Section One

Introduction

Location

The Hermitage of Braid and Blackford Hill Local Nature Reserve (LNR) is located to the south of Edinburgh City Centre. The reserve lies within a large area of designated Greenbelt occupied by Blackford Hill and the Braid Hills.

The Local Nature Reserve covers Blackford Hill and extends south and west to include the land fringing the Braid Burn.

The centre of the LNR is located at National Grid Reference (NGR) NT 254 705.

The areas making up the wooded sections of the LNR are located mainly along the edge of the Braid Burn and on the western edge of Blackford Hill and are centred on NGR NT 253 703.

(Refer to Map No.1 – Location)

Ownership

Blackford Hill was bought by the Edinburgh Corporation in 1884, and the adjacent Hermitage of Braid estate was gifted to the City of Edinburgh in 1938 by John McDougal, allowing the Hermitage to be used as "a Public Park or Recreation Ground for the benefit of the citizens".

The area is now under the ownership of the City of Edinburgh Council (CEC). The City of Edinburgh Council's Services for Communities Department is primarily responsible for its maintenance, with a number of other council departments, in particular the CEC Countryside Ranger Service, involved in the various aspects of upkeep.

Contact:

City of Edinburgh Council
Countryside Ranger Services
Hermitage of Braid
69a Braid Road
Edinburgh
Midlothian
EH10 6JF

Plan Period and Function

The current Management Plan for Hermitage of Braid Local Nature Reserve (LNR) covers a 10 year period between 1998 and 2007. The plan is due for review and updating.

The LNR management plan identified six distinct habitat communities; Woodland, Scrubland, Grassland, Ruderal (Weed) Communities, Wetland and Rock Outcrops.

One of the action points set out in the management plan was the production of a supporting detailed woodland assessment document with proposals to be developed as an appendix for the LNR management plan and to be implemented alongside other management proposals.

The purpose of this Woodland Management Plan is to assess the condition of the woodland areas within the LNR and to produce management aims and objectives for these areas as a continuation of the management of these areas. The plan is intended to compliment and add to the existing management plan covering the LNR, and to be implemented alongside other management proposals for the area.

The plan is also intended to act as a funding document to be used to provide information to funders and grant awarding bodies regarding the proposed management of the woodland. The plan will provide a basis for grant applications, and can be used as an appendix to funding bids.

The plan presents detailed proposals to cover the next ten years of woodland management for the LNR, with broader proposals for the ongoing management of the woodland for the next management plan period.

The Woodland Management Plan also covers, in lesser detail, aspects relating to the other five main habitats identified within the LNR, in particular where these habitats interact with woodland elements.

Methodology

The woodland was surveyed over in June/July of 2007. The survey involved a walk over the area, recording details the age, composition and condition of woodland areas.
The survey also noted ground conditions, woodland boundaries and access issues.

In addition to the woodland survey, a more detailed individual tree survey was carried out on roadside tree features on the western boundary of the LNR and along the main access drive leading to the visitor centre. (Ref. Appendix 2 – Tree Survey)

A desktop survey was also carried out to compile existing information in the form of reports, maps, and other related documentation relating both to the LNR and the woodland areas in particular.

Following the woodland survey the information gathered was assessed and evaluated, and aims and objectives set for the woodland areas.

Management works designed to meet the objectives have been laid out in the form of proposals with prescriptions and outline specifications. These proposed works have been quantified, costed and timetabled in a work plan located in the final section of this Management Plan.

Summary

The Hermitage of Braid and Blackford Hill Local Nature Reserve is an area of mixed habitat providing an attractive area of public recreational open space which is well used by local people, and is popular with visitors.

The site offers extensive views over Edinburgh from Blackford Hill and contains many features of historical, environmental and geological interest. The LNR extends to 60.3 ha of which 30.9ha is occupied by woodland cover.

The woodland areas present within the LNR are concentrated along the valley of the Braid Burn, and around the base of Blackford Hill. These woodland areas consist of mature policy woodland, and semi-mature woodland which has for the most part self-sown.

Management of the woodlands has been ongoing, with selective felling of individual trees, clearance works, thinning of semi-mature areas, and enrichment planting having occurred in the more recent past. However the restrictive nature of the site in terms of access for larger scale works has limited the levels of management activity.

The purpose of this plan is to describe and evaluate the current condition of the woodland areas, and to make recommendations for future management actions.

Management proposals are set out in a work plan for the area, with a budget allocated against each of the proposed works.

The budget for woodland management works is set out in detail, and outline costs have been produced for suggested works relating to access and boundary improvements.

The overall budget for works proposed under this Management Plan **£306,875.** Of this **£143,745** relate directly to woodland management operations, **£58,175** to scrub and grassland management (sub-compartment 2a - Blackford Hill), **£76,125** estimated for path improvements, and **£28,830** for boundary improvements.

The majority of the proposed capital works are timetabled to occur in the early part of the management period. As a result the main expenditure is incurred in the first 3 year period, accounting for **70%** of the overall budget. The remaining costs, spread over seven years, are mainly ongoing maintenance costs amounting to **~£13,000** per annum.

Flexibility in timetabling the work programme to fit with available budgets will allow the spreading out of the initial costs if necessary, with works prioritised to fit with management aims.

Financial assistance in the form of woodland grants is not currently available from the traditional source of the Forestry Commission, but may become available in the future with the proposed introduction of a new woodland grant scheme. Other funding sources may be available, particularly bearing in mind the important status of the area, and opportunities to tap into these resources should be taken when these become known.

Section Two

Description

Area

The Hermitage of Braid and Blackford Hill LNR covers an area of 60.3 hectares consisting of a range of habitat types with woodland cover forming 30.9 ha (51%) of the overall area.

The other main habitats are woody scrub covering (10%), and open grassland, tall ruderal vegetation, and rock outcrops (together covering 36%) with open water, the Braid Burn and the area occupied by the Royal Observatory accounting for the remainder (3%).

Context

The resident population of Edinburgh is ~460,000. In addition to this the City plays host to 2.5 million visitors each year, mainly in the form of holidaymakers and tourists.

The LNR is located within the boundaries of two council wards, these being the Meadows/Morningside ward, and the Southside/Newington ward. The LNR also forms a western boundary with the Liberton/Gilmerton ward. The population resident within these three wards is ~98,000.

The numbers of people using the area are evident on visiting the site, and the area is clearly popular, both with local residents and with visitors to the area, and is particularly well-used in better weather conditions.

Visitor surveys were been carried out in 1986, 1987 and 1989 by the Department of Forestry and Natural Resources of Edinburgh with assessments made on the reasons for visiting, and attitudes towards the reserve. The findings of these surveys are mostly inconclusive, but they reveal that most users were frequent visitors, and that most were satisfied with the levels of provision within the reserve.

Hermitage of Braid LNR is located within a large area of designated Greenbelt land. Adjacent land to the south and east are occupied by golf courses with areas of managed woodland, grassland and scrub associated with these.

To the north and west is the built edge of Edinburgh, comprising the fringes of the Greenbank, Morningside, Blackford, and Comiston residential areas.

On the north western edge of the LNR area are garden allotments, and a field known as the Midmar Paddock which has two prominent roundel features.

To the south-west of the Hermitage of Braid is the Braidburn Valley Park. The park is located along the edge of the Braid Burn and forms a substantial area of recreational and amenity open space.

The Royal Observatory and the University of Edinburgh Kings Buildings are located to the east of Blackford Hill. Further to the east is the Inch Park and Craigmillar Castle Park.

Also lying to the east of the site is the Blackford Quarry Community Woodland area, an area of recently established broadleaf woodland and open space established on an area of restored quarry workings.

The LNR contains a number of features of interest including the Agassiz Rock SSSI, an Iron-age fort on Blackford Hill, Blackford Pond, and the Hermitage of Braid House and associated built features.

The main paths along the Braid Burn and around the base of Blackford Hill form parts of Edinburgh's proposed Core Path Network, and are also designated as public rights of way.

Two narrow strips of council owned land link the LNR area to Braid Hills Drive to the south. The easternmost link follows the line of the Howe Burn, whilst the strip to the west is known as the Lang Linn.

(Refer to Map No.2 – Context)

Woodland Context

The woodlands at Hermitage of Braid are concentrated along the edge of the Braid Burn and the basal slopes around the western and northern flanks of Blackford Hill.

The woodland areas are relatively isolated in the wider area, with built up areas to the west and north and greenbelt areas to the south and east consisting mainly of grassland and gorse scrub. The recently planted community woodland area at Blackford Quarry expands on the current woodland resource, and there is a proposal to incorporate this area within the boundaries of the LNR. Other woodland features in the immediate locality are limited to individual trees, and the Midmar Roundels located in the paddock field to the west of Blackford Hill.

An area of the mature woodland, extending to 12.3 ha, which occupies the valley of the Braid Burn, is recorded on the Ancient and Semi-natural Woodland Inventory (ASWI) as Ancient woodland of semi-natural origin.

Strategic Background

Local Biodiversity Action Plan

The Edinburgh Local Biodiversity Action Plan (ELBAP) has been prepared in partnership with CEC and other official and voluntary organisations. The plan sets out local objectives aimed at conservation of species and habitats identified in the UK Biodiversity Action Plan (1994) and others of local significance.

Hermitage of Braid and Blackford Hill features prominently in Edinburgh's Local Biodiversity Action Plan (2004-2009), containing four of the habitat types identified for action, and playing host to many of the animals and plants identified in the Priority Species List. The key habitats found within the LNR are Wetlands, Rock Faces, Semi-natural Grassland and Woodland.

Of particular relevance to this management plan are the objectives set out for Woodland habitat, these including:

- *Identify and protect existing biodiversity-rich and ancient woodland sites.*
- *Enhance and restore existing sites as appropriate.*
- *Identify resources to manage existing woodlands.*
- *Create new woodlands, prioritising new planting to extend or link existing sites, using best practice.*

- *Provide advice to land managers on protection, management and best practice for woodlands and woodland species.*
- *Raise awareness with the public and land managers about the importance and benefits of woodlands and woodland species.*

The LBAP also sets a series of objectives relating to other key habitats, and there are a number of proposals which aim to achieve specific targets.

These objectives have been considered in the preparation of this Management Plan and will be met through the works proposals

Blackford Hill has been suggested as a possible site for the introduction of a number of priority species identified in the LBAP. There is an existing programme for establishing Rock Whitebeam to expand the existing population present on Arthur's Seat to the north east. A further planting programme aims to establish Sticky Catchfly on Blackford Hill. These reintroduction programmes have been carried out in the past with limited success. The introduction of Juniper is also proposed to increase the presence of the species in the Edinburgh area and to diversify the shrub component on Blackford Hill.

The range and diversity of habitats and species found in the LNR require that proposals relating to any one specific aspect of management bear in mind the likely impacts on other aspects of the areas' biodiversity.

Local Plan Policies

The site falls within the area of the South East Edinburgh Local Plan which was adopted by the District Council in 2005. The Local Plan contains a number of policies and recommendations which apply to Hermitage of Braid and its neighbouring areas.

Plan policies include the recognition and protection of a number of designations applied to the area, including SSSI (Site of Special Scientific Interest) status, and RIGS (Regionally Important Geological Site) status, Area of Great Landscape Value, Listed Wildlife Site, and Local Nature Reserve (see Section 3 – Status).

Access Strategy

The Access Strategy for Edinburgh aims to improve functional access, with emphasis on recreational development and management.

The strategy identifies five key themes for achieving these aims and defines objectives and actions for each.

The five themes are as follows:

- Sustainable transport
- An attractive and enjoyable network
- Encouraging healthier lifestyles
- An inclusive and accessible network
- Safety and security

The management of the woodland and the access network serving these and the wider area will serve compliment and contribute towards the aims set out in the Access Strategy.

Open Space Framework

The open space framework for the City of Edinburgh sets a vision to "Deliver quality and sustainable open space for the City of Edinburgh…"

Amongst the aims of the open Space Framework are:

- The creation of a linked network of open space
- Improvements to the quality, quantity, accessibility and enjoyment of open space,
- Protection of areas of open space
- Provision of greater benefits from existing and new open spaces
- Provision of opportunities for residents to enjoy a healthy and physically active lifestyle.

Parks and Gardens Strategy

The Parks and Gardens Strategy for Edinburgh sets out a series of six goals, each with a number of objectives, for the development and management of parks and gardens located within Edinburgh.

Key objectives set out in the Strategy include:

- Ensure that cultural heritage is reflected in every parks' renewal project
- Conserve biodiversity in parks and protect ecosystems
- Promote understanding of the natural heritage
- Provide a diverse range of open spaces for recreation, relaxation and enjoyment
- Provide opportunities for physical activity in parks
- Foster participation and social inclusion by providing opportunities for voluntary and community activities
- Promote community stewardship by encouraging participation in the design and care of parks
- Create landscapes that are robust and functional as well as attractive and stimulating
- Raise the profile of parks and gardens in the context of the management of the city as a whole.

The woodland management plan aims at delivering at least in part many of the objectives set out in the Parks and Gardens Strategy.

Urban Forestry Strategy

Edinburgh's Urban Forestry Strategy is currently being updated and is at a draft stage. Actions identified under the strategy include a survey of all CEC owned woodland and the production of management plans for each.

Other actions include identification of priority management needs and the securing of funding to bring the areas under sustainable management.

The production of this management plan will contribute towards the meeting of these aims.

Forest Habitat Network (FHN)

A habitat network is a configuration of habitat that allows species to move and disperse through a landscape.

A forest habitat network focuses on how woodland species utilise woodland habitat and disperse through this and other habitat types.

The FHN for the Edinburgh area has been covered under the Edinburgh and Lothians Forest Habitat Network study produced in January 2007.

Hermitage of Braid is recorded as one of only four woodlands within Edinburgh as being of very high quality (with 8 or more ancient woodland indicator species being recorded). The woodlands are therefore of considerable significance and importance, forming a key component within the Forest Habitat Network for the area.

Other reports

A number of other reports and strategies have been commissioned by CEC specifically for the Hermitage of Braid and Blackford Hill LNR. These include an Interpretation Strategy which looked at aspects of promotion, seating and signage of the LNR and the CEC Countryside Ranger Service, and Visitor Surveys which have been carried out to assess users' attitudes and aspirations for the area.

Scottish Forestry Grant Scheme

The LNR is covered by an SFGS application (SFGS Ref: 35900100). The SFGS was approved in February 2004 and the grant payment made in April 2004 amounting to £7,200. The details of the work carried out under the SFGS are not known, but the works were implemented under the S7 Woodland Stewardship objective. This objective relates mainly to improvements to woodland recreation, with eligible works including path improvements and safety felling along path routes.

A recently established area of reclamation woodland established on the site of Blackford Quarry was planted under the Woodland Grant Scheme (WGS ref: 035001709) in 2002. Although the grant instalments will have now been paid out for the planting works, there remains an obligation to maintain the woodland to ensure full establishment until 2012 (at year 10).

Boundaries

The edges to the Hermitage of Braid and Blackford Hill LNR are demarcated by a variety of boundary features, consisting mostly of estate walls, fencelines, and metal railings.

Edges to the LNR in some cases form boundaries with adjacent private residences, with the boundary being defined by garden fencing and hedging which has replaced or re-enforced the former estate boundary features.

A survey of boundary features has been carried out by the CEC Ranger Service noting the type and condition of the various features forming the LNR boundary. Many of the boundaries are historic features, mostly in reasonable condition. Some features are noted as being in a poor state of repair with actions against these for repair work, replacement, or removal. For the most part these actions have still to be carried out.

Topography Drainage and Soils

The topography of the areas making up the woodlands at Hermitage of Braid is very varied. Blackford Hill sits at an altitude of 164m (539 feet), and is a volcanic rock outcrop shaped by the erosive forces of glaciation to produce a characteristic "crag-and-tail" formation, with steep sloping sides to the west and a more gently sloping face to the east.

The woodlands are largely located in the valley of the Braid burn and occupy the flat margins of the burn and steep sloping sides of the valley. The Braid Burn lies within the Water of Leith Catchment area, and flows directly to the Forth estuary. The section of the burn which flows through the LNR forms a generally shallow streambed with a width of ~5m, with deeper and narrower sections formed by weirs constructed in the past to serve Hermitage House.

Side drainage from the valley slopes along the Braid burn generally flows directly into the burn or is channelled by hillside drains to take a more gradual, non-erosive course to the burn.

The woodlands also extend around the base of Blackford Hill and occupy steeply sloping sections at the base of outcrop to the north, west and south. The soils on which the woodlands are located are mainly freely draining brown forest soils, with rooting depth restricted by thin covering of soil in places accompanied by outcropping rock formations. On steep slopes soil erosion and tree stability is an issue. In spite of these limitations, woodland has managed to successfully establish on loose scree slopes to the west and southwest of Blackford Hill.

The varied soil composition and landforms found within the areas has resulted in a complex hydrology within the area, which can at times be difficult to predict and manage, with drainage issues resulting.

Services

There are a number of services located within the LNR area. Water and electric services which supply the Hermitage of Braid House and stable block, and the radio masts located on the top of Blackford Hill are generally routed along the main roads leading to these features.

One large sewer follows the general line of the Braid Burn along the valley. One connection into the sewer is located to the south leading from Braid Farmhouse and down the valley slope.

(Refer to Map 3 – Features)

Woodland Types

Much of the mature woodland areas are classified as ancient woodland of semi-natural origin. In Scotland this means that the site that has been continuously wooded since 1750, and appears on map records from that date.

The woodlands have been modified by man's activity in terms of typicalness and naturalness, with the species composition and structure being altered, as is evidenced by the high proportion of non-native species present and the number of linear landscape features such as avenues.

The woodland areas are regenerating, with the developing understorey also being dominated by non-native species, in particular Sycamore and Beech.

The National Vegetation Classification system indicates that woodland types W8 (Lowland mixed broadleaf with Dog's Mercury) and W10 (Lowland mixed broadleaf with Bluebell/Wild Hyacinth) would be the most likely composition for the natural woodland occupying the site.

The current woodland composition areas at Hermitage of Braid can be categorised into 6 general woodland types:

Mature broadleaf woodland
Mature areas of policy woodland form the main component of the woodland within the LNR. For the majority of these areas, the woodland is composed of mature broadleaf woodland. The age of the mature canopy ranges from 80-150 years, with significant regeneration occurring in most areas forming a successional layer.

Mature mixed woodland
Conifers are generally absent from the mature woodland areas, or present in only small quantities in discrete areas. One notable exception is located along the eastern boundary wall feature to the north of the Scout Bridge. Here the woodland composition is still broadleaf dominated, but there are a significant proportion of mature conifers present within the woodland mix, forming features of interest and providing diversity of habitat and visual appeal.

Semi-mature mixed woodland
To the western end of the Braid Burn Valley areas of woodland have been established to expand the woodland area. These areas are composed of a mix of broadleaf and coniferous trees. A lack of thinning in these areas has, in part, resulted in instability, particularly of the coniferous element.

Semi-mature broadleaf woodland
Areas of semi-mature woodland are to be found in discrete locations within the LNR. The presence of these areas has resulted from regeneration which has taken place over a number of years, with Sycamore being the main species. These areas are located mainly around northern and western fringes of Blackford Hill, with tree growth encroaching from established areas of policy woodland into areas of Gorse domination. Left unchecked, these regenerated trees have closed canopy over areas to shade out scrub growth and form new woodland areas.

Scrub Woodland
Scrub woodland is developing on the scree slopes and quarried areas to the east and south of Blackford Hill. These areas are dominated by native broadleaves with hawthorn, blackthorn, and dog rose being the main components. Whilst some of these areas appear to have developed through regeneration, other areas have been deliberately established to as an alternative to Gorse, and to reduce the associated fire risk which Gorse presents. Tree regeneration is occurring within some of these scrub woodland areas, with Sycamore being the main component, and threatens shade out the scrub components.

Young broadleaf woodland
One area of recent planting lies on the edge of, but outwith, the formal LNR area. There are proposals to have this area incorporated into the LNR as a beneficial addition to the nature reserve. The woodland was established in 2002 as part of CEC's Urban Forest

Project and consists of broadleaf species established on the restored Blackford Quarry site to the south-east of Blackford Hill.

(Refer to Map No.4 –Woodland Types)

Key features

Geological interest

There are a number of geological features within the area which are recognised as being of geological interest.

The Edinburgh Geological Society has recently produced a leaflet highlighting the geological interest present within the area. The leaflet highlights key features to be found within the LNR area in the form of a self-guided walk around the area.

One of the main features of interest located within the LNR is the Agassiz Rock, which is also designated as a SSSI for its special significance in the development of theory on the manner and mechanisms by which the geological landscape has been influenced by the Ice Age and the presence of overlying ice sheets.

Community Interest

The Hermitage of Braid and Blackford Hill LNR has an active "Friends Group" made up of volunteers from the local community. The Friends of the Hermitage of Braid & Blackford Hill (FoHB) was founded in 1999 with the following objectives set out in their constitution.

- *To conserve and enhance the landscape, biodiversity, and sustainable use of the Blackford Hill and Hermitage of Braid Local Nature Reserve.*
- *To engage and involve the local community in environmental issues and action, through information exchange, education and practical activities;*
- *To manage diversity of access to the sites by carrying out path work, erecting signs, etc.*

The Friends Group is active in monitoring all aspects of the LNR, and is involved with a wide range of projects relating to the maintenance, management, improvement, and promotion of the LNR.

The friends produce a quarterly newsletter which is available form the Hermitage of Braid visitor centre and local libraries, and is also published online on the Friends own website (http://www.fohb.org/).

Edinburgh's Urban Forest Strategy also advocates the identification of interested groups, and to encourage their involvement in woodland management.

The CEC Ranger Service is actively involved in promotion of the LNR and engaging community interest. Hermitage of Braid House has been developed as a visitor centre for the LNR with a wide range of promotional material available, including self-guided leaflets for the area with information on the historical, geological, and ecological features of interest to be found in the area.

