

Bolfracks Wood SSSI Forest Plan 2008 – 2028

Part A - Description of Woodland

Property Details

Name of Wood: Bolfracks Wood SSSI

One owner:

Mr Robert A Price Esq
Bolfracks Estate Office
Aberfeldy
Perthshire PH15 2EX

Woodland management is undertaken by:

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Location and background

Located 2.5 Kms west of Aberfeldy and lies just to the south of the main Aberfeldy - Kenmore road, A 827
Area 20.2 ha
NN 825480

Map 1 – Bolfracks Wood Location Map

Listed as an Ancient Woodland site, as is much of the surrounding woodland area, including the commercial conifer crops.

Up until 1994, the pressure of roe deer grazing in Bolfracks Wood was preventing any natural regeneration providing the next age class of trees, despite a good number of seedlings. A Management Agreement between SNH and the owner led to the woodland being fenced off in 1995, to keep out deer and rabbits and allow ash, birch and alder trees to regenerate. This has proved to be reasonably successful with only small numbers of stock gaining entry through occasional weaknesses in the fence line.

The high percentage of hazel and coppiced alders suggest that the site was worked as a coppice wood until the relatively recent past, likely to be 19th Century. Today, no commercial use is made of the area.

The woodland area extends to 20.2ha, and has also been subject to a WGS scheme and a Section 15 Management Agreement signed in 1995, which

expired 23 July 2005. There is a designed landscape immediately to the north, between the SSSI and the main road, behind Bolfracks House.

Bolfracks Wood SSSI was designated on 15/12/1983 and has been subject to subsequent Site Condition Monitoring by SNH and is presently assessed to be in an unfavourable condition as of 15/8/2000.

Long Term Vision and Management Objectives

The long-term goal for the site is to maintain and extend Bolfracks Wood as a fully functioning and sustainable woodland system, which exhibits a range of age and structural diversity. This would accommodate all the existing species as well as providing opportunities for an increase in biological diversity.

The main objectives are:

- Increase species diversity on the west of the site
- Reduce threat from invasive species
- Maintain freedom from browsing from domestic stock and deer
- Allow woodland to expand on to adjacent ground, and increase connectivity with other broadleaved woodlands nearby.

Site and Species Description

Compartments

No compartments as such, but one small area to the east of the site is outwith deer fence and might be considered as distinct to the remainder of the site.

Access

The main access points to the wood are from the farmland below, but also coming in from the east along the Urlar Road from Aberfeldy and on to a new estate track, not marked on maps.

Access within wood on foot only, via an informal path running from the back of Bolfracks House's grounds west to east through the wood.

Grant schemes – No current grant scheme in place.

Geology

Quartoze mica schists with hornblend (base rich) intrusions.

Soils

Very fertile forest soils, mostly well drained, but unlikely to experience summer moisture deficit.

Hydrology

One minor watercourse bisects site. The site is less than 500 metres from the Tay.

Topography

Lies on north facing slope of Tay valley.

Boundaries

Deer fences effectively mark all the boundaries, except for a small triangle to the east of the SSSI. To the north lies permanent pasture, to the east, west and south commercial Sitka Spruce plantations. A small % of the SSSI area lies outwith deer fence to south and west.

Wayleaves

No wayleaves.

Footpaths

There is only one significant footpath through the site, and public access appears to be limited to a small number of local walkers, with most walkers choosing to use the larger and more formal forestry tracks through the woodlands above.

Surrounding Landuse

To the north lies permanent pasture, to the east, west and south commercial Sitka Spruce plantations.

Habitats/Communities (NVC)

Some 95% of the site is classified as W7c, Alder-Ash woodland with yellow pimpernel.

Three very small pockets of W11d, Upland oak-birch woodland with bluebell/wild hyacinth exist to the west of the site.

Flora

Bolfracks Wood was selected as an SSSI as it is a good example of ash/hazel/alder woodland - a very rare and decreasing and threatened habitat type in Britain, reduced to only a very few fragments in Perthshire due to clearance for grazing or afforestation.

