage estate, fabric, other structures, compartment boundary markers.**

To facilitate orientation within the wood, and to define compartment boundaries, a series of marker posts shall be set up. These marker posts will be of tanalised 75 x 75mm fence posts, set at 50m intervals along the line. The tops of these posts will be painted orange to make them easily distinguishable from the background.

ME02/02 **Manage estate, fabric, other structures, car park**

Any defects in the car park should be reported, so as immediate repairs can be undertaken.

Record all details under ME02/02.

ME04/01 **Manage estate, fabric, remove rubbish.**

Minor litter picking is to be carried out whenever staff are on site and larger litter picks / uplifts of rubbish organised as proves necessary. Large amounts of litter and any illegal dumping will be removed by the local authority, or by group effort.

ME40/01 **Manage estate, fabric, maintain tracks.**

Minor repairs are to be carried out whenever needed and repairs organised as proves necessary. Smaller repairs may be undertaken by volunteers or the estates team, after consultation with the chargehand. Large repairs may require an external contractor. Consultation with the Fife Council Footpath technician, currently P. Clarke, based at Lochore, should be carried out to ascertain likely costs, technical specifications and funding possibilities.

ME50/01

**Manage estate, fabric, maintain drainage systems**

The ditches and drains within the site will require clearing at intervals, normally every 5 years. More frequent clearing may be needed, depending on weather conditions, etc.

## **A Administration: Service and support activities**

### **Financial, planning and recording**

#### **Site and Species Safeguard**

- AS00/01      **Protect site by Promulgating / Enforcing Laws**  
It is probable that at some point there will be a need to enforce the laws and by-laws in order to prevent abuse of the site. In the majority of cases this will be on an informal basis, only requiring the relevant legislation pointed out to the individual. Where an incident is serious enough to warrant recording, e.g. where there is the possibility of future legal proceedings, or the incident requires recording under Fife Council Operational Procedures etc, details should be recorded here.
- AS40/01      **Protect site, by Prosecution**  
It is probable that at some point there will be a need to enforce the laws and by-laws in order to prevent abuse of the site. In the majority of cases this will be on an informal basis, only requiring the relevant legislation pointed out to the individual. Where there is occasion for the full legal process to be brought into action, details should be recorded here.
- AS50/01      **Protect Species, by Prosecution**  
It is probable that at some point there will be a need to enforce the laws and by-laws in order to prevent abuse of the species. In the majority of cases this will be on an informal basis, only requiring the relevant legislation pointed out to the individual. Where there is occasion for the full legal process to be brought into action, details should be recorded here.
- AP10/01      **Prepare/revise work programme**  
The work programme will require revising annually, to ensure that the commitments within the plan are concomitant with the available staff and budgets for that year and that they comply with current policies.
- AP20/01      **Prepare/revise plan, site management**  
The management plan for the site will need to be revised during the final year of the plan.
- AP 60/01      **Prepare plan, annual work**  
The work programme will require revising annually, to ensure that the commitments within the plan are concomitant with the available staff and budgets for that year and that they comply with current policies, from this, an annual work programme should be produced, to allow fixed elements of the work to be planned.

AR20/01      **Prepare report, annual progress**  
In order to ascertain that the work detailed within the plan is being carried out within the set parameters, and to provide information for management and funding partners, an annual report should be prepared.

**Finance, General**

AF00/01      **Finance, General**  
Many of the financial aspects of the management of the site will be recorded under the appropriate code, e.g. purchase of trees for planting will be recorded under MH01/01. Any details which do not fall into an obvious category, or which refer either to the site as a whole or are categories which would normally be recorded as part of Centre's expenditure should be recorded here.

AF01/01      **Grant applications, Forestry Commission**  
As soon as possible, the potential for grant application via the Forestry Commission's Woodland Improvement Grant scheme (WIG) should be explored. The written part of the application should be undertaken by the site manager, but it may prove necessary to seek assistance with the production of the tabular sections of the plan. (Volume of standing and felled timber etc.) It may be possible to utilise a charitable body for this, e.g. Central Lowland Native Woodlands.  
There will be a large commitment of time at the inception of this project, estimated at approx. 6 staff days and 5 contractor days. Thereafter there will be a time allocation of 1 staff day and 1.5 contractor days for administering the grant and claiming any monies due  
It will be necessary to ensure that the projects within the WIG correspond with the projects in the management plan both in terms of intent and time-scale.  
All aspects of the grant applications should be recorded here.

AF01/02      **Grant applications, SNH**  
As the projects within this plan are undertaken, some may prove suitable for grant aid from Scottish Natural Heritage. Preliminary contacts, draft applications etc. should be filed here. Once any grant applications have been approved, details should be filed under the appropriate project heading, or a new project created.

AF01/02      **Grant applications, other.**  
As the projects within this plan are undertaken, some may prove suitable for grant aid from other funding bodies or organisations e.g. biodiversity groups. Preliminary contacts, draft applications etc. should be filed here. Once any grant applications have been approved, details should be filed under the appropriate project heading, or a new project created.

AP10/01      **Prepare/revise work programme**  
The work programme will require revising annually, to ensure that the commitments within the plan are concomitant with the available staff and budgets for that year and that they comply with current policies.