A number of other community groups and organisations use the reserve on a regular basis. The park is well used by local people in the area, but also caters for visitors, with car parking facilities in place at the main entry points to the west, east, and northern sides.

Landscape Interest

The area covered by the LNR is located on the built up edge of the City of Edinburgh. The valley of the Braid Burn sits low in the landscape and is screened from view from the west by housing. The valley is more visible and prominent when viewed from the east, visible as narrow ribbon of woodland along the valley.

Blackford Hill rises above the edge of the built up environment to the north, and forms a distinctive feature on the skyline when viewed form the north. The Braid Hills to the south add to the amenity of the area forming a series of rolling hills with large gorse dominated areas forming patterns on the slope. The Braid Hills screen the LNR area from distant views form the south.

The most prominent and attractive views of the LNR are available from the top of Blackford Hill itself, from which vantage point the mosaic of grassland, scrub, and woodland form a visually attractive landscape which softens the edge of the built up areas to the north and west, and blends with the adjacent open areas to the south and east.

The area around Blackford Pond forms a discrete, more formalised landscape setting with Whin dust surfaced paths, bench seating, a children play area, parkland trees and woodland areas with a dense understorey of ornamental shrubs.

The Interpretation Strategy produced recently for the LNR *(Carter et al - Hermitage of Braid Interpretation Strategy Feb 2006)* highlights the designed landscape features of the Hermitage as one of the key characteristics of the area. The landscape design built on the natural aspects of the area to enhance and maintain a sense of "rural wildness".

Built features

There are a number of man-made features present within and adjacent to the woodland areas.

- **Hermitage of Braid House**

The Hermitage of Braid has a long history dating back to the 12th century. The original building on the site was in the form of a tower house which is thought to have been positioned on the crags above the present day house.

A new estate house was erected in 1743 in its current position and was used as residence until 1938, at which time the house and estate was gifted for use by the citizens of Edinburgh. The house was at first used as a Boy Scout hostel, and then lay empty before being opened as a visitor information centre in 1979. The first floor of the house was refurbished and is now a visitor centre for the LNR, and also is the base of operations for the City of Edinburgh Ranger Service.

- **Ice house**

An ice house is located on the valley face to the south east of the Hermitage of Braid House and to the south of the Braid Burn. The ice house is positioned on the edge of one of the main woodland paths leading from the main driveway, and has an interpretation board highlighting the feature.

- **Dovecot**

To the west of the main house is a large dovecot. This building pre-dates the current Hermitage of Braid building, and may be considerably older. The dovecot has recently has restoration works carried out to secure the roof, with further renovation works proposed to restore the feature.

- **Walled garden**

The walled garden area is located around the dovecot area and is represented by sub-compartment 3e in the management plan. This area was planted to woodland but large areas have recently been partly cleared with the aim of to restoring the area to its original historic use. The walls surrounding the area are good condition and define the extent of the feature.

- **Stable block**

Also to the west of the house and located off the main driveway is a former stable block. These buildings are now used for storage of grounds maintenance materials and equipment, and also provide toilet facilities for visitors to the park. The front of the block has an area for parking intended mainly for use by CEC staff.

- **Walls**

There are a number of boundary wall features located around the LNR area. Many of these are reinforced with metal railings to restrict general access.

There are also walls located within the park. A dyke, which now lies derelict, is present on the southern edge of the Braid Burn. The wall is barely visible but is located at the top of the steep slope rising above the burn and access road.

A number of estate walls are in good repair and still form distinct edges to woodland and to pathways.

- **Historic linear features**

There are a number of indistinct linear features present within the woodland areas, some of which are adjacent to former walls, which may be remnants of the designed landscape layout for the estate house. Some appear to indicate former path routes or tracks leading uphill form the base of the valley, or along the wooded valley slopes. Others may indicate the presence of former drainage channels. These features are for the most part overgrown by woody regeneration and no longer function.

Lines of mature trees and raised banks are present and particularly noticeable in the western areas of Compartment 4. These appear to be remnants of field boundary features present when the area was still in agricultural use, and may also represent elements of the designed landscape around Hermitage House.

- **Quarry features**

To the south east of the area are exposed rock faces left over from quarrying activity. Quarrying took place on the hill from 1826 through to 1953, mainly for Andesite rock for use in road construction. One of these quarried areas was infilled and covered and has been recently planted with woodland to form Blackford Quarry Community Woodland.

- **Adit**

A small cave is visible from the main path route along the Braid Burn to the east of Hermitage of Braid House. This feature is thought to be an exploratory adit to investigate the potential for copper ore extraction in the area. The adit is located low in the valley on the northern edge of the Braid Burn.

- **Unidentified underground feature**

The entrance to an underground feature is located in sub-compartment 4b. The feature has a carved stone built entrance with a lintel caved with a date which is only partially legible (18?3). The entrance has been bricked up. This feature does not

appear to be recorded by the Royal Commission for Ancient and Historic Monuments of Scotland (RCAHMS) records.

- **Hydraulic ramp water pumps**

Two hydraulic ramp water pumps are located on the edge of the Braid Burn and the main driveway. These features date back to the Victorian era and were used to supply water to the Hermitage of Braid House. There is interest in restoring these to form an interpretive feature demonstrating how the house was previously serviced.

Archaeological Interest

The remains of the iron-age fort constructed on the summit of Blackford Hill is a Scheduled Ancient Monument (reference: - SAM 5818).

The Hermitage of Braid House is also recorded on the RCAHMS database along with other built structures including the icehouse and dovecot.

Blackford Pond is also recorded on the RCAHMS database. A curling pond was located to the west of Blackford Pond, and is recorded historic maps of the area. This feature is in an area now occupied by woodland (sub-compartment 1e)

A rifle range is known to have been located at Blackford Hill in the Victorian era. The location is shown on the first edition OS map (1855), but the precise location of the range and targets has not been confirmed on the site. A hollowed out landscape feature located on the western side of Blackford Hill is known locally as Target Hollow, and this may refer to the former use.

Other features of interest in the area, but outwith the LNR include two "hanging stones". These were the bases for the gallows used in the last public execution to take place in Scotland for highway robbery (in 1815).

(Refer to Map No. 3 – Site features; and Appendix 4 – National Monuments Records for Scotland data)

Status

The importance of the Hermitage of Braid and Blackford Hill is reflected in the number of designations carried by the area.

Area of Great Landscape Value

The LNR is located within a larger expanse of countryside which has been designated as an Area of Great Landscape Value (AGLV) in recognition of its visual amenity. The LNR forms the northern edge of the AGLV.

Designed Landscape

The Parks and Gardens Strategy for Edinburgh sets out a number of objectives for the public and privately owned parks within Edinburgh. One of the objectives set out in the Strategy is to "Portray each park's historical significance so that it is understood", and further recommends that these should include all formally identified and other designed landscapes.

The layout of woodlands and open space around the Hermitage of Braid forms part of a historic designed landscape which built on natural characteristics of the area to create a

sense of "rugged wildness". Many landscape design features are still present, with some more obvious than others. The Hermitage does not appear on the Inventory Gardens and Designed Landscapes and thus carries no formal designation.

The Hermitage of Braid Interpretation Strategy does however recognise that the area is a designed landscape feature. A research proposal to investigate the landscape design was made as part of the Hermitage of Braid Interpretation Strategy.

Local Nature Reserve (LNR)

Local authorities are empowered to designate Local Nature Reserves by the National Parks and Access to the Countryside Act 1949.

Hermitage of Braid and Blackford Hill was designated LNR by the District Council in recognition of its importance to Nature Conservation. The Act defines the expression "Nature Reserve" as...

> *"land managed for the purpose (a) 'of providing, under suitable conditions and control, special opportunities for the study of, and research into, matters relating to the flora and fauna of Great Britain and the physical conditions in which they live, and for the study of geological and physiographical features of special interest in the area, or (b) of preserving flora, fauna or geological or physiographical features of special interest in the area, or for both these purposes."*

Site of Special Scientific Interest

Agassiz Rock is the site where, in 1840, Louis Agassiz found evidence for the erosive action of ice. As a result the site is recognised as being of national importance and was notified as a Site of Special Scientific Interest (SSSI) in 1987 for its geomorphological interest.

Regionally Important Geological Site (RIGS)

Blackford Hill was designated as a RIGS (Regionally Important Geological Site) on 14th July 2000. The site is recognised as valuable geological feature in terms of its educational and interpretive potential, and for the range of interesting geological features to be found within the site.

A leaflet has recently been produced by the Edinburgh Geological Society to publicise, interpret, and promote the site.

Ancient and Semi-natural Woodland (ASW)

12.31 ha of the woodland lying within the LNR boundary are recorded on the schedule of ancient and semi-natural woodlands for Edinburgh, with the woodlands being classified as Ancient Woodland of Semi-natural origin (ASNO). There are no woodland areas recorded as Long-Established woodland of Plantation Origin (LEPO) located within the area.

Tree Preservation Orders (TPO)

The woodland areas covered by this Management Plan lie within the boundaries of the LNR. As such all the trees within the area are accorded a similar protection status as applies under a TPO.

In addition, there are two roundel features located in the Midmar Paddock fields adjacent to the LNR area which are covered by a TPO.

Listed Wildlife Site

Listed wildlife sites are part of a network of sites identified by the Council in conjunction with local voluntary organisations to give the Council a basis for protecting the city's habitat resource and securing appropriate management of these sites.

The Hermitage of Braid/Blackford Hill Wildlife site incorporates the Local Nature Reserve, further raising the status and importance of the area for wildlife, and affording the site additional protection for the site under the local authorities planning policies.

Rights of Way

Large sections of the main path network which serve the LNR are asserted Rights of Way. These include the main access drive leading form the western entrance at Braid Road, along the Braid Burn to link to Blackford Glen Road (hereafter referred to as the Braid Burn route).

The Lang Linn path is also a right of way. This route links from Braid Hills Drive northwards to the woodland edge. The right of way continues along the woodland boundary north-eastwards to link to the Braid Burn route via the Scout Bridge, a 70m bridge crossing spanning the burn.

There is also a right of way linking from Braid Hills Drive along the Howe Dean Burn to link to the Braid Burn route.

A path route around the summit of the Blackford Hill is also designated as a right of way. This route runs along the base of the hill to the west and north, past the observatory buildings to the west and follows a gentle gradient over the eastern edge of the hill. This path is hereafter known as the Round the Hill route.

Other short path sections form links approaching from the east and west from the Braid Burn route to the Round the Hill route.

Core Paths

Under the Land Reform (Scotland) Act 2003 local authorities have a statutory requirement to produce a Core Path Plan to cover its area. The deadline for producing the plan is February 2008.

The Braid Burn Route and the Round the Hill route are proposed as Core paths under the draft Core path network for Edinburgh.

Ecology

Woodland cover

Woodland cover within the LNR consists mainly of mature and semi-mature mixed woodland and occupies ~51% of the total area of the LNR.

Woodland areas are confined mainly to valley of the Braid Burn and along the western and northern edge of Blackford Hill, and are generally narrow linear features occupying steep sloping ground.

The mature woodland areas consist of large mature trees which are gradually senescing and being lost to the canopy through wind damage and safety felling operations. In most woodland areas there is a developing woodland understorey, with a varying composition dominated mainly by undesirable non-native species (Beech and Sycamore) which threatens to dominate the future woodland composition.

Semi-mature woodland areas have developed as a result of expansion planting, and through natural regeneration. Plantations have a varied composition consisting of native and non-native trees planted in species groups. Regenerated woodland is dominated by Sycamore with a few other species present as regeneration or as enrichment planting.

In some sections of both mature and semi-mature areas there are a small proportion of conifers present in the species mix adding amenity and diversity.

Veteran trees

In addition to the various woodland types present within the woodland there are also a number of individual veteran trees present in the woodland, many aged in excess of 150 years and providing valuable mature woodland habitat. Some of these veteran trees may date back to planting carried out as part of the designed landscape around Hermitage House.

An initial assessment of the veteran trees within the Hermitage of Braid woodlands was carried out in 2000, with 26 trees recorded as veterans. The criteria for inclusion related to the diameter of the trees, with those trees in excess of 90cm dbh being included in the list.

The list provides a starting point for recording of the older and most valuable trees present within the woodland area, and it is expected that many other trees located within the LNR will meet the criteria. The survey gives a rough guide to the location of these trees but is not accompanied by a map.

As may be expected with mature trees there are a number of defects recorded in the individual tree descriptions, and the list provides a good base for monitoring the health, condition, and safety of these trees.

The presence of mature trees is a significant asset to the biodiversity and character of the woodland areas, and these valuable trees should be retained and managed for as long as safely possible.

During the woodland survey carried out as part of this management plant it is evident that there are many other candidate trees which could be described as veterans, and more comprehensive mapped survey would be appropriate to identify and safeguard these features.

Gorse areas

One of the main habitats present within the LNR is Gorse scrub, which occupies much of the more inaccessible and craggy slopes on Blackford Hill.

The Gorse forms impenetrable thickets, providing valuable shelter and habitat for wildlife, as well as forming attractive and colourful feature on the hillside.

Paths leading up the hill form corridors through some of the Gorse areas, and the Gorse acts to foreshorten views and break up the uniformity along these routes.

Gorse areas on the steep slopes on the western face of Blackford Hill are extensive and long-established. Some areas have been rejuvenated following fires whist others are aged 20 years or more and form tall dense stands.

Gorse areas on the more shelving northern slopes of the hill form smaller and more broken groups, with pathways routed through many of these areas. These areas are more accessible in terms of management, but are also more susceptible to fire-raising.

Gorse cover is expanding on Blackford Hill to the point where its encroachment is a concern in terms of the retention of the attractive and valuable grassland habitats present on the hill.

Gorse areas themselves are being encroached on by tree regeneration from the base of the hill and are being lost to woodland cover.

One of the main drawbacks to the extensive areas of Gorse is the fire risk these pose. Fires started in Gorse areas can spread rapidly destroying substantial areas of valuable grassland habitat and killing wildlife. Recovery of fire-effected areas is slow and often undesirable species and tall ruderal vegetation colonises forming untidy and unattractive patches on the hill.

Older, long established Gorse areas are more vulnerable to fire than young Gorse as these have drier woody stems and an accumulation of dry litter gathered below the canopy. Young Gorse is less woody and more difficult to set alight.

Gorse also restricts access across areas of the hillside. They offer a valuable wildlife refuge as a result. One of the species taking advantage of the cover is rabbits which are prolific in the area. This is a drawback in terms of woodland management as rabbits have a detrimental effect on tree planting and regeneration, and protection of trees with shelters is often necessary as a result.

Grassland

Grassland forms an important and valuable habitat over an extensive area on the top and eastern slopes of Blackford Hill. These open areas are composed of large expanses of unimproved and semi-improved herb-rich grassland.

The grassland areas provide areas of unimpeded access onto Blackford Hill reaching all the way to the summit. Over the years a number of informal paths have developed across the hill in the form of well worn tracks. Erosion resulting from pedestrian traffic is a concern on some of the steeper routes, and in a few areas geotextile has been employed to restore and protect the worst affected sections.

The nature of the grassland is to form a short sward which is maintained in check by rabbit grazing and pedestrian traffic.

The extent of the grasslands on Blackford Hill is slowly being reduced as a result of tree and scrub encroachment, and management action is required to restrict the gradual change in habitat and to maintain these areas.

Ground Vegetation

The ground vegetation represented within the LNR area is diverse and varies dependant on the absence of, or presence and nature of, tree and shrub layers, as well as soil and topographic conditions.

Woodland areas consist of communities of native woodland flora, along with some areas dominated by invasive non-native species, and areas lacking in ground cover as a result of canopy shading from the tree and shrub layers.

In open areas, mainly associated with the more gently sloping eastern face of Blackford Hill, the ground vegetation consists of an herb-rich acid and neutral grassland which forms an attractive sward composed of fine grasses and native wild flora. This section of the hill is subject to a large amount of human traffic and an extensive network of pathlines has been worn through the grass sward, resulting in erosion.

An open area of grassland located near the western entrance to the LNR has been managed as a wildflower meadow, with enrichment sowing of wildflower seed and a seasonal mowing regime.

Areas dominated by Gorse scrub support little in the way of ground vegetation.

Section Three

Recent Management

The Management Plan covering the LNR was produced in 2000, encompassing the period for 2000-2009. Since its adoption, a range of works have been carried out to implement the proposals set out in the Plan.

A record of the works carried out has been kept updated by the CEC Ranger staff. The records give an indication of the range of works being carried out both by the ranger service and by the Friends group, with the works including the following operations:

Woodland management

- Woodland thinning
- Sycamore removal
- Thinning of sycamore regeneration and blackthorn in scrub areas
- Pruning and rejuvenation of laurel in the Blackford Pond area
- Laurel clearance and management
- Drain and burn clearance
- Creation of Wet Woodland area with seating, paths, signage
- Removal of Elm affected by Dutch Elm Disease (DED)

Scrub management

- Gorse management
- Fire control
- Enrichment planting

Access management

- Path and road repairs
- Bridge and step repairs
- Signage and interpretation

Vegetation management

- Grassland Management
- Monitoring of grassland areas for signs of improvement/ degradation
- Monitoring of other flora and fauna
- Control of ruderal vegetation
- Control of himalayan balsam
- Control of other invasive species
- Dog fouling control measures

Other Works

- Litter clearance
- Pond management
- Hedgerow management
- Removal of graffiti
- Remedial works to historic buildings
- Inspection and maintenance of built structures

Woodland Management

There is little recorded information relating to woodland management prior to the adoption of the Hermitage of Braid & Blackford Hill Management Plan for the LNR in 2000.

Woodland management is only one of a wide range of aspects of which is covered by the Management Plan. The level of detail recorded is limited, but does provide some information on previous works, the effects of which are visible on the ground.

The objectives set out in the Management Plan for the LNR are as follows:

- *To ensure that the woods have a diversity of age structure and species composition with a shift towards enhancing native stock over naturalised/introduced species*
- *To retain the landscape design features of the woodland*
- *To ensure the woodland is kept in a safe condition*
- *To maintain the current woodland area cover*
- *To conserve the woods as a habitat for native flora and fauna.*

In terms of the works relating purely to woodland management, there have been a number of proposals implemented since 2000.

The woodlands contain a number of Elm trees, and these have been subject to an annual cull of diseased trees to control Dutch Elm Disease.

Trees adjacent to paths and roadsides have been subject to tree surgery operations primarily for safety reasons. A limited number of larger trees have been felled in the past, most likely to safeguard the public, with large stumps evident and in some cases with the felled timber left in place as deadwood habitat.

Some woodland clearance works have recently been carried out to restore the historic setting around the dovecot feature.

Thinning operations have also been carried out to open up woodland areas, with non-native species targeted, and enrichment planting of native trees carried out.

Woodland scrub management in the form of Laurel removal and control has taken place to improve the amenity and biodiversity of woodland areas.

The works have generally been small scale and limited in extent, aiming to restrict the impacts on the amenity, landscape and recreation value of the woodlands, whilst producing a gradual change towards achieving the management objectives for the area.

Scrub Management

Extensive areas of Gorse form the main component of scrub habitat within the LNR. These areas generally occupy steeper, less accessible slopes of Blackford Hill. The Gorse forms a buffer between grassland on the top of Blackford Hill and woodlands located around the base of the hill.

Scrub management works have taken the form of pruning along major path routes, and the cutting of firebreaks through areas.

In addition, enrichment planting has been carried out to introduce woody scrub species, such as Guelder Rose, Dog Rose, Hawthorn and Blackthorn, for diversity, to improve the manageability of the scrub habitat, and to reduce fire risk.

Access Management

There is an extensive path network established within the LNR with a variety of path types forming a hierarchy ranging from tarmac roads through to grass paths and desire lines.

The paths are long-established and popular routes which are monitored on a regular basis, with repairs carried out when required. Some path routes are showing signs of degradation, and major re-instatement works on badly affected sections will be required in the near future.

Access related structures such as bridges and steps are also monitored and have been repaired or replaced where necessary.

Entry boards, waymarkers, and interpretation signage have been installed within the LNR marking the main path routes through the area and highlighting path features. In addition the production of self-guided leaflets has provided an interpretive and educational resource for visitors. The leaflets were produced by the Friends of Hermitage of Braid and part funded by SNH, and are available from the visitor centre.

Vegetation Management

Non-woodland habitats such as grassland and ruderal vegetation are monitored on a regular basis. The extent of grassland management is limited with the aim being to preserve the large areas of semi-natural vegetation in an undisturbed state.

A variety of surveys has been carried out to record and monitor the presence and extent of flora and fauna present within the LNR.

One of the main features of vegetation management concerns the control of invasive plant species.

Within the LNR there are a wide range of plant species, many of which are non-native introduction to the area. Most are restricted in terms of location and numbers and provide features of interest of minimal concern in terms of their negative impacts on biodiversity. Some species, however, are highly invasive and have a significant negative impact on the area.

In particular the presence of three main pest species are a current concern within the LNR, these being Giant Hogweed (*Heracleum mantegazzianum)*, Himalayan Balsam (*Impatiens glandiflora*), and Japanese Knotweed (*Fallopia japonica*). All three are designated as notified weed species, with an obligation placed on landowners to implement control measures and eradicate them. Treatment programmes have been carried out in the past which have only been partially successful.

The main areas affected by these three species tend to be wet and damp habitats within the woodlands and along the edge of the Braid Burn. In more recent times the spread of Himalayan Balsam has extended to colonise areas of drier slopes on the edges of Blackford Hill through Gorse areas and into the acid grassland sward.

The occurrence of Giant Hogweed in the LNR varies each year and the number of individual plants can be high. These are normally sprayed glyphosate, but re-colonisation occurs and the plant remains a problem.

Himalayan balsam has been allowed to grow unchecked until 1998, when initial steps were undertaken to control its spread. Sites containing the plant were identified, and some clearing took place. This policy was more thoroughly enacted in 1999, with all main areas affected being cut and hand picked.