The tree canopy is chiefly ash and alder in the eastern half with birch and an isolated stand of alder in the west. There is a small stand of oak and an area of planted conifers lower down. The ground flora is dominated by grass species and, to the west of the site, bracken.

Bolfracks Wood SSSI is also considered important for its lichens. A number of trees (mainly old ash trees) support a rich lichen flora, which includes several species which are indicators that the woodland here is ancient. There are also some locally uncommon higher plants, including Moschatel and Enchanter's Nightshade.

Deadwood Habitat

The site contains a good quantity of both standing ('snags') and fallen deadwood at various stages of decay.

Fauna

The wood is used by a number of interesting bird species, including Great Spotted Woodpecker, Redstart and Pied Flycatcher.

Timber Production

Part of the site has the potential to produce good quality ash. In the short to medium-term, there is unlikely to be any significant felling operations within the SSSI.

Livestock

None.

Archaeology

There are no Scheduled Ancient Monuments within the Bolfracks woodland however there are a series of old kiln sites, two within the woodland and a third just outside the woodland following the path to the east, which are listed on the National Monument Records of Scotland.

Past and Present Land Use

The 1995-2005 Management Agreement with SNH provided for the construction of a deer/rabbit proof fence around much of the SSSI area which was previously used on a seasonal basis for grazing by cattle. While there has been damage to this fence over the period, and evidence of deer within the fence, this ten-year window has allowed significant regeneration within the wood, albeit towards the eastern end only. Existing saplings of ash and alder quickly got away, and much of the hazel coppice has produced new growth. A new regeneration of ash saplings is also now evident, and even some seedling hazel were evident in 2007. To the west of the site, the SSSI is dominated by older (even moribund) birch trees, with a relatively open canopy and an extensive cover of bracken. No regeneration of the woodland has occurred here over the period.

In 2000, when Site Condition monitoring was being undertaken by SNH, there was discussion as to whether grazing pressure had been reduced too much, how to deal with the extensive bracken areas, and the considerable difficulties of keeping fences intact in a woodland setting. The Management Agreement with SNH expired in 2005.

The presence of the kiln sites and the old coppice growth of alder, hazel and some ash, provide historical evidence of extensive coppice management over a wider area than the remaining native woodland represented by the SSSI.

Landscape Public/Educational Interest

The wood, although not prominent in itself, forms part of an extensive band of broadleaved woodland on these slopes to the south of the Tay, and they are also an important consideration in landscaping the commercial conifer plantations behind them to the south.

At present, Bolfracks SSSI has no significant recreational or educational use, although the gardens at Bolfracks just to the north is a popular visitor attraction.

Stakeholder Engagement

Through the Scoping Report process a number of issues were highlighted principally by SNH, Scottish Native Woods and Forestry Commission for the management of Bolfracks Wood SSSI. Most of the issues raised by SNH have been encapsulated through the Site Management Statement (produced by SNH) and identify long term objectives and associated management options for achieving these.

The Site Management Statement identifies the long-term management objective for the site as being to maintain and extend Bolfracks Wood as a fully functioning and sustainable woodland system, which exhibits a range of age and structural diversity. This would accommodate all the existing species as well as providing opportunities for an increase in biological diversity.

The management options that SNH would like to see considered for Bolfracks Wood SSSI include ground preparation and/or controlled grazing by domestic stock to help control the invasion of bracken and rank grass, as well as create suitable seedbeds. Other issues include the removal of non-native tree and shrub species and the control of deer. Ideally SNH would like to see the site expanded where possible but the site is constrained by the designed landscape to the North and the mid-rotation commercial forestry to the other three sides.

The comments put forward by Scottish Native Woods and Forestry Commission relate to diversifying the age structure and species diversity of various sections of the woodland.

No Scheduled Ancient Monuments are recorded within the woodland area, however the two existing kiln sites were identified as requiring consideration in terms of forest operations and proactive management to control regeneration of trees on or within 5m of the sites to prevent degradation to the sites.