Japanese Knotweed has a limited and fairly well defined distribution. In 1998 and 1999, individual plants were repeatedly cut. Since then the species has been fairly well confined to patches along the edge of the Braid Burn. This remains a concern in terms of its potential for rootstock to be carried to other areas through the erosive action of the watercourse, and total eradication from these areas should be aimed for. Knotweed is also present along the main drive, and within the wet woodland area (shared boundary with CEC Midmar Allotment) on the northern edge of Blackford Hill, and is a continuing problem.

In addition to these three main pest species, a further introduction has been recently reported within the woodlands along the Braid Burn. One patch of Salmonberry (*Rubus spectabilis*) was noted as having established on the edge of the Braid Burn in compartment 3c. This species is also an invasive non-native species, and can spread rapidly to become a major problem in woodland areas. The current extent of the Salmonberry is limited to one recorded patch, and has now been removed at this stage to avoid future issues.

Other Works

Litter clearance is an ongoing operation carried out on a regular basis by Countryside Ranger staff and also by the FoHB group and other volunteer groups, with clean-up events organised throughout the year to tackle accumulated material. A co-ordinated approach in organising burn clean-ups is now in place with the Friends of Braid Burn Valley Park, as their park is upstream the LNR.

Management to improve the Blackford Pond has included the placement of bales of straw to tackle the problem of algal blooms, and the creation of an island in the centre of the pond to provide a nesting platform and safe roost for waterfowl.

Removal of graffiti from rock faces has been carried out periodically, but incidences still occur, particularly on the exposed quarry faces to the south of Blackford Hill.

Remedial works to historic buildings have included the development of the visitor centre and ranger headquarters at the Hermitage of Braid and recent restoration works to the dovecot.

The occurrence of fly-tipping appears to be limited with little evidence of this activity, although some debris was noted on the south-western slope of Blackford Hill amongst dense Gorse.

Section Four

Woodland Descriptions

Compartments and Sub-Compartments

The areas making up the LNR have been divided into sub-compartments under previous management documentation. These also tally with previous applications for grant funding. For the sake of simplicity, consistency and to enable cross-referencing, the same sub-divisions have for the most part been used for this woodland management plan.

Minor alterations have been made to compartment boundaries to better incorporate woodlands of similar types into the same sub-compartment units.

In addition a number of new sub-compartments have been identified, with one area sub-divided to reflect woodland areas of differing types, and new sub-compartments allocated to areas where woodland has developed through regeneration into adjacent scrub areas and established a tree canopy.

The compartments and sub-compartments, and their component habitat types are summarised in the following table:

Compartment	Sub-Compartment	Area (ha)	Main Habitat
1	a	0.14	Mature broadleaf woodland
	b	0.45	Mature broadleaf woodland
	c	0.57	Mature broadleaf woodland
	d	0.13	Mature broadleaf woodland
	e	0.14	Mature broadleaf woodland
	f	1.11	Open water
		2.55	
2	a	27.25	Grassland
	b	0.62	Semi-mature mixed woodland
	c	0.39	Semi-mature broadleaf woodland
	d	1.72	Semi-mature broadleaf woodland
	e	2.32	Semi-mature broadleaf woodland
	f	3.02	Scrub woodland
	g	0.89	Semi-mature broadleaf woodland
	h	0.45	Mature broadleaf woodland
	i	1.10	Semi-mature broadleaf woodland
	j	0.91	Scrub woodland
		38.67	
3	a	2.49	Mature mixed woodland
	b	0.89	Mature broadleaf woodland
	c	1.13	Mature broadleaf woodland
	d	0.58	Mature broadleaf woodland
	e	0.62	Mature broadleaf woodland
	f	1.40	Mature broadleaf woodland
	g	1.07	Open parkland
		8.19	

Compartment	Sub-Compartment	Area (ha)	Main Habitat
4	a	0.24	Mature broadleaf woodland
	b	1.67	Semi-mature mixed woodland
	c	1.12	Semi-mature mixed woodland
	d	0.74	Semi-mature mixed woodland
	e	0.84	Mature broadleaf woodland
	f	2.16	Mature broadleaf woodland
	g	0.29	Mature broadleaf woodland
	h	1.97	Mature broadleaf woodland
	i	0.63	Mature broadleaf woodland
	j	1.24	Mature broadleaf woodland
		10.90	
	Total Area	**60.31 ha**	

Outwith the current site boundary there are woodlands which are closely linked of the LNR. One is an area of young community woodland located on the eastern edge of the site planted on the restored site of Blackford Quarry.

Blackford Quarry Community Woodland is owned and managed by the City of Edinburgh Council, and there are proposals to incorporate this area into the LNR area.

The woodland has been surveyed and described within this Woodland Management Plan as a separate woodland feature with a view to the potential incorporation of the area within the LNR management unit as a new compartment.

There are also two small roundels located within the Midmar Paddock west of Blackford Hill.

These features are located on one of the main access paths leading into the LNR site and are prominent and attractive features. These areas do not fall within the boundary of the LNR or under the council ownership, and are therefore not considered under this Woodland Management Plan.

The areas covered by these features are as follows: -

	Area (ha)	Main Habitat
Blackford Quarry Community Woodland	3.15	Young broadleaf woodland
Midmar Roundel R1 – (west)	0.09	Mature broadleaf woodland
Midmar Roundel R2 – (east)	0.11	Mature broadleaf woodland

In terms of the woodland composition present within the LNR, the following table gives a breakdown by woodland types: -

Main Habitat	**Area**	**%age**
Mature broadleaf woodland	13.87	40.8
Mature mixed woodland	2.49	7.3
Semi-mature broadleaf woodland	6.42	18.9
Semi-mature mixed woodland	4.15	12.2
Scrub woodland	3.93	11.5
**Young broadleaf woodland*	*3.15*	*9.3*
	34.01 ha	**100%**

** currently outwith LNR area.*

(Refer to Map No. 4 – Compartments)

Compartment Descriptions

Compartment 1

General information

Extent	Compartment 1 covers an area of 2.55 ha.
Location	The areas making up compartment 1 are centred on the Blackford Pond are located in the north-western corner of the LNR, on the south side of the Cluny Gardens Road. The Midmar allotment gardens are located to the southwest of the compartment.
Type	Mature broadleaf woodland with some open water.
Description	The woodlands are primarily mature policy features. Blackford Pond is an open water body and has been allocated a compartment number for identification and management purposes.
Access	The woodland areas can be accessed from Cluny Gardens. A formal gated park entrance is located to the east of Sub-compartment 1a, with some car parking available for visitors. Pedestrian access into the compartment can be taken through metal gates located at the eastern and western ends of Blackford Pond.
Status	The compartment forms part of the LNR area and is therefore also a Listed wildlife site.
Soils and Drainage	The area consists of humic gley soils derived form glacial till. The area occupies a gently north facing slope which drains to the south into Blackford Pond. There are few other water or drainage features present other than cast-off bars safeguarding path routes.
Sub Cpts	There are 5 sub-compartments making up compartment 1. These are divided mainly according to location, and habitat type.

Sub-Compartment 1a

Area	0.14 ha				
Type	Open space and parkland				
Description	This sub-compartment is located to the north east of Blackford Pond. The area consists primarily of a recreational area composed of a children playground and short mown grass. Five trees have been established at intervals in the grass sward as parkland trees.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
				Whitebeam Elm Sycamore	

				Lime	
Age	Trees are aged ~50-60 years.				
Height	Trees heights range from 12-14m.				
Size	Stem diameters vary from 40-55cm.				
Condition	All trees appear healthy with no signs of previous tree surgery works.				
Coverage	There are no woodland areas. Open grass space occupies ~80% of the area with tree cover with a children park area occupying the remainder.				
Stocking	Trees are spaced at ~10-12m apart (100/ha).				
Canopy	The tree canopy is ~60% with a dappled shade being cast over the area.				
Understorey	There is no understorey or shrub layer.				
Shrub Layer	n/a				
Natural Regeneration	n/a				
Deadwood	None				
Ground Vegetation	Maintained amenity grass.				
Constraints	None known.				
Special Features	The trees have all been tagged (i.e. identified with numbered discs or plates which is often done when trees are individually mapped and surveyed)				
Recreational Use	The area is used primarily as a play and picnic area and caters well for young family groups				
Outline Proposals	• Continue to maintain area as amenity parkland • Establish a dense screening hedge along roadside fence to reduce the impact traffic noise. • Carry out baseline tree survey and monitor parkland trees				

Sub-Compartment 1b

Area	0.45 ha
Type	Mature broadleaf woodland
Description	Sub-compartment 1b is a narrow wedge of woodland located to the north of Blackford Pond, which widens out to the west forming a more substantial woodland feature.

<table>
<tr><td></td><td colspan="5">The woodland consists of mature Ash and Sycamore aged 60-80 years, with a large proportion of Whitebeam also present forming the canopy.
As the strip widens out Whitebeam, Sycamore, Birch and Ash are present forming a shelterbelt strip along the rear of adjacent housing to the north.

The woodland forms an important buffer between the Blackford Pond area and the roads and housing to the north, and is an effective screen for the built environment and the traffic noise.

A formal tarmac path along the northern edge of Blackford Pond defines the southern boundary of the area. To the north the woodland edge is defined by the garden and boundary fences of adjacent properties on Cluny Gardens.

Along the eastern edge of the sub-compartment is a tall Holly avenue feature, with some suckering forming an understorey layer. On the roadside fence to the rear of the hedge is some Snowberry which is suppressed and shaded.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td>Sycamore</td><td>Birch
Whitebeam
Ash
Holly
Laurel</td><td>Yew
Snowberry</td><td>Box
Laburnum</td></tr>
<tr><td>Age</td><td colspan="5">60-80 years.</td></tr>
<tr><td>Height</td><td colspan="5">Tree height ranges from 15-18m.</td></tr>
<tr><td>Size</td><td colspan="5">Tree diameters range form 15-50cm.</td></tr>
<tr><td>Condition</td><td colspan="5">Trees appear to be in good condition and health, although light competition has resulted in many tall and slender stems.</td></tr>
<tr><td>Coverage</td><td colspan="5">Woodland forms 100% of the land cover within the sub-compartment.</td></tr>
<tr><td>Stocking</td><td colspan="5">Trees within the woodland are closely spaced at a variable spacing of 2-3m (~1600 stems/ha).</td></tr>
<tr><td>Canopy</td><td colspan="5">The woodland is relatively densely stocked and canopy cover is complete.

To the west of the area competition for light has resulted in edge trees being forced out in search of canopy space. Edge trees have developed long arching branches which extend over the adjacent path routes. Some dead branchwood was noted in the crowns of some of these trees.</td></tr>
<tr><td>Understorey</td><td colspan="5">There is little in the way of a developing understorey.</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">The woodland supports a dense shrub layer consisting mainly of</td></tr>
</table>

	Laurel and Holly with some Elder. The shrub layer has been recently brought into management involving the cutting back and continued trimming of individual shrubs which are maintained at a height of (~1 to 1.5m). This treatment extends from the path edge to the rear boundary.
Natural Regeneration	Some Ash regeneration is present particularly along narrower eastern portion of the woodland.
Deadwood	Deadwood consists mainly of small diameter fallen branchwood, with an occasional dead standing tree left for habitat value.
Ground Vegetation	The woodland floor is largely bare of vegetation below the dense canopy layer, with some Nettles, Small Willowherb, Feverfew and Herb-Bennet present and mainly on the open fringes of the wood. Ivy is also present forming dense patches in places, and spreading onto mature trees with heavy infestation in some cases.
Constraints	The woodland forms a valuable screen, but there are clearly some concerns over the limited visibility into the woodland edge from the pondside in terms of children safety.
Special Features	There are no special features of note within the woodland.
Recreational Use	The woodland is not used for recreational purposes, but is located on the northern edge of the formal path which borders Blackford Pond.
Outline Proposals	• Lightly thin area to reduce competition. • Manage Laurel and retain screening effect. • Carry out tree survey of edge trees along paths and external boundary. • Carry out remedial works arising from tree survey.

Sub-Compartment 1c

Area	0.57 ha				
Type	Mature broadleaf woodland				
Description	This sub-compartment forms a triangular woodland feature edged by formal path routes providing access into and through the Blackford pond area. The woodland occupies a gentle south-facing slope to the north of the pond. The mature canopy is composed of Ash and Sycamore with some whitebeam and birch trees. Some Elm coppice is present.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Sycamore Ash Elder	Birch Whitebeam Elm	

Age	Mature trees within the woodland range from ~70-120 years. A younger understorey is also present aged 30-40 years.
Height	Canopy height is ~20m with trees ranging form 16-20m in height.
Size	Stem diameters range from 35-100cm.
Condition	The mature canopy shows signs of senescence and a number of large trees have been lost to the canopy forming gaps colonised by tree regeneration and shrub growth. Squirrel damage is notable on younger trees. In addition light competition has led to the development of tall and slender stems with a number leaning towards canopy gaps.
Coverage	Woodland occupies ~85% of the compartment area, the remainder being open space made up of path routes, verges and clearings and a small felled area in the southwest corner.
Stocking	Stocking is ~900 stems /ha.
Canopy	Canopy cover is almost complete with only a few small gaps present.
Understorey	A younger understorey is developing in a few areas of the woodland composed of Birch, Sycamore and Holly.
Shrub Layer	The woodland shrub layer is composed of Laurel and Rhododendron, with some Holly, Cotoneaster and Privet. Laurel and Rhododendron bushes have been pruned back from the path edge to the south, with no shrub management being carried out beyond this fringe.
Natural Regeneration	There is a little regeneration occurring with the woodland, with Ash and Sycamore being the main species.
Deadwood	There is a significant quantity of fallen deadwood, particularly towards the centre of the area.
Ground Vegetation	Ground cover within the woodland consists mainly of Ivy which is prolific and is growing into the crowns of a number of mature trees. Some Herb-Bennet, Ferns, and Brambles are also present.
Constraints	The mature canopy is old and senescing with signs of wind instability evident. Some mature trees are leaning. Additional weight of Ivy growth in some of the tree crowns will be increasing the sail effect of the mature crowns.
Special Features	There is an open area in the southwest corner of the sub-compartment which possibly represents a group felling of trees for safety purposes. The area has colonised with tall ruderal vegetation with a sparse cover of regenerating trees and shrubs made up of young Elder, Sycamore, Laurel and Holly.
Recreational	This section of woodland is a relatively quiet and undisturbed area

Use	with no formal access within the area. There are a number of informal paths leading into the area which are difficult to walk as a result of dense vegetation and fallen timbers. The woodland is bordered on all sides by formal paths providing circular walks within the Blackford Pond area. The whinstone paths forming the northern and western edges of the area are ~3m wide, with grip drains and edging formed by stone setts. An interpretative feature is located in a maintained grassy clearing on the edge of the woodland in the northwest corner. The feature consists of large boulders in a circular setting of stone setts. This feature is highlighted in the self-guided leaflet produced by the Edinburgh Geological Society with the boulders being erratics deposited during the Ice Age. The grassy clearing also has three bench seats in need of maintenance and a small formal shrub bed feature with a single flowering Rhododendron in the centre. The area is fringed by a narrow strip of tall ruderal vegetation consisting of Nettles and Willowherb.
Outline Proposals	• Lightly thin area to reduce competition • Manage Laurel and retain screening effect • Carry out tree survey of edge trees along paths and external boundary • Carry out remedial works arising from tree survey • Maintain bench seats

Sub-Compartment 1d

Area	0.28 ha				
Type	Mature broadleaf woodland.				
Description	Sub-compartment 1d forms a narrow triangular woodland strip located on the eastern boundary of the adjacent bowling green. The strip lies to the west of the surfaced path route leading from Cluny Gardens to the main path around the base of Blackford Hill. The woodland consists of an avenue of mature trees to the north which widens out to the south to a narrow shelterbelt. The woodland composition consists of mature sycamore and elm with some younger Ash. Some mature Willows are present to southern end of path. Large mature edge trees are present along the edge of housing and the bowling green to the west.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Sycamore Ash	Willow	

			Elm		
Age	Mature trees are >100 years of age with some younger Ash aged 40-70 years also present.				
Height	Tree height is ~18m.				
Size	Tree diameters range from 40-100cm.				
Condition	Mature trees are gradually senescing with some crown deadwood evident. Breakages are evident to the southern end of the area with large Willow and Ash trees affected. Some trees show signs of minor stem damage along the path edge.				
Coverage	The sub-compartment is occupied completely by woodland.				
Stocking	The trees are at a wide spacing with a stocking density of ~300/ha.				
Canopy	Canopy cover is ~75% with gaps resulting from recent selective felling of mature boundary trees. Canopy gaps are dominated by patches of tall ruderal vegetation and elm coppice.				
Understorey	The woodland understorey is represented by Elm coppice mainly to the south of the area where the strip widens.				
Shrub Layer	The shrub layer consists of Holly, Laurel, and Elder and has been pruned and shaped along the path edge in the past.				
Natural Regeneration	There is little natural regeneration present within the area				
Deadwood	Some deadwood from felling operations has been left on site forming habitat piles.				
Ground Vegetation	Ground vegetation along the avenue strip consists of Nettles with Thistles, Foxgloves and Feverfew also present.				
Constraints	The woodland is located on the boundary with an adjacent ownership and forms a strip along a public footpath.				
Special Features	Some recent selective tree felling has been carried out in the strip, possibly for safety purposes and DED control. The woodland area is relatively accessible for management purposes.				
Recreational Use	A path route linking from Cluny Gardens to the Blackford Pond circular path and to the Round the Hill route forms the eastern edge of the area. The path is whinstone surfaced, three metres wide, forms part of the network of recreational paths within the Blackford Pond area and is accessible for management purposes.				
Outline Proposals	• Mature trees along the main path sides should be surveyed and monitored for safety purposes. • Carry out remedial works arising from tree survey. • Manage Laurel and retain screening effect				

	• Carry out enrichment planting to maintain avenue feature.

Sub-Compartment 1e

Area	0.14 ha				
Type	Mature broadleaf woodland				
Description	This area of woodland is an attractive and well thought out area recently developed as a wet woodland area with the Friends Group in partnership with CECCRS, Lothian Conservation Volunteers, BTCV and SNH. This area was formerly a curling pond and is clearly marked as such on historic maps of the area. The woodland consists of a mature canopy with and semi-mature trees forming an understorey.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Ash Sycamore Elder Elm	Hawthorn	Pine Poplar Gooseberry
Age	Mature trees are aged ~100-150 years. Semi-mature trees are aged ~30 years				
Height	~20-22m				
Size	The diameter of mature canopy trees ranges from ~60-120cm. Trees forming the understorey layer range from 10-30cm.				
Condition	A number of mature trees are showing signs of deterioration with a number of dead and broken limbs evident and some dieback noted. Younger trees are generally healthy although some Squirrel damage was noted.				
Coverage	Woodland cover is 100%.				
Stocking	~1000 stems/ha				
Canopy	The wet woodland has a diffuse canopy of mature trees with regeneration mainly of Sycamore and Ash forming an understorey layer. The canopy casts a dappled shade within the area and supports a diverse ground flora.				
Understorey	Understorey is formed by Sycamore and Ash aged ~30 years forming part of the canopy in the area.				
Shrub Layer	Shrub species present include mature Hawthorn, Elder, and some Gooseberry and Honeysuckle.				
Natural	There is natural regeneration of Ash and Sycamore present aged 5-				

Regeneration	30 years
Deadwood	Standing deadwood is present in the form of high stumps and a few logs and branchwood forming habitat piles.
Ground Vegetation	Ground vegetation includes Ground Elder, Nettles, Herb-Bennet, with Honeysuckle and Ivy also present, and wetland vegetation including Monkey Flower and Iris. Some Ivy growth is present on mature trees.
Constraints	Sections of the boardwalk are under water during wet periods.
Special Features	There is a large mature exotic pine tree on southwest boundary next to allotments forming a feature. One very large poplar is located at the end of boardwalk, and a large Willow with large standing dead stems present, retained for deadwood habitat.
Recreational Use	A short path with boardwalk sections leads through the area to features of interest and interpretation boards have been placed at the main entrance and at intervals along the path near features of interest. Pathside furniture and boardwalks are constructed from recycled plastic materials. A new kissing gate and field gate have been installed to provide for public and management access into the area. A recently fallen tree in 2d has knocked down a section of the southern boundary wall. The stonework has been recovered with a view to repairing the wall, but their may be an opportunity to use the gap to form an alternative access into 1d and form a loop path.
Outline Proposals	• Tree safety survey required. • Carry out safety felling and tree surgery requirements form survey. • Carry out remedial works arising from tree survey. • Investigate creation of a loop path. • Eradicate Japanese Knotweed patches. • Future management of the wet woodland areas should aim to reduce and eventually remove Sycamore and other exotic tree species, replacing these with native wet woodland tree species such as Birch, Willow, Alder, Ash and possibly Aspen.

Sub-Compartment 1f

Area	1.06 ha
Type	Open water
Description	Open water with a narrow fringe of tree features, sparse in places,

<table>
<tr><td></td><td colspan="5">particularly along the tar path on the northern side of the pond.

Trees present include Willow, Alder, Sycamore and Ash aged ~30-50 years with a few older individuals present.

Along the northern edge of the pond there are a few patches of tree growth established on the pond edge. These form attractive features which help to frame views onto the pond, and are sufficiently sparse to allow filtered views through to the water.

A more mature wooded fringe is present along the southern edge of the woodland. The trees are established on a narrow strip of pond sediments, and many trees are leaning north over the pond, some at precarious angles.