As the majority of the management proposals put forward are physically and visually of a low impact, there were no discernible negative impacts on the adjacent Designed Landscape. Existing access management arrangements were agreed to adequate and use of the site was felt to be light, as such, no specific actions were identified.

Map 2 – Updated Concept Map

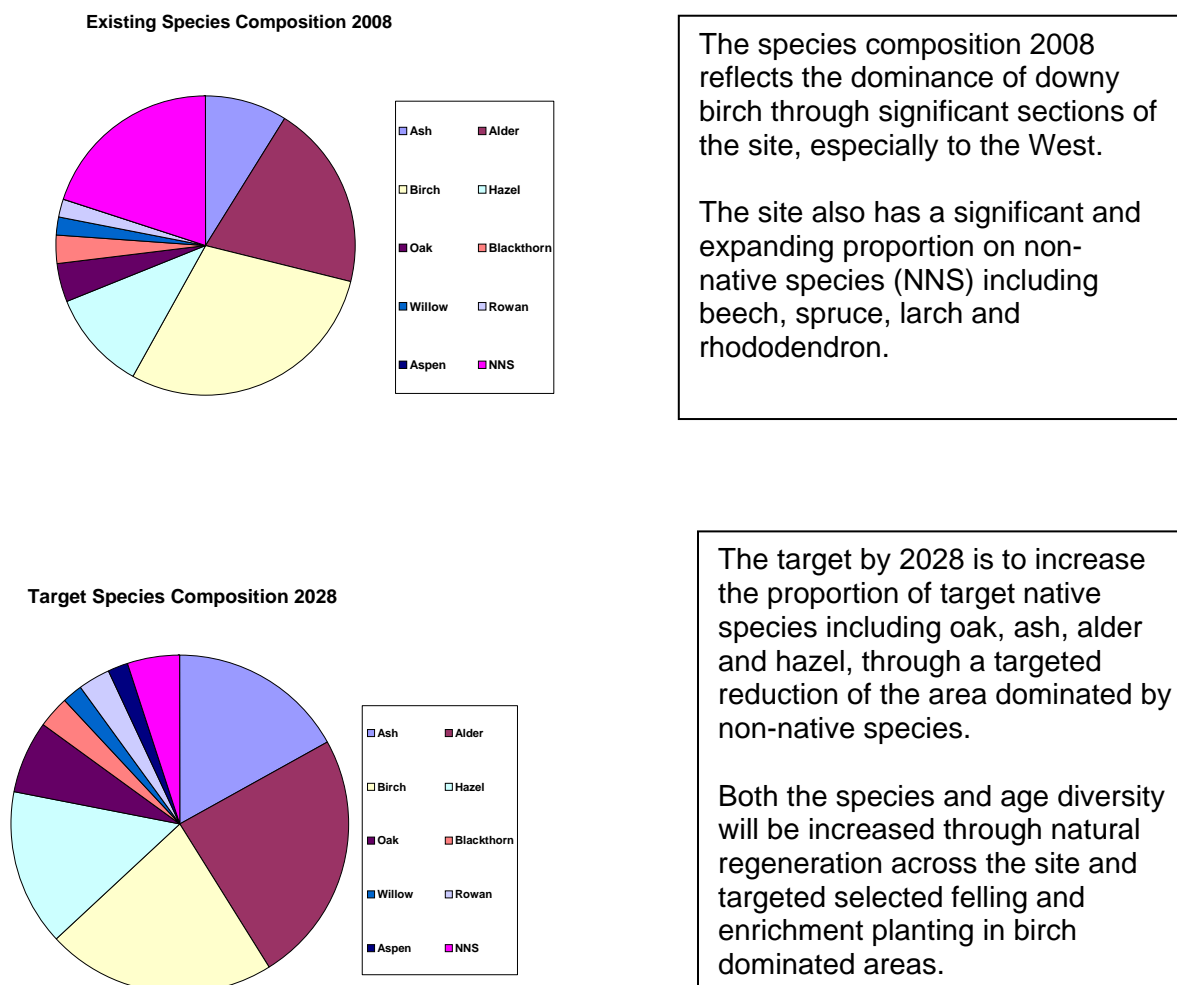
Part B Survey Information

Native Species

A full range of native tree species is found to the east of the site, including ash, alder, willows, birch, rowan, hazel, blackthorn and oak. Some of the areas to the east of the site could benefit from small scale coppice management to help diversify the age structure as this historic management technique has in part helped to create the species rich habitat for which the site is designated a SSSI.

Species diversity decreases rapidly towards the west of the site, becoming dominated by downy birch, with only occasional alder and ash; where opportunities exist, openings should be created within the birch canopy to vary both age structure and increase species diversity through enrichment planting.

Figure 1. The existing species composition of Bolfracks Wood in 2008 and the target species composition in 2028



Part C - Analysis

Biodiversity Value

The eastern part of the site is an excellent example of woodland of this type. If the rest of the site could be improved, and efforts made in the longer term to allow this wood to spread in to adjacent stands then Bolfracks SSSI will be the centre piece of a very significant woodland feature locally. At the moment, its value is probably limited by its small size and lack of connectivity to other woods of a similar type

Structural Diversity

Despite its relatively small size, the wood contains considerable structural diversity. The west side of the woodland is dominated by Downy Birch, comprising 80-90% of the canopy cover. The structure of the woodland is generally open and has a stocking density varying from 150 to 600 stems per hectare. The age structure is mature to over mature with a lot of wind damage within the canopy and standing dead trees. There is also a significant number of windblown individuals with one distinct area of wind blown birch. Semi mature and mature Alder occur occasionally (20 %) within the open woodland canopy.

The age diversity is poor with little or no regeneration on the woodland floor. There are the occasional juvenile pulses of semi mature birch; 10-15 year old trees occurring in limited areas such as on root plates from previously windblown trees.

In one small area close to the watercourse near the southern boundary, alder increases to dominant (80%) with occasional Ash (20%). Stocking density of 700-1100 stems per hectare occurs with little or no regeneration. There is some Rowan regeneration on rocky outcrops.

Large areas of bracken with areas of coarse grasses between dominate the ground flora of this area. There are small patches of Rhododendron at the north end of the stream near the gate, and a small patch to the south west of the stream.

There is a large row of Larch parallel to the northern boundary, which contains approximately 60 individual mature Larch. The Larch coupe has a strong understory of Rhododendron, which is spreading south as small seedlings and bushes. The Rhododendron has also formed dense bushes along the streamside. The Rhododendron (including the plants under the Larch) covers approximately 0.45 Ha with 50% of its extent over six feet in height.

To the east of the watercourse are frequent semi-mature to mature Alder mixed with the occasional mature Ash. There is some regeneration to the east of this area with some occasional Birch, Ash and Alder regeneration.

Further east, on the dryer slopes, is almost pure mature Downy Birch woodland with an open stocking of 400-500 stems per hectare. There is a more mixed age structure with 50% mature and 50% semi mature / juvenile Birch. Ash regeneration of juvenile age is present along the path sides but there is limited evidence of young regeneration.

There is a large grove of very dense Blackthorn close to the southern boundary fence.

Progressing further eastwards, there is an increasing amount of hazel coppice as an understory in a highly variable mosaic, including mature ash, and large areas of mature alders in the wetter areas. There are also some coupes of Birch, open space with regeneration, and the occasional mature Oak and Beech.

There is some scattered bracken but the ground flora is mainly coarse grasses. Beneath the tightly spaced, multi-stemmed semi-mature to mature Hazel coppice (1100 – 2500 stems per ha) there is very little evidence of ground flora, with limited mosses, fine grasses and leaf litter.

There is one large coupe of Hazel coppice (2500 stems per hectare), with a low stature with a canopy height of 6-8 metres.

This area also contains fingers of semi-mature / mature closed canopy Alder (700 plus stems per hectare) on the streamside and in the wet hollows. There is some young Beech and Spruce regeneration in small numbers within the more open canopy areas.