The pond has an island feature which apparently is a replacement feature recently constructed with assistance from a local business. The island supports some tree growth with Willow, Alder and Birch established.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td></td><td>Alder
Sycamore</td><td>Willow
Birch
Ash</td><td></td></tr>
<tr><td>Age</td><td colspan="5">A wide range of age classes are represented from young regeneration and suckers through to mature veteran trees. The bulk of the trees on the pond margins are 30-40 years old.</td></tr>
<tr><td>Height</td><td colspan="5">Tree heights vary but are generally ~8-12m</td></tr>
<tr><td>Size</td><td colspan="5">Most trees have stem diameters range from 10-25 cm</td></tr>
<tr><td>Condition</td><td colspan="5">The trees appear healthy although some trees growing on unconsolidated silts show signs of instability.</td></tr>
<tr><td>Coverage</td><td colspan="5">Woodland occupies ~5% of the area, primarily as a narrow wooded section on the southern edge of the pond. The remaining areas are composed of open water and access routes.</td></tr>
<tr><td>Stocking</td><td colspan="5">The trees around the pond form a partial canopy which is relatively dense along the southern edge and more open and filtered along the northern edge.</td></tr>
<tr><td>Canopy</td><td colspan="5">Tree canopy cover is ~20% over the area.</td></tr>
<tr><td>Understorey</td><td colspan="5">None</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">None</td></tr>
<tr><td>Natural Regeneration</td><td colspan="5">None</td></tr>
<tr><td>Deadwood</td><td colspan="5">There is a limited amount of deadwood present in the silt sediments and floating around the margins of the pond.</td></tr>
</table>

Ground Vegetation	None
Constraints	The overriding management aim in this sub-compartment will be determined by the needs of the pond habitat in maintaining and enhancing this feature for amenity and wildlife benefits. Management access for tree work is limited by the pond, and by the presence of a wall with tall metal railings on the southern edge separating the pond area from the adjacent path.
Special Features	Blackford Pond is the main feature within the area. The presence of trees is a welcome enhancement to the pond. One mature veteran Willow is present on the southern edge of the pond aged >120 years with a splayed, multi-stemmed growth form.
Recreational Use	The paths around the pond are popular. There are a large number of bench seats in place around the northern edge for the pond. These are popular at lunchtimes for picnicking. Interpretation boards are present along the path on the northern edge of the Blackford Pond.
Outline Proposals	• Monitor trees on southern edge for tree safety and stability.

Compartment 2

General information

Extent	Compartment 2 covers an area of 38.67 ha.
Location	Compartment 2 consists of Blackford Hill and the Blackford Quarry areas of the LNR. The compartment covers the main eastern section of the LNR.
Type	Mainly open grassland and scrub areas, with some semi-mature broadleaf and mixed woodlands located on the fringes to the north, west and south.
Description	The woodland areas are generally confined to the lower slopes of Blackford Hill but are encroaching gradually to occupy increasingly elevated sections of the slope. Woodlands along the northern edge of the hill are located on more gently sloping ground with deeper soils present, compared with those to the west and south. The woodlands located around the western and southern flanks of the hill are established on steeper slopes consisting of thin soils and scree slopes. To the south the woodland areas are more sparse and scrubby in nature and have largely regenerated on areas of formerly worked as quarries. The woodlands vary in nature, but are mainly semi-mature regenerated woodland, although some mature policy woodland features and riparian woodland types are also represented within the compartment.
Access	There is an extensive network of formal and informal paths present on Blackford Hill. Woodland paths link into the formal network of paths around the base of Blackford Hill and are generally surfaced. These paths are designed mainly for pedestrian use and are mostly unsuitable for woodland management purposes. The paths are steep in places with step sections present to negotiate gradients. For management purposes, access is available for machinery around the base of the hill and the upper edges of some of the northern woodland areas can be accessed by tractor.
Status	The area is part of the LNR. The Roman Hill Fort on Blackford Hill is a Scheduled Ancient Monument (SAM).
Soils and Drainage	Soils consist of free draining brown forest soils derived from glacial till and erosion of the volcanic rock outcrops. To the west the valley side is in the form of a generally continuous and gradual slope. To the east the valley sides are steeper drop-offs, outcropping rocks and areas of limited soil depths.

Sub Cpts	There are 10 sub-compartments making up compartment 2. These are divided mainly according to location and habitat type.

Sub-Compartment 2a

Area	27.25 ha				
Type	Grassland and Gorse scrub				
Description	Compartment 2a is composed primarily of semi-improved herb rich acid and neutral grassland areas. These areas form a short tightly-knitted sward which is kept in check by a combination of grazing by rabbits (of which there is a high population in the locality) and pedestrian traffic. Some areas are left rough for diversity and amenity. The sub-compartment also comprises large areas of dense Gorse thicket. The Gorse occupies steep upper craggy sections of the hill to the west, and is gradually expanding along the lower slopes to the north and south, taking over areas of grassland sward. Woodland presence within the area is limited. There is a gradual expansion of woodland cover into the area as a result of natural regeneration. This expansion is occurring form existing woodland edges with trees seeding and establishing primarily Gorse dominated areas and unmown grassland areas. The main regenerating tree species is Sycamore with some Ash. A limited amount of amenity tree planting has taken place on the hill in the form of standards. Rowan and Whitebeam are the main species. A few scattered trees are present on the northern edge of the area. Some of these trees appear to have been deliberate introductions as amenity feature trees, with Rowan, Birch, Whitebeam and Crab Apple noted alongside Sycamore and Ash regeneration. On the north-western corner of the observatory are a number of regenerated Sycamore trees.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Gorse	Sycamore	Blackthorn Ash Hawthorn Birch	Whitebeam Rowan
Age	Trees present within the sub-compartment vary from ~15-40 years.				
Height	Tree heights also vary, ranging from 4m-10m.				
Size	Stem diameters range from~10-35cm.				
Condition	The few individual trees present are generally in good health.				
Coverage	There is no woodland cover as such, with only a few scattered regenerated trees and introductions in the form of a few standard trees located on the lower slopes to the northeast of the hill.				

Stocking	The stocking level of trees on the hill is difficult to assess, but is somewhere in the region of 7-10 tree stems/ha (~150-200 trees in total)
Canopy	The few scattered trees present cover a minor portion of the area.
Understorey	There is no woodland understorey present
Shrub Layer	Patches of Blackthorn have also been established at the base of the wall boundary to the observatory on the western edge. These areas are suckering profusely to form dense and attractive thickets almost 3m in height.
Natural Regeneration	Most trees present within the sub-compartment have regenerated naturally, usually in association with expanding areas of Gorse. There is little recent regeneration present other than on the lower margins to the north where the pattern of woodland expansion continues to occur.
Deadwood	None present.
Ground Vegetation	The main ground flora is represented by and attractive low-growing sward of herb-rich unimproved and semi-improved acid grassland. There is no ground vegetation associated with Gorse areas. The grassland areas around the observatory appear to be largely unmanaged and are growing rank, possible as a form of access discouragement.
Constraints	The Gorse areas are prone to fires on a seasonal basis which can be difficult to control and are damaging to neighbouring vegetation and habitats.
Special Features	The sub-compartment includes the site of the Iron Age Hill Fort. The area also fringes the Royal Observatory. There are a number of benches located at various points around the hill.
Recreational Use	The area is a focal point for recreational activity within the LNR. Visitors frequent the hill to exercise dogs and to walk to the summit and enjoy the spectacular views over Edinburgh, the Firth of Forth, and surrounding areas.
Outline Proposals	• Control Gorse expansion through cutting and subsequent mowing to encourage the establishment of a grass sward • Control exotic weed species seeding into grassland areas • Control the spread of Himalayan Balsam onto edges of grassland areas • Control Himalayan Balsam established in Gorse thickets by cutting and pulling • Monitor path routes for erosion problems • Control access to safeguard sensitive areas from excessive traffic • Remove all non-native tree regeneration from the area

	• Plant specimen native trees as parkland features at selective locations on lower slopes • Carry out introduction programmes of planting of Juniper, Rock Whitebeam and wild flora species (e.g. Sticky Catchfly). • Cut and maintain firebreaks • Cut pathside edges to rejuvenate Gorse growth and maintain a dense screen. • Cut areas of Gorse to rejuvenate areas and to reduce fire risk • Cut small Gorse areas encroaching into grassland areas. Seed if necessary with appropriate grass mix. • Maintain as mown areas to encourage development of a grass sward.

Sub-Compartment 2b

Area	0.62 ha				
Type	Semi-mature broadleaf woodland.				
Description	A steep sloping section of woodland located on northern basal fringe of Blackford Hill. Sycamore is present in the form of large semi-mature and mature coppice, and also as young regeneration. Mature Sycamore is present mainly along the path edge in front of Blackford Pond. Western Hemlock aged ~40 years has been planted within the centre portion of the woodland as a large group. Some Lime and Birch aged 30-40 years are located towards the path edges to the south. A few mature and senescing Birch are present to the southeast along with some young Beech trees.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Birch Western hemlock Elder	Gorse Beech Oak Holly	Scots pine Horse chestnut Lime
Age	The main canopy is aged ~40 years				
Height	Canopy height is ~12m				
Size	Stem diameters range from ~20-45cm				
Condition	Trees are generally in good health. There is however extensive squirrel damage to Sycamore stems.				
Coverage	Woodland occupies 100% of the sub- compartment area.				
Stocking	Stocking is ~1500 stems /ha				
Canopy	Canopy cover is 100% with no gaps				

Understorey	There is no understorey present.
Shrub Layer	Elder and Holly form the main components of the shrub layer with Brambles. Gorse and brambles form a fringe on the woodland edges to the south.
Natural Regeneration	Young Sycamore regeneration is dense in places, but is elongated and thin with limited light penetrating the woodland canopy. A group of lime seedlings was noted but are is unlikely to develop due to the dense canopy layer and rabbit predation.
Deadwood	Some deadwood is present in the form of fallen branches and brash. Some of this has been gathered together in one area to form a play den.
Ground Vegetation	Ground vegetation consists of grasses with occasional Foxgloves and is mainly concentrated along the path edges to the south. There is little ground vegetation present within the main body of the woodland with only occasional ferns and chickweed present. One patch of nettles has established on the path junction next to sub-compartment 2d.
Constraints	Management access is limited to the base of the slope, with access to the top edge of the woodland limited by the slope, scrub growth and the narrow paths and stepped sections leading uphill.
Special Features	None noted.
Recreational Use	The path to southwest forms the woodland edge. To the southeast the woodland edge if formed by a fringe of dense gorse. The path to the southeast has sleeper edged steps with high sleeper risers (~300mm) in place to negotiate the slope. There is no recreational use made of the woodland itself.
Outline Proposals	• Thin area targeting Sycamore and Western Hemlock • Restock gaps to appropriate NVC type (W10) • Remove Sycamore regeneration and Sycamore coppice from southern fringe of the woodland • Carry out enrichment planting of native shrubs on woodland fringes.

Sub-Compartment 2c

Area	0.39 ha.
Type	Semi-mature mixed woodland.
Description	This sub-compartment occupies a steep section of sloping ground located on the basal slope to the northern edge of Blackford Hill, and opposite Blackford Pond (sub -compartment 1f). The woodland consists primarily of sycamore which has probably

	regenerated on the site.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Elder Ash	Elm Whitebeam	
Age	The main woodland components are aged ~25-30 years.				
Height	The main canopy height is ~14m with individual tree heights ranging from 10-14m.				
Size	The tree diameters range from 10 -35cm.				
Condition	The trees are generally in good health with some squirrel damage noted.				
Coverage	Woodland cover occupies ~90% of the area with occasional gaps along access routes leading from the path to the north uphill and onto Blackford Hill. These paths are associated with open areas and fringed by dense gorse vegetation.				
Stocking	~1500 stems /ha.				
Canopy	The canopy cover in the area is complete with no gaps present.				
Understorey	The understorey layer is composed of Ash and Sycamore regeneration.				
Shrub Layer	The shrub layer is composed of Holly and Elder with occasional Yew regeneration present. There is a fringe of Gorse located to the south.				
Natural Regeneration	There is a limited amount of younger regeneration (aged 5-10 years present) again consisting of Sycamore and Ash.				
Deadwood	There is little deadwood present on the sloping ground occupied by the woodland.				
Ground Vegetation	Ground vegetation is sparse, and represented by Ferns, grasses, Foxgloves and Nettles.				
Constraints	Access is restricted by the sloping nature of the area.				
Special Features	The fringe of Gorse to the south has recently been burnt.				
Recreational Use	Sleeper and sleeper edged steps are present on western edge of the area. The path to the southwest is badly eroded.				
Outline Proposals	• Remove tree regeneration, Currants and Willowherb from hillside to south of the compartment and encourage regeneration of Gorse. • Control Gorse colonisation in open areas to favour other woody shrub species. • Carry out enrichment planting of native shrubs (Blackthorn/Hazel) in open areas and on woodland fringes.				

Sub-Compartment 2d

Area	1.72 ha				
Type	Semi-mature broadleaf woodland.				
Description	The woodland making up this sub-compartment occupies a steeply sloping section located between 2 main path routes linking from the main base path onto Blackford Hill. The steep slope has occasional areas of scree and rocky outcrops with exposed soil present and erosion of the slope evident. Woodland cover is present at the northern and southern ends of the sub-compartment. In the central section woodland gives way to a more open shrubby area with Blackthorn, Gorse, Currants, Elder and Dog Rose.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Elder	Blackthorn Holly Hawthorn Ash Elm Elder Gorse	Rowan Gooseberry Currants
Age	The main woodland canopy is formed by trees age in the range of 20-40 years.				
Height	Canopy height is ~12m.				
Size	The tree diameter range from ~10-30cm.				
Condition	The trees are generally in good health, although many of the Sycamore are affected by Squirrel damage, which is disfiguring but usually only a minor factor in the overall health of the trees. On steep slopes with thin soils the stability of the trees on the banking is of concern.				
Coverage	The woodland forms ~80% cover over the area, with open areas formed by steep rocky slopes making up the remainder of the area. The more open shrubby gaps have small groups of tree dominated areas consisting of Sycamore and some Elm coppice and Ash regeneration also present.				
Stocking	Canopy trees are fairly regularly spaced, averaging 2m centres (~2500/ha). Younger regeneration is present as an understorey layer forming patches, increasing the overall stocking density to ~4000/ha.				
Canopy	The wooded canopy is closed with few gaps. In open areas of scrub the shrub layer forms ~60% of the canopy and regenerating tree growth covers ~5% of the area, with the remainder being tall				

	ruderal patches and steep slopes and rocky outcrops.
Understorey	There is little in the way of a woodland understorey present with a limited amount of sycamore and ash regeneration forming the main successional layer under the woodland canopy.
Shrub Layer	There is an open shrubby layer present along the sub-compartment edge adjacent to 1d, consisting of Elder, Currants and Blackthorn Above the path is a steep-sided, vertical in places, craggy rock face. A few individual trees have established on the slope. These should be removed and it is suggested that the path edge is used to define the extent of woodland. Within wooded areas the shrub layer is sparse and made up of Elder and occasional Hawthorn.
Natural Regeneration	Most of the understorey present within the woodland results from natural regeneration, with Sycamore being the main component. In open areas on rocky outcrops with thinner soils are colonising with Gorse, Currants and Elder.
Deadwood	Small branchwood makes up the majority of the deadwood. There is little large diameter timber present on the wooded slope areas.
Ground Vegetation	Ground vegetation below the woodland canopy is sparse with Foxgloves and Ferns occasionally present along with some Californian Poppy. Herb Robert, Herb-Bennet, Nettles and Brambles are present on open edges. To the east are rocky outcrops with a sparse cover of ground vegetation. Some Ivy is present on growing up the rock faces, and Foxglove and Gorse have established on remnant pockets of soil. Along the hillside path edge to the south is a fringe of Gorse and Dog Rose on either side of the path with ground flora consisting of Foxgloves, Nettles, Ferns, Thistles, and fine grasses. Some Himalayan Balsam is present on the edge of the hill
Constraints	Gorse regeneration on the open sections of slope will present a fire risk in the future. The steepness of slope limits access for woodland management. Dense scrub areas are also difficult to access to carry out tasks such as enrichment planting or fire control. Management access is largely restricted to working from the base of the hill along the bottom edge of the sub-compartment.
Special Features	The route on top of compartment edge is designated as part of Edinburgh's proposed Core Path network. One large Sycamore tree is present on the edge of the woodland next to a heavily eroded and denuded section of slope, and is probably a play area for children. Removal of selected branches to reduce tree-climbing options may reduce the appeal of this area and allow ground vegetation to re-establish. Above the path is a steep-sided, vertical in places, craggy rock

	face forming part of the 2a sub-compartment. A few individual trees have established on the slope. These should be removed and it is suggested that the path edge is used to define the extent of woodland. Navelwort was noted on the pathside above the sub-compartment boundary.
Recreational Use	Footpaths form the boundaries on all sides of the woodland. These are primarily used for casual pedestrian access, with steps on the path sections to the east and west restricting other uses. There is no recreational use made of the woodland areas and open areas themselves, owing to the steep terrain and dense growth. The main path provides an easy walking route around the base of the hill, and the eastern section of the path is tarmac surfaced. Paths leading uphill from the base of the hill are surfaced with a loose whinstone base in keeping with the naturalness of the hillside location. The paths are narrow (~1m wide) in places with rock outcrops and crags restricting the route.
Outline Proposals	• Lightly thin woodland areas to reduce crowding and encourage development of ground flora • Carry out enrichment planting of native woodland species to enrich understorey. • Single coppice stems • Maintain open areas for habitat variation and for views • Restrict height growth of shrub areas to maintain views from top of slope. • Remove Sycamore regeneration and Sycamore coppice from open areas. • Control Gorse colonisation in open areas to favour other woody shrub species. • Carry out enrichment planting of native shrubs (Blackthorn/Hazel) in open areas and on woodland fringes.

Sub-Compartment 2e

Area	1.78 ha
Type	Semi-mature broadleaf woodland
Description	The woodland is dominated by a mature canopy of Sycamore. The woodland occupies a steep slope with thin porous soils and rocky outcrops. A gap is present in the woodland canopy towards the centre of the area. Woody scrub and tall ruderal growth is colonising in these area. The woodland consists primarily of naturally regenerated semi-mature Sycamore, with some young Ash also present. A few mature Sycamores are also present aged ~70 years. Groups of birch and beech are present to the south and south east of the area ~40-50 years.

<table>
<tr><td></td><td colspan="5">Along the western edge of area between the path and the estate wall boundary with 3a, is a narrow triangular section of wooded slope similar in composition and character to the woodland areas to the east.
Some Lime is present towards the northern end of this woodland section.

The slopes above the woodland are steep faced crags with Gorse scrub dominating. Some tree regeneration, mainly Sycamore, is occurring amongst the Gorse. Himalayan Balsam is also spreading through areas of Gorse. The severity of slope and the density of the Gorse stands make these areas difficult to manage and the control of exotic trees and ground flora is very difficult as a result.

There is no defined boundary to the upper edge of the woodland. The woodland edge is gradually extending upslope, and it is desirable in terms of biodiversity that the current extent of the woodland is not further increased.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td>Ash
Sycamore
Elder</td><td>Blackthorn
Gorse
Dog rose</td><td>Lime
Beech
Birch</td><td></td></tr>
<tr><td>Age</td><td colspan="5">Sycamore forming the main canopy is aged ~30-50 years.</td></tr>
<tr><td>Height</td><td colspan="5">Height 12-14m</td></tr>
<tr><td>Size</td><td colspan="5">Stem diameters range from 10-30cm</td></tr>
<tr><td>Condition</td><td colspan="5">Squirrel damage is evident and severe on some individual trees</td></tr>
<tr><td>Coverage</td><td colspan="5">Woodland represents ~80% of the compartment area. Remaining areas include large open gaps on the slopes and wide verges located along the main access route through the area.</td></tr>
<tr><td>Stocking</td><td colspan="5">Stocking is ~500/ha increasing to ~1500/ha to the southeast.</td></tr>
<tr><td>Canopy</td><td colspan="5">Canopy cover is ~95% with only a few small gaps present.</td></tr>
<tr><td>Understorey</td><td colspan="5">Coppiced Sycamore aged ~30 years forms a scattered understorey.</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">Elder, Gorse and Hawthorn form the main component of a sparse shrub layer below the woodland canopy.

A large open area of scrub dominated woodland is located on the southeast corner of the sub-compartment. This area is dominated by Gorse and Blackthorn, with some Dog Rose and Hawthorn also present forming a dense thicket 3m in height and complete with few gaps. A few regenerated Sycamores have established through this area.</td></tr>
<tr><td>Natural Regeneration</td><td colspan="5">A limited amount of Sycamore regeneration is present aged 5-15 years. Sycamore seedlings are abundant in some areas but appear</td></tr>
</table>

	to be kept in check by rabbit predation.
Deadwood	There is a limited amount of deadwood present on the slope. Some minor clearance of understorey has taken place to the north with the residues left un-chipped in habitat piles.
Ground Vegetation	Little ground vegetation is present below the closed canopy, and it is also restricted by the steep and unstable nature of the slope which consists of loose scree. The woodland floor is primarily bare of vegetation. The limited ground vegetation present comprises of small patches of Herb Robert, Comfrey, mosses, grasses, Bluebells, Ferns, and some Himalayan Balsam, which is encroaching from adjacent areas. To the south are a few patches of Dog's Mercury. In open areas the ground vegetation consists of tall ruderal with Willowherb, Nettles, Brambles, Himalayan Balsam and tall umbellifers.
Constraints	The steep scree slopes provide limited stability for tree and other vegetation growth. The slopes also form a limitation in terms of management access.
Special Features	A possible badger sett was noted near the base of the slope with tracks leading to the northwest and southwest towards Compartment 3. Numerous rabbit holes are present on the slope, and in particular along the top of the slope on the woodland edge. Red flowering Hawthorn is present along the edge of the path at the corner next to the Scout Bridge.
Recreational Use	The main path route along the western edge of Blackford Hill cuts through the sub-compartment. The path is 3m wide with some erosion damage, particularly on the steep sloping section to the south. An open plateau on the slope to the southern end of the sub-compartment, formed by a rocky ledge, has attractive open views to the south onto the Braid Hills. This area has a bench seat in place but it is in poor repair. This viewpoint has an air of neglect, and Himalayan Balsam has colonised to dominate the ground flora.
Outline Proposals	• Safeguard and monitor possible badger sett. • Define the upper woodland edge • Thin woodland edge to encourage scrub to re-colonise and develop. • Carry out enrichment planting of woody shrub species • Remove tree regeneration from the top of the slope • Remove tree growth from southern edge of viewpoint area to retain open view • Remove Himalayan Balsam from the woodland areas at an early stage. • Remove Himalayan Balsam from the slopes above the woodland

	• Expand on existing open areas along path route at selected points through further clearance to create views onto the cliff face from the main path. • Thin area to encourage establishment of a ground flora • Treat stumps to prevent coppice regrowth. • Open up small gaps for the establishment of woody shrubs and to encourage the development of ground flora. • Enrichment planting of Birch, Alder, Ash, and woody shrubs. • Possible introduction of oak on lower slopes.