At the northern boundary near East Lodge there is a mature area of the woodland with large individual Beech and groups of large mature Sessile Oak (dbh 60 cm). These large trees are surrounded by small groups of semi mature Hazel and Birch and Ash at 3-4 metre spacing. The canopy is relatively open with ground flora of patchy fronds of bracken and strong grass growth. Regeneration of Beech is apparent in this area, between 20-60 cm tall.

The area outwith the deer fence has a more open canopy with a central core of mature Ash and occasional large mature Oak (100-200 stems per hectare), with a lesser understory of widely spaced Hazel (300 stems per hectare). The northern edge of the woodland is defined by a stream, which has a good coupe of regenerating Ash from juvenile to pole stage within a narrow strip above 10,000 stems per hectare. The eastern corner is composed of pure Hazel with a low stature of 6-8 metres in height with some regenerating Oak along the stock fence edge.

Deadwood

The SNH site monitoring exercise in 2000 estimated 5-10 standing dead and c10 large fallen logs per ha.

Part D - Management Proposals

The 1995 deer and rabbit fence has undoubtedly allowed development of the woodland to the east of the site, but has achieved very little if anything to the west where bracken is the major limiting factor. There appears to be little deer pressure within the woodland at present, and recent maintenance of the fenceline seems to be very good, with fallen trees having been cleared during the previous winter and the fence re-instated. Achieving a better structural diversity to the west of the site would appear to be the most immediate priority. Dealing with the exotic species and the areas of rhododendrons would probably be of secondary importance at present, but should be addressed in the first five-year period of this plan.

In the longer term, consideration should be given to forming better connections with the other broadleaved woodlands along this slope of the Tay, many of which are also of Ancient Woodland origin. As the neighbouring commercial conifer plantations come to maturity, an opportunity may arise to restructure these to allow some modest expansion of Bolfracks SSSI, although this would require collaborative working with the neighbouring landowner.

Factors influencing the achievement of long-term objectives:

Constraints

Bracken Cover

Deer pressure outwith fences

Obligations

No current management agreements or grant schemes.

Resources

The owners have a good track record of constructive woodland management locally, and have indicated that they will be able to organise whatever expertise is required to forward agreed actions

Silvicultural Policy

The principal management objective of Bolfracks Wood is to maintain and improve the condition of the SSSI woodland features. As such no significant management actions would be anticipated in the medium to long term, however in the short term a number of silvicultural prescriptions are required in order to address the issues that are causing the woodland to be in an unfavourable condition with regards to the SSSI designation.

Through the Scoping Report and associated consultation process two levels of thinning, felling and restructuring operations were identified. The first level relates to short term, more essential operations that are required over the next five years to help bring the SSSI woodland back towards favourable condition. The second level of operations relate to medium to longer-term aspirations that have been identified as desirable to the long term management and

improvement of the site and may be out-with the direct control of the woodland ownership.

Five year management proposals

Thinning, Felling, Restructuring and New Planting Proposals

Regeneration to the west of the site has been inhibited by dense bracken cover, which will almost certainly have increased cover since the SSSI was fenced off in 1995. Previous notes have referred to re-introducing grazing within the SSSI, but the practicalities of achieving that in a small woodland, with a high percentage of dense bracken may well be difficult, especially as there will still be regeneration vulnerable to browsing pressure to the east of the site. Suitable animals for woodland grazing, be they cattle or pigs, may not be readily available here.

The bracken area to the west of the site extends to some 4.6 ha. The over storey is downy birch, with a fairly open canopy with many open glades. It is recommended that some 30% of this area, 1.4 ha, is planted at 3 metre spacing with ash and other appropriate species of local origin, in 0.6 metre shelters so that they can be readily found. Strong, bare-rooted plants would show good apical dominance and would be able to compete with the bracken given some level of spot weeding in the first *two* years. The species is obviously suited to the site, and the side shading of the birch should ensure reasonable form, even at this wider spacing. This approach would allow use to be made of the existing deer fence which is relatively intact, and allow development of the west side of the wood at modest cost, and without having to deal with the extensive sea of bracken first. Ash trees, being strongly rooted and requiring good nutrition, are likely to reduce the strength of the bracken significantly over time. 1,920 trees would be required for this approach.