Sub-Compartment 2f

Area	3.02 ha				
Type	Scrub Woodland and Open ground				
Description	This sub-compartment is located to the west of sub-compartment 2j, and extends from the edge of the Braid Burn to the south across the Braid Burn into areas of former quarrying activity. The eastern section of the sub-compartment consists of a narrow strip with fringing burnside and pathside trees located to the south of the council depot on Blackford Glen Road. Tree cover in the area is generally in the form of narrow linear strips of woodland providing screening and shelter along either side of the main path route. The woodland areas are scrubby in nature with a high proportion of woody shrubs, interspersed by Sycamore, Rowan, Ash, Willow, Whitebeam and Field Maple, forming a varied canopy. Some scrub is present along the burn edge consisting of Hawthorn, Dog Rose and Elder.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Hawthorn	Sycamore Willow Elder Ash Elm	Rowan Whitebeam Field maple Rosa rugosa Dog rose Gorse	
Age	The tree and shrub covered bankings are aged ~40 years.				
Height	Height ranges between 4m and 10m, mainly depend on species.				
Size	Stem diameters also vary according to species, ranging from 10cm to ~35cm.				
Condition	Woodland areas are generally in good health with few problems noted.				
Coverage	Woodland cover is ~15%, with the majority of the area being open ground formed by rocky crags and quarry faces, and open grassland and tall ruderal vegetation forming wide verges along				

	the path routes. Woodland cover within the area mainly consists of narrow strips established on short sloping banks on either side of the main path route.
Stocking	Woodland areas are stocked at ~1500 stems/ha.
Canopy	Canopy cover in woodland areas is largely complete, with only a few small gaps present.
Understorey	There is no understorey layer present.
Shrub Layer	Shrubs form the main components of the woodland strips, with hawthorn dominating. Elder, Dog Rose, Rugosa Rose, Elm coppice form the other main shrub components
Natural Regeneration	There is little natural regeneration occurring.
Deadwood	None of note.
Ground Vegetation	Burn edges vegetated with tall ruderal and patches of attractive wild flora, with bedstraw, Lesser Willowherb, Marsh Thistles and nettles. These areas are cut on a seasonal basis along path edge.
Constraints	Agassiz Rock is a SSSI.
Special Features	The Agassiz Rock is located on northern edge of the path route. The commemorative plaque interpreting the feature is missing from the SSSI location but is kept by CECCRS. The woodland areas are accessible form the main path route for management purposes.
Recreational Use	There is no recreational use made of the woodland areas. The main path follows the Braid Burn from the Blackford Hill Road entrance as a 3m wide track. The path crosses the burn via a bridge and from here the track widens to 4m with a wide verge of rough grass and tall umbellifers and thistles are present alongside the burn.
Outline Proposals	• Cut back and rejuvenate areas of shrub growth in groups along the edge of the Braid Burn route. • Carry out light thinning of trees to reduce competition. • Maintain attractive ruderal path verges through seasonal cutting.

Sub-Compartment 2g

Area	0.89 ha
Type	Semi-mature broadleaf woodland and open ground
Description	This compartment forms a long fringe section along the north-eastern edge of Blackford Hill. The woodland occupies an initially

<table>
<tr><td></td><td colspan="5">gentle slope to the east with a gradually increasing gradient to the west.
Trees have regenerated to form new woodland on the steep side slopes above the edge of the path following the north-eastern boundary of the LNR.

The woodland is mainly composed of regenerated and coppiced Sycamore. Also present is Elm and Elder. Enrichment planting may have been carried out to diversify the woodland composition with Birch, Cherry and Rowan also present in small quantities.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td>Sycamore</td><td>Hawthorn
Elder
Elm
Blackthorn</td><td>Birch
Wild cherry</td><td>Yew
Rowan</td></tr>
<tr><td>Age</td><td colspan="5">The woodland components are aged ~30-40 years.</td></tr>
<tr><td>Height</td><td colspan="5">The woodland canopy height is 6-8m.</td></tr>
<tr><td>Size</td><td colspan="5">Trees vary in diameter form 10-25cm dbh.</td></tr>
<tr><td>Condition</td><td colspan="5">Trees are generally in good health.</td></tr>
<tr><td>Coverage</td><td colspan="5">Tree cover occupies ~40% of the area with the remaining open habitats consisting of tall ruderal vegetation, grass verges, scrub and rock faces.</td></tr>
<tr><td>Stocking</td><td colspan="5">Stocking density is ~1400-1600 stems/ha.</td></tr>
<tr><td>Canopy</td><td colspan="5">Canopy is complete with no gaps.</td></tr>
<tr><td>Understorey</td><td colspan="5">There is no woodland understorey present.</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">Elder forms the main component of the woodland shrub layer with Yew adding some diversity.

The southern edge of the sub-compartment is fringed by Gorse which is long established and forms a dense thicket at a height of 2-3m.</td></tr>
<tr><td>Natural Regeneration</td><td colspan="5">Regeneration is present in the form of Ash with some Elm and Elder also present</td></tr>
<tr><td>Deadwood</td><td colspan="5">Small quantities of small diameter deadwood are present in the form of fallen branchwood.</td></tr>
<tr><td>Ground Vegetation</td><td colspan="5">There is little ground vegetation present on the pathside edges with only a few patches of Willowherb, Brambles, Ferns and Nettles present to the west. Within wooded areas the ground flora is sparse and consists of mainly of grasses, with Nettles, Herb Robert and occasional ferns below a dense developing canopy.</td></tr>
<tr><td>Constraints</td><td colspan="5">Trees on the southern edge of the sub-compartment are at risk from damage resulting from Gorse fires.</td></tr>
</table>

Special Features	Fire damage has occurred along the southern edge of the woodland where areas of gorse have burnt. These areas are regenerating to Gorse with some Foxgloves and Sheep's Sorrel also colonising.
Recreational Use	A well used informal path passes along the southern edge of the area. It is suggested that this path is used to define the maximum extent of woodland expansion and that tree and shrub regeneration is controlled beyond this point.
Outline Proposals	• Thin areas to reduce competition and to encourage the development of woodland flora • Create small gaps for enrichment planting • Carry out enrichment planting of native trees and shrubs • Control tree and shrub regeneration to the south • Cut areas of Gorse (possibly mulch areas) to rejuvenate these areas and as fire control.

Sub-Compartment 2h

Area	0.45 ha				
Type	Mature broadleaf woodland				
Description	Sub compartment 2h is a narrow strip of mature trees forming a buffer strip between the LNR path system and housing to the north on Charterhall Road, Blackford Hill View and Blackford Hill Rise. The main canopy trees are Ash, Sycamore and Elm. To the western end of the area the woodland strip has a more policy woodland character with mature Lime (aged ~100 years) and Birch forming a copse, a maintained shrub layer of Laurel, with some Laburnum and Holly, with some Ash regeneration forming the understorey, and a maintained grassy fringe near the main entrance from Cluny Gardens. There is little ground flora present in this area.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Elder Ash Elm Sycamore	Holly	Laurel Laburnum Lime Birch Whitebeam
Age	Age of canopy trees is generally 70 -80 years with some older trees scattered through the area.				
Height	The canopy height is ~18m with individual trees varying in height from 10-20m				
Size	Stem diameters range from 10-80cm				

Condition	Some Elm appears to be affected by DED with dieback and coppice from base of mature trees.
Coverage	Woodland occupies ~95% of the area with the few gaps being present as a result of selective safety felling works.
Stocking	Trees forming the woodland canopy are stocked at ~600-700 stems/ha.
Canopy	The canopy in the strip is almost complete with a few gaps resulting from selective felling works. A few gaps in the woodland canopy are present, possibly as a result of recent safety felling work. Mature hedge features along the rear of the properties to the north are present. Some of these are tall and overgrown, adding to the woodland canopy layer, with Lawson's Cypress and Laurel being the main species noted.
Understorey	The woodland understorey consists of a dense layer of regeneration consisting of Ash, Sycamore and Elm. Where regeneration is present there is little ground flora present.
Shrub Layer	The shrub layer is dominated by mature and regeneration elder which forms dense thickets in places. Some Dog Rose and Hawthorn is also present.
Natural Regeneration	Elm and Elder regeneration is occurring forming dense thickets in places. Some regenerated trees are growing into the fabric of the southern boundary wall
Deadwood	There is a limited amount of deadwood present in the form a large and small diameter branchwood.
Ground Vegetation	Ground vegetation consists of Nettles, Bedstraw, coarse grasses, HerbBennet and a few garden escapees (e.g. Honesty). In gaps tall ruderal vegetation in the form of Willowherb and Nettles has established. Ivy growth is present in some areas of the woodland and is successfully colonising mature tree stems.
Constraints	The presence of a foul water drainage service was noted along the path on the southern edge, with what appeared to be raw sewage material overflowing onto and across the path. There are no sewers marked on service drawings received for the site, and the presence of the waste material may have resulted from an overflow or cross-connection.
Special Features	Some mature and apparently healthy Elm is present within the woodland belt. Replacement planting into gaps has been carried out in the form staked standard trees, with variable and generally limited success.
Recreational Use	A surfaced path ~1.2m wide path leads from Observatory Road westwards along the northern edge of the LNR and continues to

	the main entrance to the LNR off Charterhall Road. The path forms part of the Round the Hill route, and is initially narrow and muddied in places but widens out to form a track 2m wide with step sections to negotiate the east-west slope. The steps also act to divert water off the surface of the path with drainage outlets through the woodland boundary wall where the water issues. There are also a number of cut-off bars in the form of stone setts diverting water form the path. To the north is a stone wall forming the sub-compartment boundary. There is a pedestrian access gate through the metal railings at the western end of the strip leading into the woodland area, presumably used for management access for grass cutting equipment.
Outline Proposals	• Resolve path drainage issues • Investigate drainage problem and resolve • Tree safety survey along path • Single coppice stems • Thin regeneration layer • Maintain/replace standard trees • Prepare planting sites and plant with native species.

Sub-Compartment 2i

Area	1.09 ha				
Type	Semi-mature broadleaf woodland				
Description	This area is similar in character to sub-compartment 2g, and consists of regenerated broadleaf woodland which has colonised onto the hillside, gradually establishing an upper tree canopy and shading out areas of gorse/grassland vegetation which previously occupied the location. The woodland extends from the woodland edge formed by sub-compartment 2c, and consists mainly of Sycamore with some Ash also present. The woodland is bordered to the south by a Gorse fringe and by access routes which form a physical boundary to the woodland.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Ash Gorse Elder	Whitebeam Rowan	
Age	The woodland is aged ~20-40 years				

Height	The woodland canopy height is ~ 8m.
Size	Stem diameters range from 10–35cm.
Condition	Trees are generally healthy, although the sycamore canopy suffering from Squirrel damage.
Coverage	Woodland covers ~85% of the sub-compartment area with a broken fringe of individual trees and dense gorse forming a fringe on the southern edge of the woodland.
Stocking	Stocking within woodland sections is dense at ~2500-3000 stems/ha.
Canopy	Canopy cover in woodland areas is 95%.
Understorey	There is no understorey present.
Shrub Layer	The woodland shrub layer consists mainly of Elder regeneration at a height of 1-3m forming a scattered layer.
Natural Regeneration	Regeneration of Ash and Sycamore is present in small groups
Deadwood	There is little fallen deadwood present.
Ground Vegetation	There is little ground vegetation below the woodland canopy with some Ferns, Bedstraw, Nettles and Foxglove present as a sparse layer.
Constraints	The area is located on a steep slope with limited access except from the base of the slope through sub-compartment 2c.
Special Features	None noted.
Recreational Use	There is no recreational use made of the woodland itself. The area is bordered by a surfaced hill path to the southwest. To the south-eastern edge of the area the gorse scrub opens out to a grassy hillside with bench seating in place, and path routes leading up to the hill summit.
Outline Proposals	• Maintain open edge to the woodland • Cut Gorse and allow to regrow • Remove non-native tree species form Gorse fringe • Thin woodland area to encourage the development of a woodland ground flora • Single coppice stems • Carry out enrichment planting of native tree and shrub species.

Sub-Compartment 2j

Area	0.91 ha
Type	Scrub woodland and open ground.

Description	Sub-compartment 2j consists of a fringe of scrub woodland habitat. On the banking above the Braid Burn, forming a buffer between the burn and the Braid Burn path route, there is a strip of Hawthorn dominated woodland with a few woodland canopy trees. Between the banking and the burn is an area of tall marshy vegetation. Some Japanese Knotweed, Himalayan Balsam and Giant Hogweed were noted within this strip of vegetation. To the north of the Braid Burn route is regenerated Gorse, Elder, Dog Rose and Hawthorn in groups, colonising the lower slopes of the hillside and around quarry faces. The presence of shrub dominated areas increases to the west of the area.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Gorse Elder Dog rose Hawthorn Blackthorn	Willow Alder Wild cherry Birch Poplar	
Age	Age ranges from 20-70 years with Hawthorn and Willow forming the mature woodland elements.				
Height	The height of scrub dominated areas ranges from 3-6m. Tree species form an open canopy layer along the path edges, particularly along the burn edge to the south of the main path, with tree heights ranging from 8-14m.				
Size	Stem diameters vary from 10-40cm dbh.				
Condition	The trees are generally healthy with no major defects notes.				
Coverage	Woodland cover is ~40% within the sub-compartment area. The remaining land is made up of riparian vegetation, path and verges, rock faces and semi-improved grassland vegetation.				
Stocking	Stocking in wooded areas is ~1500/ha				
Canopy	A sparse canopy of individual trees is present along the burnside edge consisting of Ash, Sycamore, Willow, with some Alder, Poplar and Birch.				
Understorey	There is no woodland understorey.				
Shrub Layer	The shrub layer for the most part also forms the canopy layer, and is composed of Hawthorn, Blackthorn, Elder, and Gorse, with some Dog Rose and Rugosa Rose also present.				
Natural Regeneration	Regeneration is sparse and consists of young Ash, Hawthorn and Sycamore.				
Deadwood	There is a limited amount of small diameter branchwood present.				
Ground	Ground vegetation is sparse below the canopy formed by the				

Vegetation	shrubs. To the southern edge of the area is a strip dominated by tall marshy grassland vegetation including Meadowsweet, Lesser Willowherb, Rosebay Willowherb, tall umbellifers, Marsh Thistles and Nettles, while some Japanese Knotweed, Himalayan Balsam and Giant Hogweed were noted within this strip of vegetation.
Constraints	None noted.
Special Features	A few gaps are present to the south, offering views to the burn. A group of red-flowering hawthorn have been established on the path edge at the corner of the path next to the Scout Bridge. The woodland composition is largely native. Some sycamore regeneration is present within the shrub areas to the north of the path.
Recreational Use	The area is located along the Braid Burn route which is the focus for recreational use. Little use is made of the wooded sections.
Outline Proposals	• Monitor shrub areas and restrict spread of shrub habitat onto grassland and rock faces. • Remove non-native trees (e.g. Poplar, Sycamore) from woodland mix. • Remove Sycamore from hillside scrub areas. • Coppice groups of shrubs in phase programme to rejuvenate growth and as a fire control measure. • Remove invasive weed species from the burn corridor.

Compartment 3

General information

Extent	Compartment 3 covers an area of 8.72 ha.
Location	Compartment 3 occupies the northern valley slopes of the Braid Burn, extending from the entrance area on Braid Road eastwards to an estate wall which forms an edge along the path route leading north from the Scout Bridge.
Type	Mainly mature broadleaf woodland with some mature and semi-mature mixed woodland areas.
Description	The compartment consists of a variety of woodland types. Mature mixed woodland occupies the western end of the area, with the proportion of conifers present reducing eastwards, becoming mature broadleaf woodland. An area of more recent woodland establishment is present in the walled garden area around the dovecot feature, forming an area of semi-mature mixed woodland. The topography of the valley slopes also varies, with a generally steep sided and craggy face forming the lower slopes to the south and adjacent to the Braid Burn, a less steeply sloping mid-slope area.
Access	There is a network of woodland paths providing access along the top of the valley slope and through sections of the woodland. Access is restricted by the sloping nature of the valley, and access is generally limited to routes leading from east to west. There are a limited number of link paths connecting with the Braid Burn route, these being located mainly to the western end of the valley where the valley is less incised. Access for woodland management purposes is limited by the nature of the landform, and is for the most part restricted to narrow pedestrian path routes. Estate features such as boundary walls also restrict management access. Some access is possible from the northern boundary with the Midmar Paddocks. Such access, if desired, will require arrangements to be made with the adjacent owners. A limited amount of tree works could be undertaken from the valley floor.
Status	The woodland forms part of the LNR area. Most of the woodland areas are recorded as "Ancient woodlands of Semi-natural Origin", although most of the canopy species present indicate that the species composition has been strongly influenced by management intervention.
Soils and Drainage	Soils in the area are forest brown earths, with the depth of soil varying with the underlying outcropping rock formations. The soils are freely drainage and the gradient of the valley slope directs surface run-off south to the burn.
Sub Cpts	There are 7 sub compartments making up compartment 3. These

	are divided mainly according to location and woodland type. Some of the sub-compartment boundaries are indistinct on the ground, and relate to historic linear features such as tree avenues and drainage features.

Sub-Compartment 3a

Area	3.03 ha				
Type	Mature mixed woodland				
Description	Sub-compartment 3a is a large area of mature mixed woodland on the eastern edge of the compartment. The woodland is located on rocky knolls produced by outcropping features and on Steep slopes below these knolls to the southwest. The woodland consists of a canopy formed mainly by broadleaf trees, but with significant proportion of conifers, primarily Scots Pine with a few Larch. Located on flatter plateaux to the west of the rocky knolls, the woodland is composed of very large beech and ~80 year old Sycamore. Lower slopes above the burn are steep. Woodland cover in these areas is composed of Sycamore and Elm with Elm coppice and Sycamore and Beech regeneration. Elder is the main shrub component, with ivy dominating the ground flora layer. A few mature trees are located on the steep basal slope above the Braid Burn path and their location and condition is a concern in terms of public safety. A number of these trees have leaning stems with heavily buttressed roots (compensating for the slope and the uneven weight distribution of the tree crown), and some have stem rots.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore Beech	Ash Elm Scots pine Oak Scots pine	Hawthorn Yew Holly	
Age	Mature trees are aged ~150 years with younger Sycamore aged 70-80 years also forming part of the woodland canopy.				
Height	Canopy height ranges from 18m increasing to ~24m towards the base of the valley. A few mature individual trees located towards the base of the valley attain a height of ~28m				
Size	Stem diameters range form 40-120cm, with younger regeneration in the understorey ranging form 5-20cm.				

Condition	A number of mature trees are suspect trees in terms of tree safety, some with severe basal rots.
Coverage	Woodland occupies 100% of the area.
Stocking	Stocking of mature trees varies, ranging from ~500 - 800 stems/ha
Canopy	A few small gap sites are present from previous felling/clearance works with regeneration establishing. The mature canopy is aged 100-120 years and is gradually senescing. Tree canopy consists of mature Scots Pine, Sycamore, Beech and Oak with young Sycamore aged ~40 years forming part of the main canopy and the emergent understorey.
Understorey	The woodland is developing towards a Sycamore dominated canopy with Sycamore saplings being prevalent, ranging from 10-30 years in age. The understorey layer also consists of Elm coppice and Beech regeneration.
Shrub Layer	Shrub layer is sparse and consists of some elder with a few hollies also present.
Natural Regeneration	Sycamore and beech aged 15-30 years also form the main components of regeneration. Beech regeneration occurs in dense groups, forming a sub-canopy layer at a height of 8m. There is little regeneration towards the compartment centre where the slope broadens, with only a few Sycamore and Oak seedlings noted.
Deadwood	Occasional snapped stems provide standing and fallen deadwood. A few standing dead trees are also present, generally away from path routes. A large number of mature trees have minor deadwood present in the crown, with a lesser number having large dead branches present. There are a limited number of windblown stems present on the mid slope section.
Ground Vegetation	Ground vegetation varies according to location on the slope. To the east over the rock outcrops the ground flora consists of grasses, mosses and ferns on bare earth. On the mid slope sections ground vegetation is also sparse and consists of Nettles, Wood Sage, and patches of Comfrey and Dog's Mercury. Brambles, Ivy and tall ruderal vegetation are present on the steep slopes along the southern edge of the area.
Constraints	Management access is limited by the boundary wall to the east, and by the topography of the valley slopes. A large population of rabbits is present in this area of the woodland limiting regeneration.

Special Features	The suggested alteration to the former sub-compartment boundary now excludes the narrow stretch of pathside banking to the east of the estate wall on the eastern edge. There are number of candidate veteran trees present including Sycamores, Oaks, Scots Pines and some Beech. These are aged >120 years and are located along the northern edge and the edge of the wall feature to the east. Scots Pine established on a raised knoll forms an attractive feature on the eastern edge of the sub-compartment.
Recreational Use	There is a circular route formed by woodland paths which follow the northern and eastern boundaries. A path leads northwest from the southeast corner of the sub-compartment passes though sub-compartment 3b to connect with the route along the northern boundary. This section of woodland is open and has an impressive and attractive mature woodland presence with attractive ground flora, and is a popular area for visitors to the woodland. There are a number of links to the Round the Hill route through the boundary wall to the east.
Outline Proposals	• Remove young Sycamore in selected areas • Selective felling based on safety to open canopy gaps for enrichment planting • Selective felling targeting Beech and Sycamore to open further canopy gaps for enrichment planting • Carry out Enrichment planting to NVC W10 with SP introduced as a historic policy element • Protect enrichment planting against rabbit predation • Remove young Sycamore and Beech regeneration from upper slopes and rock knolls • Thin areas of dense regeneration on mid slope sections.