Thinning

As the management objective is principally for biodiversity and not for timber production and given that the majority of the woodland areas identified within Bolfracks Wood have an open canopy structure, there are no thinning operations planned over the period of this Forest Plan.

The exception to the largely open canopy structure of the wood is the denser area of old hazel and alder coppice to the east, where small areas of coppice management will be reintroduced over an area of 2.3ha to help diversify the age structure as can be seen in Map 3. The coppice sites will be 0.5ha to 0.7ha in area and will be allowed to regenerate naturally from the cut stools. This is a short-term priority and based on the monitoring of this prescription subsequent coppice management could be considered at subsequent review stages of this Forest Plan.

Selective Felling

Selective felling will also take place, principally through the centre of the site, to remove a range of non-native species (NNS) such as beech and larch to the north and larch and spruce seeding in from the south totalling 3.8ha. Due

to the proximity of the larch and beech to the Designed Landscape of Bolfracks House and their contribution to the wider landscape not all non-native trees will be removed. 50% of the mature beech, 75% of the mature larch and 100% of all sub-mature trees of both species will be removed. The majority of the material will be felled and extracted along existing tracks, while an element of the material to be cleared will be left on site or killed standing to help with the appropriate provision of standing and laying deadwood on site. Map 3 below shows the areas identified as requiring selective felling to remove non-native species.

The regeneration of the cleared areas will principally be through natural regeneration, with the extraction designed to create temporarily suitable seedbeds. Recognising that the species distribution over the site is not ideal and that regeneration is likely to favour birch, an element of enrichment planting will be undertaken, the details of which follow in the subsequent "regeneration" section and are shown on Map 4. Again this is a short-term priority.

Felling

The woodland to the west of the site has been identified as an even aged, mature to over mature stand of birch with a dense under-story of bracken and grasses that presently limit the potential for natural regeneration. The species diversity of this western area is also limited and has been identified as requiring enrichment planting of appropriate local provenance species such as ash, oak, alder and hazel.

To achieve both greater species diversity and the diversification of the western woodland's age structure, four small areas of clear fell are planned, as a short-term priority, in order to allow a combination of enrichment planting with priority species and natural regeneration from the surrounding birch woodland. Map 3 below shows the four areas proposed for clear fell, totalling 1.2ha.

Other tree removal work

Following consultation with the local archaeologist, cleared zones of 5m will be maintained around the two kiln sites, which will be monitored to ensure they remain free of natural regeneration. Any seedling will be removed and saplings will be cut and stump treated.

Map 3 – Thinning, Selective Felling and Felling 2008 - 2018

Restructuring and Regeneration

In order to help achieve the objective of diversifying the species composition of the western woodland a programme of enrichment planting will accompany the natural regeneration anticipated following the selective felling and felling operations proposed. The areas of restructuring regeneration are identified on Map 4 and cover the areas where non-native species have been removed (3.8ha) as well as the 4 sites specifically clear for this purpose (1.2ha) - see Map 3.

The areas for restructuring regeneration (5ha) will be planted at 1,100 stems/ha using local provenance, native species to help achieve the desired species diversity while also helping diversity age structure. The site will be hand sereefed with trees planted in 0.6mshelters.

The total area of enrichment planting is 6.8 ha targeting areas of open ground within the existing woodland structure and areas where rhododendron clearance has occurred (see section entitled “Rhododendron”). Enrichment planting is planned at a rate of 200 stems/ha over the site planted in 0.6m shelters for protection and visibility for subsequent weeding and/or to be favoured in subsequent re-spacing.