Sub-Compartment 3b

Area	0.89 ha
Type	Mature broadleaf woodland
Description	This sub-compartment is located to the west of sub-compartment 3a. The area is located on a steep and rocky lower section on the valley side above the Braid Burn, and a less steep upper section of slope with plateaux and rocky outcrops. The woodland is largely composed of mature Sycamore, with a dense understorey of Sycamore and Beech regeneration and Elm coppice. Some mature Elm and large Beech trees are also present. Some areas of the woodland canopy are dominated by regeneration with only a few mature Beech and Sycamores

<table>
<tr><td></td><td colspan="5">present. In these areas Beech aged ~30 years and Sycamore aged 15-20 years form dense stands.

On the steeper lower slopes above the Braid Burn the woodland cover is dominated by Sycamore and Beech regeneration and Sycamore coppice, with a few mature Beech and Sycamore also present forming an upper canopy layer.

A group of younger Oak, Hawthorn, Wild Cherry, Rowan and Birch, aged 30-40 years, are present in the north western corner of the area possibly established as enrichment planting into a gap site resulting from previous felling works.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td>Sycamore
Beech</td><td>Elm
Ash
Elder
Wild cherry</td><td>Larch
Holly
Yew
Hawthorn
Oak
Birch
Rowan</td><td></td></tr>
<tr><td>Age</td><td colspan="5">Mature canopy trees range in age from 80 ~ 120 years.</td></tr>
<tr><td>Height</td><td colspan="5">Canopy height is 18-22m.</td></tr>
<tr><td>Size</td><td colspan="5">Stem diameters of mature canopy trees range from 60-100cm.</td></tr>
<tr><td>Condition</td><td colspan="5">Small group of Larch located on informal pathside, with one fallen and others showing signs of instability.

Dieback was noted in the crowns of a few of the mature Sycamore trees.</td></tr>
<tr><td>Coverage</td><td colspan="5">Woodland represents 100% of the land use in the area.</td></tr>
<tr><td>Stocking</td><td colspan="5">The mature canopy is stocked at ~600-700 stems /ha. Regeneration and the semi-mature understorey layer raise the stocking level to ~1500-2000.</td></tr>
<tr><td>Canopy</td><td colspan="5">The canopy cover is complete.</td></tr>
<tr><td>Understorey</td><td colspan="5">Pole stage Beech and Sycamore aged 20-30 years forming a partial understorey ~10m high.</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">Shrub layer consists of dense patches of Hawthorn, Holly and Elder with Currants.</td></tr>
<tr><td>Natural Regeneration</td><td colspan="5">Dense groups of beech dominated and sycamore regeneration (~3000-5000 stems/ha) are present in gaps and under areas of sparse canopy cover. Some Hawthorn regeneration is also present.</td></tr>
<tr><td>Deadwood</td><td colspan="5">A few fallen stems and windblown trees are present on the upper slopes providing deadwood habitat.</td></tr>
</table>

	In one area fallen and cut deadwood has been gathered to form a play den. The accumulation of small and larger diameter deadwood may present a fire risk and should be dispersed.
Ground Vegetation	On the upper slopes ground flora consists of Dog's Mercury, Small Willowherb, Comfrey, Ivy, Bluebells and Herb-Bennet. Wood Rush, Comfrey and greater willowherb are the main elements of ground flora on the steeper slopes to the south.
Constraints	Management access is limited by the topography of the area.
Special Features	A veteran Oak is located next to informal path aged ~200 years.
Recreational Use	There are woodland path routes along the northern edge of the sub-compartment and along the upper edge of the steep valley slopes. These are the main focus for recreation with little use of the woodland made outwith the path routes.
Outline Proposals	• Selective felling based on safety to open canopy gaps for enrichment planting • Selective felling targeting Beech and Sycamore to open further canopy gaps for enrichment planting • Thin areas of dense Beech and Sycamore regeneration • Create gaps with regeneration layer for enrichment planting • Carry out enrichment planting • Protect enrichment planting against rabbit predation • Disperse accumulated area of deadwood.

Sub-Compartment 3c

Area	1.13 ha
Type	Mature broadleaf woodland
Description	The sub-compartment occupies a 200m long section of the northern valley slope. The southern edge of the slope is steep, with a gentler slope present on the northern edge. The mature woodland canopy consists of mature Sycamore and Beech, with some Ash, Elm, Larch and Scots Pine. The steep southern slope has a sparse mature woodland canopy spread across the slope consisting of Sycamore, Beech and Ash with Elm coppice, and Yew and Ash regeneration extending down to the base of slope. A small group of young Beech, Birch, Scots Pine, Cotoneaster and Laurel are present in the north-eastern corner of the area, aged ~25 years with a height of ~8m. This is probably an area of enrichment planting established to create a thick pathside edge. Further enrichment planting of shrubs in the form of Hawthorn and Holly has been established in tubes as a pathside hedge feature to the northwest.

	A drainage feature to west forms the compartment boundary with 3g and also coincides with the end of a mature Beech avenue along the northern edge of the area. The eastern boundary is marked by a line of Lime trees along western face of rock crags on the valley slope.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore Beech Ash	Rowan Elm Holly	Scots Pine Larch Birch Hawthorn Lime Cotoneaster Laurel Yew	Fuchsia Snowberry Tree Cotoneaster
Age	The mature canopy trees are aged ~80-120 years.				
Height	Canopy height 16-22m				
Size	Stem diameters range form ~50 -100cm				
Condition	Squirrel damage is evident on young Sycamore and Beech				
Coverage	100%				
Stocking	Stocking is ~600 stems/ha				
Canopy	Canopy cover is complete with only a few small gaps below which the regenerating understorey layer is growing.				
Understorey	Semi-mature Beech and Sycamore aged ~20-30 years at a height of 8-10m form the main components of the woodland understorey.				
Shrub Layer	The shrub layer consists mainly of Elder and Brambles at a height of 2-4m forming a dense thicket in places.				
Natural Regeneration	In areas dominated by an emergent woodland canopy there are dense thickets of Elm coppice and Beech regeneration. Holly, Rowan and Elder regeneration are also present forming part of the understorey layer.				
Deadwood	There are a number of fallen dead trees present in the area.				
Ground Vegetation	Ground flora includes Comfrey, Wood Sage, Small Willowherb, Ferns, and Nettles, with occasional patches of Ivy, with some Ivy on tree stems extending into the crown. The flatter areas of the lower slopes next to the Braid Burn are mainly bare earth with a sparse ground flora consisting of Sycamore seedlings, Ivy and young brambles with some patches of Dog's Mercury, Ferns, Docks.				
Constraints	Laurel and Cotoneaster are regenerating and suckering, extending				

	southwards towards the centre of the woodland. Area of slope difficult to access owing to topography and density of the shrub layer and understorey.
Special Features	A few bird boxes are present, mostly in poor repair. One small are of salmonberry was noted on the edge of the Braid Burn to the western end of the area. Large veteran Beech and Sycamore present aged >150 years are present, mainly located along the northern boundary. One large Elm was noted overhanging the path with 40 degree lean and stability issues.
Recreational Use	A footpath route follows the northern boundary of the woodland along the edge of the fenceline with the Midmar Paddocks area. The path crosses the drainage feature on the western boundary by means of a sleeper bridge. Another path roughly follows the western edge of the area leading downhill to a footbridge linking with the Braid Burn path. The path is 1.5m wide. The slope above this path is well vegetated with dense regeneration, enrichment planting, and shrub layer. A bench seat is present along this path, with another ramped path leading uphill from the visitor centre to this seating area. The paths are the focus of recreational activity in the area, with little use made of the woodlands themselves.
Outline Proposals	• Carry out tree safety assessment • Carry out selective felling based on safety issues • Control Cotoneaster and Laurel, restricting to pathside edges only • Remove Salmonberry • Thin understorey layer favouring native species • Carry out enrichment planting of native trees • Replace bird boxes.

Sub-Compartment 3d

Area	0.58 ha
Type	Mature broadleaf woodland
Description	This section of woodland is located between sub-compartments 3e and 3g. The woodland occupies the upper sloping ground to the north of the Hermitage of Braid House, and the trees on the southern edge overhang the building. The woodland consists of mature Sycamore, Oak, Ash, and Birch and forms a relatively open canopy above the successional

	understorey layer, and the woodland shrub and ground flora layers.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Sycamore Beech Ash Oak Elder	Birch Hawthorn Holly Yew	
Age	The mature woodland element is aged ~80-120 years				
Height	The canopy height is ~20m with a few taller canopy trees present.				
Size	Stem diameters range form 50-100+cm				
Condition	Trees are generally in good condition with few problems noted. Some mature trees carry large deadwood in the crown which may present a future safety issue.				
Coverage	Woodland occupies 100% of the area.				
Stocking	Stocking of the mature woodland layer is ~4-500 stems/ ha with regeneration and semi-mature trees raising the stocking to ~1000 stems /ha.				
Canopy	Canopy cover is complete with no gaps. The canopy allows filtered light to reach the woodland floor and supports an attractive ground flora layer.				
Understorey	There is little in the way of a woodland understorey, with semi-mature sycamore forming the main component.				
Shrub Layer	The shrub layer is sparse and consists mainly of elder with a few Holly and Hawthorn.				
Natural Regeneration	Sycamore and ash are the main components of a sparse regeneration layer aged ~5-10 years.				
Deadwood	There is a limited amount of deadwood represented by fallen stems.				
Ground Vegetation	This area is one of the most attractive areas in terms of ground flora within the Braid valley, with a spring woodland flora consisting of Bluebells and Herb Robert, with Wood Sanicle, Wild Garlic, Herb-Bennet, Wood Sage, and some Nettles and brambles also present.				
Constraints	As with many of the woodland areas along the valley, management access is restricted by the topography and the suitability of existing routes for machinery. To the north this sub-compartment is adjacent to residential gardens restricting access options from this edge.				
Special Features	None noted.				

Recreational Use	Outwith the formal path network there is little use made of the woodland for recreational purposes. The main path route follows the northern edge of the woodland. To the western edge of the area there is a steep scramble path leading downhill along the edge of the walled garden boundary towards the stable block area.
Outline Proposals	• Selective felling to form gaps for enrichment planting • Remove Sycamore from the woodland understorey • Remove Sycamore regeneration • Carry out enrichment planting of trees and shrubs.

Sub-Compartment 3e

Area	0.62 ha				
Type	Semi-mature mixed woodland and open space				
Description	This area was formerly a walled garden with a dovecot which served the estate house. A path leading north to the dovecot from the burn effectively divides the area into two halves. The area to the east of the path and below the dovecot has been cleared of woodland cover. Some coppice regrowth from stumps indicating that these works have been relatively recently implemented. To the west the woodland has been retained and heavily thinned to leave an open canopy with light penetrating to the woodland floor. Conifers appear to have been targeted for thinning but a significant proportion has been retained. The retained trees are tall and slender with poorly developed crowns indicating that the thinning was overdue. Regeneration is occurring within this retained woodland area. The north-eastern corner is relatively undisturbed with mature Sycamore aged ~60-70 years present, and Ivy dominated ground cover which has also spread onto the stems of trees. The boundaries of the area are defined by a wetstone estate wall, which encloses the area. The south, east and west walls are ~1.5m high. The north wall is ~2m high and has a retaining function with buttresses for support. All walls appear to be in a reasonable condition.				
Species Composition	***Dominant***	***Abundant***	***Frequent*** Scots pine Wild cherry Larch Sycamore	***Occasional*** Rowan Hawthorn Lodgepole pine	***Rare***

			Ash Elder	Alder Sitka spruce	
Age	The remaining woodland is aged 40 years. Ash and Sycamore are regenerating below a thin, sparse canopy.				
Height	10-12m				
Size	Stem diameters range from 20-35cm				
Condition	The trees are generally in good health, although most have formed as slender stems as a result of a lack of thinning. These trees should be monitored for wind damage.				
Coverage	The area was formerly completely wooded. Recent clearance operations have reduced woodland cover to ~55% within the area. Cleared areas are re-coppicing from stump and woodland cover will return if left unchecked.				
Stocking	Stocking of the thinned woodland areas is ~1200 stems /ha.				
Canopy	To the west of the garden path the canopy cover is ~80% with gaps present from thinning operations and open areas formed along the edge of the path.				
Understorey	There is no understorey layer present.				
Shrub Layer	The woodland shrub layer is extensive forming a dense thicket in places, consisting mainly of Elder and Brambles. A few Gooseberry and Currants are also present.				
Natural Regeneration	Elder forms the main component of the regeneration layer, with a few Ash and Sycamore also present.				
Deadwood	Most of the felled timber form clearance and thinning works has been chipped or removed form site. Some fallen stems and brash remain on site providing some deadwood habitat in the area.				
Ground Vegetation	Following felling and thinning operations, the area has colonised with Willowherb, Brambles, Nettles, and Ground Elder, Wild Hyacinth, Cleavers and garlic. The cleared area east of the path dense stands of Brambles, Nettles, Docks, Thistles and Willowherb, with coppice growth emerging in places. Woodland species are gradually being swamped by tall ruderal growth.				
Constraints	The area is proposed for restoration as a walled garden. Removal of trees from the area should be followed by a sustainable future management regime for the site. The encircling garden walls and sloping ground limit management access. The main path leading to the dovecot forms part of the historic garden feature, and its use for management access should be avoided.				
Special	On mature trees present along the north western boundary, Ivy				

Features	growth more prolific and some trees have a heavy covering.
Recreational Use	The central path route extends north from the Braid Burn up the valley slope to the dovecot. The slope of the valley is negotiated by a set of timber steps.
Outline Proposals	• Clear and spray off vegetation from the felled woodland area. • Treat stumps to prevent re-coppicing • Cultivate area and sow to establish a grassland sward as interim measure to improve manageability of the area. • Manage verge by cutting seasonally. • Control invasive weed species by pulling/spot treatment. • The retained woodland area has recently been thinned and should not require further intervention within the plan period. • A long-term aim for the area is to restore the walled garden and bring the area back into some form of horticultural use.

Sub-Compartment 3f

Area	1.40 ha				
Type	Mature broadleaf woodland and open ground				
Description	This sub-compartment consists of a wooded section, and an area of open grassland managed as a wildflower meadow. The sub-compartment extends from the garden boundaries to the north to the Braid Burn to the south, and from the entrance area to the west to the boundary of the walled garden to the east. The woodland areas consist of Sycamore, Elm, Wild Cherry, Holly, Ash, and some Larch and pine aged ~100 years. The western portion of the sub-compartment consists of a meadow area managed by seasonal cutting. A narrow wooded strip fringes the meadow and the access route along the Braid Burn. To the east of the meadow area the slopes are wooded and increase in gradient.				
Species Composition	***Dominant***	***Abundant*** Sycamore	***Frequent*** Ash Scots pine Wild cherry Elm	***Occasional*** Rowan Holly Horse chestnut Yew Sitka spruce Larch Hawthorn	***Rare***
Age	The mature woodland areas to the east are aged ~70-100 years. There are also some older Sycamore present aged >100 years forming an avenue feature along the pathside edge next to the Braid Burn, and also on the eastern edge of the area adjacent to sub-compartment 3e.				

Height	Canopy height ranges from 12-20m
Size	Stem diameters vary, with younger trees in the understorey layer ranging from 10-25cm, and older trees ranging from 50 -100cm dbh.
Condition	A number of mature trees on the steep slopes are leaning to the east and some crown deadwood and minor rots were noted.
Coverage	The open meadow area with a benches and a picnic table forms the western portion of the sub-compartment accounting for 40% of the area. The remainder is woodland cover, mainly mature, with a narrow strip of semi-mature mixed woodland located to the south of the meadow area.
Stocking	Stocking is ~900-1200 stems/ha.
Canopy	The canopy cover on wooded sections is ~100% with no sizeable gaps.
Understorey	The woodland understorey is made up of younger trees aged 20-40 years consisting mainly of semi-mature Sycamore and Holly with Elm, Ash and Sycamore regeneration.
Shrub Layer	Occasional Yew and Laurel .
Natural Regeneration	Regeneration of Sycamore is occurring, along with Ash, Elm and Holly.
Deadwood	Some minor Elm clearance and other tree works have taken place in the past with timber generally being left in situ. Some large and small diameter branchwood is also present.
Ground Vegetation	Within the woodland areas the main components of the ground vegetation are Ground Elder, Wild Garlic, Herb Robert, Ivy, Cleavers, Nettles, Pink Purslane and Forget-me-not, with occasional ferns, Wood Anemone, Herb Robert, Wild Hyacinth, Yellow Poppy, Solomon's Seal and Creeping Buttercup towards the edges, and some Bluebells and Brambles to east. The meadow area consists of a grassland sward which is managed by seasonal cutting to encourage its development as a wildflower meadow. Enrichment seeding of wild flora has taken place in the past and the sward composition is being monitored. The management regime is at a relatively early stage but the presence of a variety of wild flora within the sward is already evident.
Constraints	The severity of the slope, the narrow pathway, and stepped sections all limit management access into the area for woodland management.
Special Features	Ivy growth is prolific to the north east, and some trees are heavily infested. The meadow area provides recreational open space with a benches and a picnic table in place.

Recreational Use	A surfaced access route leads from the kissing gate access on the western edge of the area and follows the edge of the Braid Burn, with sections of steps with sleeper treads and path edging. The path is 1.5-2m wide with timber edging and edge supports and leads past the walled garden area (sub-compartment 3e) to link to the main access driveway leading to the visitor centre.
Outline Proposals	• Carry out a tree safety survey to identify safety issues • Carry out remedial works • Control ivy spread and limit to a few standing trees • Carry out selective thinning to reduce competition and alter composition of the woodland understorey to a more native composition (NVC W8) • Carry out enrichment planting into gaps.

Sub-Compartment 3g

Area	1.07ha				
Type	Open space and mature broadleaf woodland				
Description	This sub-compartment covers the Hermitage of Braid buildings and forecourt leading up to the visitor centre. The woodland area occupies the steep slopes and lower fringes of the rocky valleyside to the west of the visitor centre, and the area to the east of the house encircling the rear of the Hermitage premises. The woodland is dominated by mature Sycamore with some Ash, Oak and Beech also present.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Ash Oak Elder	Scots pine Rowan Beech Horse chestnut	Hawthorn Holly Gorse
Age	Mature canopy trees are aged in excess of 100 years.				
Height	18-22m				
Size	Stem diameters of mature canopy trees range form 40cm-100+cm.				
Condition	The trees are is good condition with few problems noted.				
Coverage	Woodland occupies ~ 40% of the area with the remainder being occupied by the visitor centre and managed formal grounds.				
Stocking	The trees are stocked at ~500-800 stems/ha				

Canopy	Canopy cover in the woodland areas is complete.
Understorey	The woodland understorey consists mainly of young Sycamore.
Shrub Layer	The shrub layer is sparse and consists mainly of Elder, with some Holly and Hawthorn also present. A small patch of Gorse is present on the rock face above the stable block to the west.
Natural Regeneration	Regeneration is sparse below the woodland canopy and consists of Sycamore and Elm.
Deadwood	There is little deadwood present to the west of Hermitage House. To the east there is a limited amount of fallen deadwood present in the form of large and small diameter branchwood.
Ground Vegetation	The woodland on the upper slopes to the east of Heritage House supports an attractive spring woodland flora consisting mainly of Bluebells and Herb Robert, with Wood Sanicle, Herb-Bennet, some Nettles and Brambles also present.
Constraints	The steep slopes on the northern edge of the sub-compartment are difficult to access for management.
Special Features	Some clearance of Sycamore has taken place on the lower slopes on the edge of the amenity grass area in front of the House, apparently to expose the rock face. A narrow fringe around the northern edge of the house has also been cleared, but large trees located further up the slope overhang the premises and pose future safety issues.
Recreational Use	The area around the visitor centre is a focus for activity. The visitor centre is a starting point for many site visitors, and is a popular meeting venue. The amenity grassland in the forecourt has bench seats and litter bins offering a picnic venue. The area also encompasses the stable block area which offers toilet facilities for visitors.
Outline Proposals	• Carry out tree safety assessment • Carry out remedial works • Carry out selective felling to remove individual non-native trees targeting non-native and hazardous trees • Thin understorey targeting Sycamore for removal • Carry out enrichment planting.

Compartment 4

General information

Extent	Compartment 4 covers and area of 10.90 ha
Location	This section of woodland is located on the southern edge of the Braid Burn.
Type	Mainly mature broadleaf woodland with some more recently established areas of semi-mature mixed woodland.
Description	The woodland areas making up Compartment 4 occupy north facing slopes on the southern edge of the Braid Burn. The valley slopes are varied but generally steep with outcropping rocks in places, particularly to the west. The compartment is characterised by mature policy woodland, generally occupying steeper, less accessible areas, and semi-mature woodland on more accessible slopes to the west which were formerly in agricultural use.
Access	There are a number of woodland paths forming a network through the woodland. These paths are unsurfaced and well drained with a few muddy sections evident, and are for the most part suitable for pedestrian access throughout the year. Access into the woodland areas for the purposes of management is limited to a large extent by the terrain, in particular within the eastern section of the compartment.
Status	Woodland areas towards the east of the compartment are recorded as Ancient woodland of semi-natural origin (Sub-compartments 4e, 4f, 4g, and 4h).
Soils and Drainage	The woodland sits on free draining brown forest soils derived from glacial till. To the west the valley has a generally continuous and gradual slope. To the east the valley sides have steeper drop-offs, outcropping rocks and areas of limited soil depths.
Sub Cpts	There are 8 sub-compartments making up compartment 4. These are divided according to location, woodland type, stage and management treatments.

Sub-Compartment 4a

Area	0.24 ha
Type	Mature broadleaf woodland.
Description	Sub-compartment 4a is located on the western edge of the LNR, facing onto Braid Road. The woodland is composed primarily of mature sycamore with ash and beech forming the understorey.

	The woodland is bordered to the west by a 2.5m high boundary wall. The eastern edge of the sub-compartment is defined by a well-used, unsurfaced woodland path route which follows the top edge of the banking and leads directly to a set of steps leading to Braid Hills Avenue and Braid Road.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	*Ash* *Beech* *Hawthorn* Holly Elm	Oak	
Age	The trees forming the upper canopy layer vary in age but are for the most part 80-120 years of age. Some younger regenerated trees are present forming a partial sub-canopy and are mainly located on the edges of canopy gaps formed from individual tree removals.				
Height	Trees are 16-24m in height				
Size	Diameters range from 50-120cm				
Condition	Trees are generally healthy, although a few stem breakages and indications of instability were noted.				
Coverage	Woodland covers the majority of the sub-compartment area, with a narrow open fringe present along the edge of the boundary wall.				
Stocking	The trees are fairly regularly spaced forming two distinct rows along the top and the base of the banking and at roughly 3m spacing (~1000 stems/ha).				
Canopy	Canopy cover is almost complete with only a few small gaps.				
Understorey	There is a sparse understorey dominated by Elm coppice and young Sycamore and Ash.				
Shrub Layer	A woodland shrub layer is present in the form of Elm coppice, and Hawthorn and Holly regeneration. Holly forms tall thickets particularly along the western edge of the strip.				
Natural Regeneration	There is a limited amount of regeneration of Sycamore, with some young Holly also present.				
Deadwood	There is a limited amount of fallen deadwood, and some small diameter deadwood present in the crowns of mature trees				
Ground Vegetation	There is little ground flora present on the banking with only Ivy present under a complete canopy cover. Open areas along the edge of the wall are dominated by grasses and tall ruderal vegetation including Nettles and Marsh Thistles.				
Constraints	The strip is located next to Braid Road forming a prominent frontage.				

Special Features	Mature canopy trees have been subject to a more detailed individual tree survey in recognition of their location adjacent to a public road (refer to Appendix 2 – Tree safety survey). Small bulbils were noted on the roadside banking possibly indicating the presence of Few-flowered Leek.
Recreational Use	This area of the woodland has no access provision. There is an unsurfaced, informal woodland path located along the eastern edge of the sub-compartment.
Outline Proposals	• Carry out recommended remedial works set out in tree survey (refer to Appendix 2 – Tree safety survey) • Confirm presence of Few-flowered Leek and take appropriate measures to control spread.

Sub-Compartment 4b

Area	1.67 ha				
Type	Semi-mature mixed woodland				
Description	Sub-compartment 4b is located to the east of sub-compartment 4a. This sub-compartment was planted on a former agricultural field ~40-45 years ago. The woodland consists of a semi-mature stand of Sycamore, Norway Maple, Scots Pine, Lodgepole Pine, Larch, Alder, Ash, Wild Cherry, with some Oak and Birch. A few mature trees are present including a Sycamore avenue, probably a remnant boundary feature. The planting has been carried out in single species groups of ~20-30 trees. There are mainly conifer dominated areas on the steeper slopes to the east. Occasional Norway Maple and Birch are present particularly to the west.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Larch Scots pine Sycamore Ash Wild cherry	Norway maple Elder Alder Lodgepole pine Oak	Birch	Poplar
Age	Aged 30 - 40 years.				
Height	Canopy height ~18m.				
Size	Stem diameters are ~15-35cm.				
Condition	The Lodgepole Pines are tall and thin and most are leaning with some windthrown evident. Larch trees are also leaning.				

Coverage	Woodland occupies 100% of the area.
Stocking	Variable but generally ~2000/ha. Stocking reduces to ~1400 to east with a few small gaps.
Canopy	Canopy cover is ~80% with gaps resulting from wind damage and thinning. Small areas of windthrow are present and have not been cleared.
Understorey	There is no understorey layer.
Shrub Layer	The shrub layer consists mainly of Elder with some Elm coppice.
Natural Regeneration	There is a limited amount of Ash and Sycamore regeneration present.
Deadwood	Clearance of windthrown trees has been partially carried out with logs left as habitat piles.
Ground Vegetation	Willowherb present forming dense groups in canopy gaps.
Constraints	Access for woodland management is possible in 4d, but increasing restricted to the east. There are some drainage issues on mid slope path requiring culverts.
Special Features	Bird nests were noted in the tops of conifers. Bird boxes are present on some trees. A man-made structure, possibly an adit/ice house with a dated lintel stone over the bricked up entrance is located.
Recreational Use	Recreational use is mainly confined to the path route along the top of the slope on the northern edge. The path along the southern boundary is indistinct and appears to be seldom used.
Outline Proposals	• Thin area targeting non-native species • Fell conifer groups to create gaps for enrichment planting • Carry out enrichment planting • Protect enrichment planting from rabbit predation • Investigate significance of underground entrance feature.

Sub-Compartment 4c

Area	1.12 ha
Type	Semi-mature mixed woodland
Description	The woodland consist of groups of larch and pine with Wild Cherry, Sycamore, Ash, and Elder, with some Sycamore regeneration, and mature Elm, most showing signs of DED.

<table>
<tr><td></td><td colspan="5">The south-eastern section of this sub-compartment is a steep sided hollow cut into the slope. The slope is dominated by woody shrubs, tall ruderal vegetation and elm coppice forming dense thicket on edges of slope. The hollow possibly represents a former quarry working. At the base of the hollow is an open wet marshy area with Willow, Alder and Poplar fringing. A few of the trees fringing this wet area have blown over.

To the west and north the slope levels out and the woodland closes canopy.</td></tr>
<tr><td>Species Composition</td><td>Dominant</td><td>Abundant</td><td>Frequent</td><td>Occasional</td><td>Rare</td></tr>
<tr><td></td><td></td><td>Sycamore
Scots pine
Larch
Ash
Elder</td><td>Wild cherry
Elm
Hawthorn</td><td>Willow
Poplar
Holly
Hawthorn
Corsican pine
Birch
Dog rose
Beech</td><td></td></tr>
<tr><td>Age</td><td colspan="5">The majority of the woodland is aged 30-40 years with a few large veteran trees present in the form of Sycamore, Ash, and Beech aged 120 years+</td></tr>
<tr><td>Height</td><td colspan="5">Canopy height is ~16m.</td></tr>
<tr><td>Size</td><td colspan="5">Diameters range form 15-45cm.</td></tr>
<tr><td>Condition</td><td colspan="5">Trees are generally healthy but lack of thinning has resulted in tall slender stems which are showing signs of instability.</td></tr>
<tr><td>Coverage</td><td colspan="5">Woodland occupies 95% of the compartment area with the base of the hollow area in the centre of the woodland being open.</td></tr>
<tr><td>Stocking</td><td colspan="5">~2000 stems /ha.</td></tr>
<tr><td>Canopy</td><td colspan="5">The canopy cover is almost complete with few gaps.</td></tr>
<tr><td>Understorey</td><td colspan="5">Elm regeneration and coppice are the main components of a sparse understorey.</td></tr>
<tr><td>Shrub Layer</td><td colspan="5">The shrub layer is sparse and consists of elder.</td></tr>
<tr><td>Natural Regeneration</td><td colspan="5">Natural regeneration is mainly represented by ash aged 10-20 years.</td></tr>
<tr><td>Deadwood</td><td colspan="5">There is a limited amount of fallen deadwood in the form of windblown and snapped trees.</td></tr>
<tr><td>Ground Vegetation</td><td colspan="5">The hollow area is an area of relatively open canopy with patches of Brambles, Willowherb, Nettles and Himalayan Balsam. Ground vegetation also includes Ivy with some Herb-Bennet.</td></tr>
</table>

	Garden plants such as Privet, Cotoneaster, Buddleia, Fuchsia, Solomon's Seal encroach into the LNR area and encroach onto path. Some Mistletoe was also noted. Below the woodland canopy ground vegetation is sparse with patches of nettles and a few ferns present.
Constraints	Slope around the edge of the hollow is steep and unstable and cannot be easily accessed. The base of the hollow is wet and marshy, limiting management access.
Special Features	This area is thought to be the original source of Himalayan Balsam in the LNR area. Some pulling of Himalayan Balsam has been carried out recently to control the species. A few escapees from neighbouring gardens are present along the top of the slope. The path on the southern boundary is shored up on timber supports and is narrow and unsafe for use. Use of the path should not be encouraged. A few mature and healthy Elms are present.
Recreational Use	The whinstone surfaced path route on the northern edge of the sub-compartment is the only access route through the area. No other recreational use is made of the area.
Outline Proposals	• Clear banking to south of unwanted exotic species (i.e. garden plants and Himalayan Balsam) and restock to NVC W8 • Maintain open glade around base of hollow • Thin area to open up canopy gaps for enrichment planting, and to allow the establishment of a ground flora layer to help retain soil and reduce erosion • Target coniferous element and non-native trees for removal • Establish shrubs along top of hollow to discourage access and to help stabilise slope • Improve alternative access route along base of hollow.

Sub-Compartment 4d

Area	1.98 ha
Type	Semi-mature mixed woodland.
Description	The woodland consists of single species groups of conifer and broadleaf in mixture. Conifer areas are made up of Larch and Scots Pine with groups of Oak, Sycamore, Birch, Alder and Wild Cherry. Older Beech and Ash are present growing in lines and probably remnants of a former field boundary structure. Some veteran Ash and Sycamore trees are also present.

Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Scots pine Wild cherry Sycamore	Hawthorn Oak Larch Alder Ash	Yew Rowan Sycamore Beech	Cotoneaster
Age	The main canopy is composed of trees aged 50-70 years. Some mature Sycamores are present on the steep northern slope aged 80-100+ years.				
Height	Tree heights range from 14-18m with mature trees ~22m in height.				
Size	Diameters range form 15-45cm.				
Condition	Many trees, in particular the coniferous component, show signs of wind instability. There are a few fallen and leaning trees present, and a number of trees in groups with broken tops.				
Coverage	100%				
Stocking	Stocking is ~1500 stems/ha				
Canopy	Canopy is complete at 100%				
Understorey	There is no significant understorey layer present.				
Shrub Layer	Elder is the main component of a sparse shrub layer.				
Natural Regeneration	There is some regeneration of Ash and Sycamore present aged 1-5 years. There is also some Wild Cherry and Rowan present.				
Deadwood	There is a limited amount of deadwood present, mainly in the form of windblown trees. Felled timber arising from thinning and clearance of windblow has also been left on site in short lengths.				
Ground Vegetation	Ground vegetation and shrub layer/ regeneration is sparse with Ground Elder, Herb Robert and ferns present, and Creeping Buttercup on path edges. Willowherb dominates gaps formed from windblow and thinning works				
Constraints	The northern slopes of the area are difficult to access for management purposes, with some management operations liable to affect the main access driveway.				
Special Features	There is evidence of minor thinning works having been carried out in recent years with non-native trees (including Western Hemlock, Sitka Spruce, Sycamore and Lodgepole Pine). Pathsides have been opened up by thinning, possible for amenity as well as for public safety reasons. Since these work further minor incidences of windblow have occurred. A gap is present on edge of mid-slope path offering views down to				

	open amenity grassland area on edge of main path. Brambles dominate this gap site with dense stands of Willowherb and some Himalayan Balsam.
Recreational Use	There is little recreational use made of the woodland outwith the formalised path routes through the area. Orienteering is the only event making use of the woodland areas. One Cherry tree was noted growing in centre of path.
Outline Proposals	• Thin area • Fell conifer groups • Restock to native woodland • Remove dangerous cherry tree on path edge • Carry out enrichment planting of low shrubs into gap site to maintain views to the open glade to the south.

Sub-Compartment 4e

Area	0.84 ha				
Type	Semi-mature mixed woodland				
Description	This section of woodland occupies a relatively gently sloping section of ground located above the steeper sloping edge of the valley which forms the northern edge of the area. To the east and west the compartment boundaries coincide with woodland path routes. The woodland composition consists of Scots Pine with Larch and Wild Cherry forming the main components of the canopy. Younger pole stage Sycamore, aged ~20 years, add to the upper canopy. Groups of young Oak are also in evidence, and a few mature Ash are present through the area. In some sections of the slope, the woodland consists of mature Scots Pine and Wild Cherry, aged 60-70 years. The majority of the compartment consists of semi-mature conifers and groups of broadleaf trees aged 30-40 years and consisting of Scots Pine, Larch, Oak, Birch, Wild Cherry and Alder. It is likely that these have been established following clearance of wind damaged trees in the past. Semi-mature woodland areas consist of many tall and elongated individual trees as a result of a lack of thinning. Some mature Ash and Sycamore are present, probably remnant field boundary features.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Scots pine Larch Cherry Sycamore	Oak Ash Elm	

Age	The woodland is aged ~40 years.
Height	Tree heights range form ~14-16m
Size	Stem diameters range from 10-40cm,
Condition	Semi-mature conifers are showing signs of wind instability, with Larch leaning over and windthrown and wind snapped Scots Pine forming small gaps. Many slender stems are leaning and show signs of wind damage and instability.
Coverage	100%
Stocking	Ash regeneration aged 1-5 years is present and is dense in places raising stocking levels to ~2500/ha.
Canopy	Canopy cover is 90% with a few gaps resulting from recent thinning operations.
Understorey	The woodland understorey is sparse and consist of young Sycamore aged 15-20 years, with elm coppice
Shrub Layer	Elder, some young Holly and occasional Yew are the main components of a sparse shrub layer.
Natural Regeneration	Regeneration mainly consists of Ash, Sycamore and Elder, with some Wild Cherry regeneration also present.
Deadwood	Fallen timber has generally been left in situ with most converted to small logs forming habitat piles. There is some standing deadwood present in the form of young dead stems.
Ground Vegetation	Ground vegetation is sparse with bare earth and patches of brambles and ferns present. In wind damages areas, Willowherb and Nettles have colonised forming dense patches.
Constraints	Ground vegetation consists of bare earth with occasional ferns denser in areas of wind damage, with groups of Nettles also colonising these open areas.
Special Features	A few young Sycamore stumps are present along the path edges where selective thinning has been carried out. Coppice growth is emerging from these stumps.
Recreational Use	The mid-slope path is a 1.5m wide whinstone path with timber edging. The path has been realigned and graded in the past to remove step sections, with some redundant former steps still in place
Outline Proposals	• Carry out selective thinning to further open out canopy • Treat stumps to prevent coppice regrowth • Carry out enrichment planting.

Sub-Compartment 4f

Area	2.16 ha.				
Type	Mature broadleaf woodland.				
Description	This section of woodland occupies the southern slopes of the Braid Burn valley. Mature Ash and Sycamore is scattered across the slope with come mature Oak, all aged in excess of 100 years. Semi-mature Sycamores are also present forming part of the upper canopy layer. Dense Beech and Sycamore regeneration is present on the lower slopes with some semi-mature elm aged 15-30 years. Holly and Elder are the main components of the woodland shrub layer. Some elder and rowan are also present. Enrichment planting is evident in some places with Field Maple and Rowan present.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Elm Beech Elder	Ash Rowan Oak Scots pine	
Age	Mature trees are aged 80-150 years				
Height	Canopy height ranges from 22-30m depending with tree height varying according to the position on the slope.				
Size	Stem diameters of mature trees are 60-100cm dbh				
Condition	Trees along valley sides are tall and elongated as a result of competition from the canopy of trees present in locations further up slope. A few elongated pines are present on the lower slopes. These provide an attractive variation to the woodland canopy, but are located above one of the main valley path and are showing signs of wind instability.				
Coverage	100%				
Stocking	The main canopy consists of mature trees spread across the slope at wide spacing of 4-8m (~600 stems /ha)				
Canopy	Canopy cover is ~95%. There are a few areas of open canopy with dense elm coppice forming the understorey. These are generally associated with areas of steeply sloping ground which are difficult to access for management purposes.				

Understorey	The woodland understorey is dominated by young Sycamore, Beech, and Elm coppice. On the steep sloping sides of the Braid Burn the woodland understorey consists of Elm coppice, some Holly, with Beech and Sycamore regeneration aged 5-10 years.
Shrub Layer	The woodland shrub layer consists mainly of Elder, with some Hawthorn, Holly and brambles also present.
Natural Regeneration	There is dense beech regeneration in a few areas along the upper path route aged ~10 years.
Deadwood	Some standing deadwood is present in the form of snapped tree trunks. A canopy gap produced by the stem breakage of a large veteran Beech tree is located close to the southern path route.
Ground Vegetation	Ground flora consists of Dog's Mercury, Ivy, ferns, Wood Rush, and some Bluebells mainly on the woodland and pathside edges. Below the main woodland canopy ground vegetation is sparse with only ferns and patches of Ivy present. Ivy is present on the main stems of a number of mature individual trees, extending into the crown.
Constraints	Management access is restricted by steep slopes.
Special Features	A number of veteran trees are present in the area, particularly very large Beech and Sycamore trees located along the southern edges with a few located on plateau area on the mid-slope. Some mature and apparently healthy elm is also present. Rock outcrops located on the mid-slope form attractive features of interest and offer views down to the valley floor. Informal scramble paths have formed leading down to these features. The lack of ground flora in these areas suggests that these areas are frequently visited. A large Sycamore with basal rot is located above a pedestrian bridge crossing the Braid Burn to the east of Hermitage House. Management access is severely restricted by the valley slopes, particularly to the east. Access is limited mainly to the woodland paths close to the southern boundary. Below the mid-slope path is a derelict stone dyke feature and what appears to be a former access route which has regenerated to woodland. The sub-compartment boundary with 4g is indistinct on the ground.

Recreational Use	A number of woodland path routes are present within the woodland. The main routes follow the southern boundary and link downhill to form a mid-slope above the steep edge of the Braid Burn valley. An unsurfaced path leads downhill from the mid-slope path to link with the Braid Burn route. The link to the main valley path is steep and muddy. The mid-slope path has a number of piped culverts leading drainage under the path from the slopes above. Some drainage channels have formed small gulley features on the slope. Path steps leading up from main driveway are badly rotted with some steps missing. (A warning sign indicating path repairs are being carried out was in place at the time of the site survey.) The woodland path routes are popular with runners and dog walkers.
Outline Proposals	• Selective felling targeting unstable trees, safety issues, and non-native canopy trees • Carry out enrichment planting into gaps • Thin out regeneration • Control areas of Sycamore and Beech regeneration to restrict their extent • Control ivy to restrict the number of heavy infested trees.

Sub-Compartment 4g

Area	0.29 ha
Type	Mature broadleaf woodland
Description	The sub-compartment is located on the southern edge of the Hermitage of Braid woodlands. The sub-compartment boundary also encloses a strip of land to the south to include the Lang-Linn path. This section of woodland is attractive area comprising a stand of mature Oak, with a few younger mature Sycamore. Some semi-mature Elm coppice is also present aged ~40 years. A group of 3 Scots Pines are located on the southern boundary of the area. Whilst these trees provide interest and variety, they are in a poor condition with two of the three main stems snapped and leaning into neighbouring trees. Enrichment planting has been carried out in the past with Rowan, Alder and Oak established in shelters. These plantings are generally unsuccessful, with a lack of maintenance and incidences of vandalism being the main issues. Trees which have successfully established are aged ~10 years.

Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Oak	Elder	Sycamore Scots Pine Rowan Alder Elm Hawthorn	
Age	The mature Oak canopy is aged~150 years. Younger Sycamore canopy is aged 60-80 years.				
Height	Tree height varies from ~10m on the exposed southern edge to ~16m to the north.				
Size	Stem diameters of mature trees range from ~50-80cm				
Condition	A number of the mature Oaks are senescing with broken tops and dead limbs common amongst the remaining trees. Most trees have extensive epicormic growth along the main stems and larger branches.				
Coverage	Woodland cover represents ~80% of the area, the remainder being an open strip edged with a scattering of trees and shrubs which leads to the Braid Mills Road.				
Stocking	The mature canopy is stocked at ~500 stems per hectare. Enrichment planting and regeneration increase the overall stocking slightly to ~700 stems/ha.				
Canopy	Canopy is closed with a filtered light reaching the ground layers supporting grass and mosses. A few small canopy gaps are present with Elm coppice present.				
Understorey	There is little woodland understorey present to form a successional layer.				
Shrub Layer	The shrub layer is scattered and mainly confined to canopy gaps with Elder and Elm coppice dominating				
Natural Regeneration	Sycamore and Elder regeneration dominate the successional layer. Some young Sycamore seedlings are present within the area.				
Deadwood	There are some fallen stems providing large diameter deadwood, along with broken branches and crown deadwood.				
Ground Vegetation	Ground flora consists of grasses, Bluebells, Herb Robert, Comfrey, Docks, Ferns, Woodruff with some patches of young brambles.				
Constraints	This section of woodland occupies an exposed raised position on the southern boundary of the Hermitage of Braid woods.				
Special Features	A bench seat is missing from a bay located on the southern path edge. The woodland is one of the most attractive sections of woodland				

	supporting a display of Bluebells and Herb Robert in the spring. It is also near native in composition, but has a mainly non-native regeneration layer. A number of the Oak trees would qualify as veteran trees.
Recreational Use	The northern narrow strip is the Lang Linn path which forms an access into the LNR from Braid Hills Drive. One of the main woodland paths forms a boundary with the northern edge of the sub-compartment.
Outline Proposals	• Maintain area as native Oak dominated woodland. • Remove Scots Pine group • Remove Sycamore trees and regeneration from area, • Carry out enrichment planting in accordance with NVC W10.