Medium to Long Term Management:

Most of the management prescriptions identified have been for the short-term objective of moving the SSSI woodland towards favourable condition. In the longer-term certain management operations have also been identified, which largely relate to the potential expansion and linkage with local habitat networks (either existing or to be created).

The restructuring could focus on connecting Bolfracks Wood to the more significant riparian corridors that run roughly south-north to both the east and west of the site and link in to the major River Tay habitat network to the north. Expansion of the woodland to the north is limited by the Design Landscape of Bolfracks House. To the south there is a degree of restructuring planned however this is some of the best commercial forestry land available on the neighbouring Estate.

New Planting

The only open ground available for new planting is to the north of the site within the Designed Landscape of Bolfracks House and as such is inappropriate.

Map 4 –Restructuring and Regeneration Map

Woodland Management Prescriptions

Below are a range of quantified management prescriptions identified through the Scoping Report and Consultation process.

Bracken

Bracken control within this type of woodland is notoriously difficult, and the proposed strategy would allow bracken control to be sidelined as a major issue within the next five-year period, favouring enrichment planting and small sized restructuring coupes. Map 5 below shows the extent of the bracken within the woodland.

Rhododendron

It is estimated that there is 0.85 ha of mature, established rhododendron on the site, including those under the larch trees and a further 0.45ha of encroaching regenerating plants. It is recommended that these should be

removed within the next five-year period. Map 5 below shows the indicative areas where rhododendron is encroaching within the site.

Map 5 – Bracken and Rhododendron Distribution Map

Deer Management Plan

Historically deer management has been a significant issue on the site, which was one of the principal drivers behind the previous management agreement in 1995, which paid for the site to be deer fenced. Incursions of roe deer are still occurring through the 100m section of older pre-1995 deer fence to the east of the site. The deer management policy for Bolfracks Wood is as follows:

- Replace the old 100m section of deer fence to the east of the site to make the site deer, rabbit and hare proof.
- Check fence lines regularly and immediately clear and restore any holes, breakages or fallen trees.
- Biannual site inspection for deer damage to seedlings and faecal evidence.
- A policy of absolute control of any deer within the enclosure as soon as they are discovered.

Fences

The deer/ rabbit fence is still functioning well, and should, with appropriate maintenance survive for another 10 years or so. The one exception to this is a stretch to the east of the area, some 100 metres in length which is much older than the 1995 fence, has several holes in it and which should be replaced.

Planting of Ash and other native species in 0.6m tree shelters

Mainly ash trees along with components of oak, rowan, hazel, alder and aspen are likely to reduce the strength of the bracken significantly over time. For the proposed 4.6ha of enrichment planting at 200 stems/ha 920 trees would be required (see Restructuring Regeneration).

Mature Larch and Beech Trees

Some 60 mature larch trees and 15-20 beech trees exist within the wood, mostly at the northern edge, where accessibility is good. At present they are posing a limited threat to the SSSI features, however this is best addressed pro-actively. These trees within the landscape are appreciated locally, and at present there is reluctance to remove these trees, however the compromise proposed is to remove a proportion of the mature trees, all of the immature trees and enrichment plant using a component of aspen for autumn colour. Map 3 shows the indicative locations where the non-native trees will need to be removed.

Beech Regeneration

The area of beech regeneration is estimated to be some 0.75 ha, and it is recommended that this area is treated within the five-year period, although spread of beech trees is not as yet endemic within the wood. To accommodate the landscape consideration noted previously, a rolling

programme of beech and other non-native species removal will need to be carried, starting in the first five years of this plan and carried forward according to the prevailing best practice guidance at that time.

Summary of Operations – first five years of the Plan

Coppice Management of Hazel and Alder – 2.3ha

Selective Fell of invasive non-native species (NNS) – 3.8ha: 60m³

45 Mature European Larch

7 Mature Beech

Clear Fell to restructure even aged birch and diversify species: 1.2ha

Restructuring Regeneration of Selective and Clear Fell area : 5.0ha

Regeneration of 6.8ha of woodland through enrichment planting using identified native species at 200 stems/ha.