Sub-Compartment 4h

Area	1.97 ha				
Type	Mature broadleaf woodland				
Description	Woodland canopy consists mainly of mature Beech on the slope with some mature Sycamore and Sycamore regeneration. The lower, steep-sided valley slopes consist mainly of Elm coppice with Elder and Brambles. At the eastern edge of the sub-compartment the woodland canopy consists mainly of Beech, Elm and Ash. The woodland composition on the lower, steeper sections of slope above the Braid Burn consist of Sycamore, Elm and some Rowan, aged ~30 years. Veteran mature trees are present along the path edges and southern fenceline and few Oaks are present as individual mature trees to the east.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Elm Beech Hawthorn Holly Elder Rowan	Ash Oak Yew Whitebeam	
Age	Mature Sycamore present on path edges and on mid-slope aged 120-150 years.				
Height	Tree height ranges from ~18m -24m.				
Size	Mature trees have stem diameters ranging from 70 – 120+cm.				
Condition	Some of the mature avenue trees show signs of senescence with basal rots and large broken branches present.				

Coverage	Woodland covers the whole of the sub-compartment area.
Stocking	Mature trees are stocked at ~600 stems/ha.
Canopy	The woodland canopy is ~95% complete with a few gaps, most of which are regenerating. To the east, the woodland canopy is more closed with an increasing proportion of mature trees present.
Understorey	Groups of Sycamore regeneration and Sycamore coppice present aged 30 years, along with groups of Beech aged ~40 years are the main components of the woodland understorey. Elm coppice plus a few individual regenerated and Rowan are also present.
Shrub Layer	The shrub layer is sparse and composed mainly of Elder with some Holly and Hawthorn regeneration.
Natural Regeneration	Regeneration mainly consists of Sycamore aged ~10-30 years of age. Dense Beech regeneration is occurring in these areas aged ~15 years at 2000stems/ha. There is also some young Elder, Holly, and Hawthorn. Enrichment planting has been carried out amongst an area of Beech regeneration along the southern path edge, with species planted consisting of Hawthorn, Whitebeam and Rowan.
Deadwood	Some small diameter deadwood is present. Below mid-slope path there are a few standing dead stems present.
Ground Vegetation	Below dense areas of woodland canopy and regeneration there is little ground flora present with only a few ferns present. In more open areas and along woodland edges there are patches of Wood Rush, grasses, brambles, Bluebells, Herb Robert, Herb-Bennet, and Dog's Mercury. A few garden escapees including Honeysuckle and Cotoneaster are also present with a limited amount of Ivy. In open patches on the steep upper slope of the valley have a ground flora dominated by Wood Rush, Willowherb and brambles.
Constraints	The compartment is located in a steep sided slope with no management access available within the area.
Special Features	Mature trees form an avenue along the edge of the path to the south of the sub-compartment. The avenue consists mainly of Beech trees, with some Sycamores and a few Ash.
Recreational Use	Outwith the formal path network there is little recreational use made of the woodland.
Outline Proposals	• Tree safety inspection is required for the pathside trees • Selective felling of mature canopy trees on safety basis

	• Selective thinning targeting non-native trees to open gaps for enrichment planting.

Sub-Compartment 4i

Area	0.63 ha				
Type	Mature broadleaf woodland				
Description	The woodland occupies the narrow cutting formed by the Howe Dean Burn. The woodland is composed of mature Ash and Sycamore, with Elm coppice and occasional mature Elm to south. To the east and west are fenced field boundaries.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
			Ash Sycamore Elm Elder	Field maple Holly Oak Dog rose	Beech
Age	The main woodland canopy is aged ~80-120 years.				
Height	Tree heights are ~16-18m				
Size	Diameter range 30-120cm				
Condition	Some mature trees show minor stem rots. Elm trees are generally healthy with little dieback evident, but epicormic growth is present on main stems (often an indication of stress).				
Coverage	Woodland occupies 95% of the sub-compartment area, with a small area of open ground and shrub edge associated with the access path to the south where it emerges from the Howe Dean strip and links to the Braid Burn route.				
Stocking	~1000 stems /ha				
Canopy	Canopy cover is 90% with a few gaps resulting from windthrown trees				
Understorey	A sparse woodland understorey is present in the form of Ash, Sycamore and Elm regeneration and Elm coppice.				
Shrub Layer	Elder forms the main shrub component below the woodland canopy.				
Natural Regeneration	Some regeneration is present mainly of Ash and Sycamore.				
Deadwood	Occasional historic windblown trees have been left in situ along top of banking providing deadwood along with occasional				

	snapped branches. Most of the smaller deadwood material appears to end up in the burn. A few standing dead trees are present on the upper slopes are present providing further deadwood habitat.
Ground Vegetation	Ground vegetation consists of Herb-Bennet, Nettles, umbellifers, Bluebells and ferns mainly along path edges. Vegetation is sparse below the main tree canopy with Dog's Mercury dominant along with some Ivy.
Constraints	The area is difficult to access for management purposes. It is likely that major tree works will require access from adjacent field edges. There are a number of tree safety and access issues to be addressed along the path route.
Special Features	An interpretation sign and a bench seat are present at the northern end of the area. A steel bridge with timber decking crosses the Braid Burn giving access to the Howe Dean strip from the north. Remnants of a former gate were noted at the end of the bridge. Some Himalayan Balsam is present along the waters edge and can be seen in patches along the Braid Burn (both within and outwith the LNR boundary). Some Giant Hogweed is also present in small quantities. Small bulbils were noted along burn channel noted possibly indicating the presence of Few-flowered Leek.
Recreational Use	A narrow path ~1m wide leads north along the Howe Dean Burn. The path is well used as a link between Braid Hills Road and the Blackford Glen area of the LNR.
Outline Proposals	• Tree safety survey and monitoring • Carry out remedial works identified in the tree survey • Clear burn of accumulated debris forming dams • Carry out enrichment planting • Confirm presence of Few-flowered Leek and take appropriate measures to control spread.

Sub-Compartment 4j

Area	0.63 ha
Type	Mature broadleaf woodland and open space
Description	The sub-compartment occupies the steep valley slope to the south of the main access drive. This section of woodland is occupies by a mature woodland canopy made up of mature Sycamore, Ash, Elm, Lime and Horse chestnut.

	A large open area is located between the base of the slope and the main driveway. The area consists of a low grassy sward and has a fringe of Holly and Elder hedging with gaps for access.				
Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Sycamore	Ash Elder Elm	Horse chestnut Lime Holly Hawthorn	
Age	The main woodland canopy is aged ~80-120+years.				
Height	Tree heights are ~18-22m				
Size	Diameter range is ~70-120cm				
Condition	Some mature trees show minor stem rots. Elm generally healthy with little dieback evident, but epicormic growth is present on main stems (often an indication of stress).				
Coverage	Woodland occupies 50% of the area. A large area of amenity open space is located on the northern edge next to the main drive leading to the visitor centre.				
Stocking	The mature trees are stocked at ~500-600 stems /ha.				
Canopy	Canopy cover is almost 100% with a few gaps resulting from windthrown trees.				
Understorey	There is a dense understorey composed of elm coppice and Sycamore regeneration.				
Shrub Layer	Elder forms the main shrub component below the woodland canopy, with some hawthorn also present				
Natural Regeneration	Some regeneration is present mainly of Ash and Sycamore				
Deadwood	There is little large diameter deadwood material present within the area.				
Ground Vegetation	Ground vegetation is sparse with Ferns, Herb-Bennet, Herb Robert, and Nettles present.				
Constraints	The woodland occupies a prominent location, highly visible to visitors. Wooded slopes are steep and difficult to access. Mature trees are senescing.				
Special Features	The water issuing from the base of the hollow in sub-compartment 4c is channelled through this sub-compartment area and spreads				

	across the open grassland area. The water currently discharges across the road to the Braid Burn, but presumably should be culverted beneath the road.
Recreational Use	The open area next to the driveway offers an area of amenity open space. Recent felling works of large mature roadside trees has resulted in ground disturbance. The drainage water issuing over the area has formed an area of wetland habitat which may be seasonal in nature. The wet ground is a further limitation to the use of the area as amenity open space, and the channelling of the water along the edge of the area may be more appropriate.
Outline Proposals	• Tree safety survey and monitoring • Culvert drainage below road • Channel drainage water along edge of area to culvert point • Retain open area as amenity parkland • Selective felling to reduce competition and open gaps • Thin regeneration layer to favour native species • Enrichment planting.

(Refer to Map No. 4 – Compartments)

Blackford Quarry Community Woodland

General information

Area	The Blackford Quarry Community Woodland covers an area of 3.15 ha.
Location	The area is located on the south-eastern edge of the LNR and north of sub-compartment 2f.
Type	Young broadleaf woodland.
Description	Blackford Quarry was infilled and capped following the cessation of quarry activities in the area. The area was planted up in 2002 by CEC as part of the Urban Forestry Strategy, and also to improve the amenity of the area, and to help to stabilise and improve soil structure. Alder was planted as the main species for its nitrogen-fixing ability, with other species being pioneer broadleaf species. The original planting proposed 4 species, but a number of other additions have been introduced into the mix to form an attractive and diverse area of broadleaf woodland. Other minor species planted include Wild Cherry, Hazel, Aspen, Oak and Beech. The latter three species are slow to establish and are still protected by shelters. Most other species have had their protective shelters removed and piles of stakes and shelters have been gathered awaiting collection/disposal.
Access	The community woodland is served by a partially surfaced path network which forms a loop path through the area, and linking to the Blackford Hill path network and the Braid Burn Right of Way.
Status	The area is a Community Woodland and is currently under an SFGS contact with obligations to maintain the tree areas to full establishment.
Soils and Drainage	The area has been infilled, capped and topsoiled as part of the restoration works carried out in the quarry area. The soils appear to be light and friable brown earths.

Species Composition	***Dominant***	***Abundant***	***Frequent***	***Occasional***	***Rare***
		Grey Alder Downy birch	Hawthorn Broom Gorse	Oak Rowan Guelder rose Dog rose Elder Ash Wild Cherry	Aspen Beech Hazel Aspen

Age	The area was planted in 2002 and is now 5 years of age
Height	The trees are ~2-3m in height with slower-growing oak at 1-1.5m in height.
Size	Most of the alder are between 5-10cm in diameter, with other species establishing more slowly and <5cm in girth.
Condition	The woodland is in a healthy condition and is establishing well.
Coverage	Tree cover is ~80% of the compartment area. The remaining areas are open providing buffer areas between the woodland and open grassland to the north and east. There is also open ground associated with the access routes through the wood.
Stocking	The area was originally planted at 2m centres (2500/ha). The stocking density has for the most part been maintained.
Canopy	The trees have yet to close canopy, and ground vegetation continues to flourish between individual trees.
Understorey	There is no understorey layer present.
Shrub Layer	Shrubs are present in the form of Broom and Gorse regeneration along the edges of the area and Hawthorn forming the main woodland shrub edge component.
Natural Regeneration	There is some regeneration of Broom and Gorse occurring in the area forming patches within the areas of open ground. There is little regeneration of tree species occurring at present.
Deadwood	There is no deadwood present.
Ground Vegetation	Ground vegetation is dominated by grassland species. The sward is rich in wild flower species and forms an attractive edge to the woodland areas and pathlines.
Constraints	Giant Hogweed is present on the lower slopes of the area. Control has occurred in the past but has been of limited effectiveness.
Special Features	The slow growing climax tree species are slow to establish and are still protected by shelters. All the trees have had their protective shelters removed.
Recreational Use	There is no recreational use made of the woodland areas themselves, these forming a dense thicket of growth currently. Recreation is currently restricted to the formal and grass pathways through the area.
Outline Proposals	• Control Giant Hogweed • Maintain slower growing species which are still to fully establish

Section Five

Evaluation

Woodland Evaluation

Woodland areas can broadly be divided into three main woodland categories according to the types and age classes represented, and are associated with particular locations within the LNR.

- **Mature woodland** - mainly along the valley of the Braid Burn
- **Semi-mature woodland** - located on the low slopes of Blackford Hill
- **Scrub Woodland** - located on the mid and upper slopes of Blackford Hill

Mature Woodland (Broadleaf and Mixed)

Along the Braid Burn the woodlands are mostly mature with successional regeneration and understorey layers developing below a senescing canopy.

The woodlands formed by mature trees have the highest value in terms of biodiversity and amenity, but are difficult to access, and present the greatest threat in terms of public safety.

Many canopy trees are overmature and showing signs of senescence, with large branches breaking out of the crown, and rots and other weaknesses evident. Threats presented by mature trees are largely dealt with on an individual basis as they arise.

Trees posing a severe risk are targeted for treatment or removal, avoiding large scale disruption and sudden alteration to the woodland character which may result from a more systematic and comprehensive approach.

This policy of gradual removal on safety grounds, and replacement planting is likely to continue as the most sensitive management option.

Size and stature of many of the mature trees remaining along the valley lends them an intrinsic commercial value. However limited accessibility, and the nature of the trees selected for removal (being diseased and/or of poor quality) severely limits any commercial value.

The majority of mature trees are in good health and are located in sheltered locations provided both by the valley landform and by each other. The gradual opening up of the canopy through selective felling and through wind damage presents an ever-increasing risk of windthrow, particularly to stems growing in close proximity and on areas with limited rooting depths.

The regeneration and understorey layers present in areas of mature woodland are dominated by non-native tree species. This threatens to reduce the biodiversity of these woodland areas in the long-term. Some native trees are present in these sub-canopy layers, established through regeneration and enrichment planting. One of the management aims is to increase the proportion of native species represented in these successional layers.

Semi-Mature Woodland (Broadleaf and Mixed)

Most of the semi-mature woodland present occupies the lower slopes of Blackford Hill and has little diversity in terms of composition or structure.

These woodland areas are dominated by a non-native woodland canopy and are densely stocked. Most of the semi-mature woodland has arisen from natural regeneration and competition for space, coupled with a lack of thinning activity, has resulted in tall, slender stems. Sycamore is the dominant species represented in these areas. Young Sycamore is susceptible to Squirrel damage and most of the trees present have been disfigured by browsing and bark-stripping. Sycamore also coppices freely, and previous cutting of Sycamore stems has resulted in multi-stemmed coppice from stumps.

Semi-mature woodland areas are generally in more easily accessed locations, but the quality of the stems present is a severe limitation on the commercial value of these woodland areas.

The semi-mature woodland areas are generally healthy, but are in need of management intervention to reduce crowding and to alter the areas towards a more diverse and attractive native composition.

Scrub Woodland

The other main woodland type present within the LNR is scrub woodland. This type is generally located on steep inaccessible slopes with shallow soils below the summit of Blackford Hill. These areas have largely been established through enrichment planting with the aim of reducing the domination of gorse and controlling its encroachment onto sensitive habitats.

These scrub woodland areas are composed of native shrubs and provide habitat variation and a food source. They are generally healthy and add to the diversity and amenity of the area.

Nature Conservation Value

The LNR area as a whole has a very high nature conservation value owing to a number of factors including the following:

Size – covering an area of 60.3ha, the LNR forms an extensive continuous expanse of open ground and is also located adjacent to large areas of greenspace.

Habitat Network – The LNR lies adjacent to other areas of open ground used as agricultural land, public parks and golf courses.

Habitat Variation - Within the LNR there are a wide range of habitat types represented, supporting a correspondingly wide range of plant and animal communities.

Naturalness – The open habitat areas associated with Blackford Hill are composed primarily of native flora which have remained relatively undisturbed throughout Edinburgh's development. The woodland areas are also long-established and have developed native plant communities in spite the high proportion of non-native trees species represented. Fringe areas on the steeper lopes of Blackford Hill are composed of scrub woodland dominated by Gorse with Hawthorn and

Dog Rose also represented. These areas provide habitat variation and are mostly native, but are prone to fire damage.

The following woodland features are listed in the Edinburgh LBAP for Woodlands as indicators which can provide a measure of how beneficial the area is in terms of biodiversity.

These are:

- *Diversity of tree species, both broadleaved and conifer, particularly native species*
- *Diversity of age and size of trees, from young regeneration to standing damaged or dead trees*
- *Presence of undergrowth and diversity of undergrowth structure and composition*
- *Presence of fallen dead wood and deep leaf litter*
- *Gap sites, glades and rides which allow light to filter to ground level.*
- *Areas of bare or disturbed soil*
- *A range of dry and damp or wet areas*
- *Presence of transitional woodland edge habitats.*

If any of these features are present in woodland, this is an indication that suitable habitats are available for a range of species. This is especially true for ancient or long-established semi-natural woodlands. These features should be identified and protected where they already exist, and encouraged on suitable or new woodland areas.

All of the listed features are present within the Hermitage of Braid and Blackford Hill LNR and the LBAP cites the area as a good example of woodland habitat in the Edinburgh area.

Amenity Value

The LNR as a whole has a high amenity value, and provides a range of visual experiences, each component adding to the attractiveness of the area.

The western section of the Braid Burn route provides a shaded and secluded section of mature valley woodland with paths along the tops of the valley and along the Braid Burn on the valley floor. The woodlands are visually attractive and varied in terms of composition and structure.

The eastern section of this route passes through a more open landscape of scrub woodland and rough grassland along the southern edge of Blackford Hill.

The western face of Blackford Hill is composed of steep and bare rock faces, with gorse scrub established on the upper slopes, and woodland colonising the lower slopes of the Hill.

The woodland areas form an attractive and diverse canopy across the area and provide a high degree of amenity when viewed form a distance. The woodlands have a generally open sub-canopy layer which is attractive to walk through and allows extended views available through the woodland below the main canopy.

On Blackford Hill itself, the main habitat is unimproved and semi-improved grassland providing an area of attractive open space enhanced by a varied topography

consisting of rolling hillocks and craggy outcrops. The views on the hill are framed and enhanced by the presence of areas of Gorse dominated vegetation.

The amenity value of the area is widely recognised and appreciated by statutory bodies and local people, and visitors to the area.

Figures relating to the numbers of visitors using the site are not known. However, the area is clearly popular, with a large number of people visiting the area. One impact of this high level of use is the occurrence of litter on the site. Litter bins are generally only provided at entry points, and low levels of littering occur within the area, which builds up into notable accumulations in some locations. Frequent clean-up events are organised by local volunteers to clear litter and accumulated debris, and levels of litter present in general kept at a low level.

Another consequence of the popularity of the area is the occurrence of dog fouling. The area provides an excellent facility for dog owners to exercise their pets. Owners are encouraged to clean up after their animals. Plastic bag dispensers located at entrances are no longer used due to the problem which arose of used bags being discarded within the area. The dispensers are proposed for removal. Dog bins are located at strategic points through the reserve, but in spite of this provision dog mess is still an issue, particularly on pathways, areas of amenity grass, and on the grassland areas of Blackford Hill.

Recreational Value

The woodlands within the LNR provide a setting for a wide range of recreational activity. There is an extensive system of path routes leading through the woodland areas, mostly following the line of the Braid Burn, with link paths leading down to the burn, and upslope to link with routes outwith the confines of the valley.

For many people gentle walks and dog exercising are the main recreational outcomes from visits to the area. Hill running, jogging and orienteering are also popular pursuits which take place within the LNR.

An orienteering course with an accompanying map has been jointly developed recently by CECCRS and Edinburgh Southern Orienteering Club.

Mountain biking also occurs along the main path routes, although this use is sometimes conflicting with pedestrian users, and resulting in path erosion. Signage asking cyclists to observe and respect guidelines set out in the Land Reform (Scotland) Act 2003 has been posted along affected routes. The efficacy of these measures is not known.

Horse riding also occurs within the LNR, also using stretches of pedestrian path routes with potential for conflict.

The visitor survey carried out in the 1987 indicated that neither horse-riding nor cycling were activities which those surveyed would like to see special provision being made, possibly owing to the fear of potential conflicts between the user groups, and potential damage to pathways.

Blackford Pond has a children play area located at the eastern entrance to the area catering for families and younger visitors to the park. The LNR has an extensive range of formal footpath routes and numerous informal routes cross the Blackford Hill area.

Landscape Value

The landscape value of the wider area is recognised, and is reflected by the designation of Area of Great Landscape Value.

Blackford Hill is a prominent landscape feature rising above the built edge of the city of Edinburgh. The variation in vegetation cover provided by woodland, Gorse scrub and grassland provides large scale features of visual interest on and around the hill adding to the visual amenity, viewed both from a distance on from on site.

Woodland areas occupy the low lying sections around the base of the hill and along the Braid Burn valley. Views over the woodland canopy are available from various points on Blackford Hill. These form attractive and prominent landscape features when viewed from this vantage.

The layout and composition of the woodlands and their relationship to neighbouring areas of open space and geophysical features formed part of a designed landscape set out when the Hermitage of Braid residence was built.

The prominence of the woodlands in the overall landscape setting make these sensitive to dramatic alteration, such as large-scale tree removal operations, and any woodland proposals will need to consider the likely landscape impacts resulting.

Cultural Value

The LNR has a number of features of local and historic interest. These features have been interpreted in a number of ways, mainly through interpretive leaflets with maps guiding visitors to the location of these features.

The site is recognised as being of geological interest, providing good examples of rock formations and features which provide information as to how the landscape was formed and shaped.

Several archaeological finds have been made on the site over the years, including artefacts from the Bronze Age and the Roman era.

One of the interpretive leaflets available provides an outline of the Hermitage of Braid House and surrounding area, and traces this history back to the 12th century. A number of notable historic people and events are recorded as being linked to the area.

Names for particular features or areas (e.g. Target Hollow, "the Hanging Stanes") provide some historic references and add to the cultural value of the area.

Built features, as well as landscape features such as historic field boundaries and tree avenues also bear testament to man's activity on the site in the past, and to how the site was used, influenced and transformed by this activity.

These and other factors give the site a high cultural value, providing a valuable educational and recreational resource.

Section Six

Factors Affecting Management

Constraints

There are a number of constraints relevant to the management and maintenance of the woodland areas. These have been identified through the course of the site surveys, and past experience, and raise issues which need to be addressed as part of the management process.

- **Herbivores**

There are several species of herbivores having negative impact on the woodlands at present, to varying degrees.

There is some Grey Squirrel damage in the form of bark stripping to semi-mature stems, with Sycamore being the main target species. The levels of damage are such that many individual trees will not develop into reasonable specimens, and some of the smaller specimens may die. This is a significant issue when stripped trees exist close to paths or roads. Within the context of the site, Squirrel control is not feasible, and damage limitation revolves around increasing the diversity of species to include those less likely to be targeted by Squirrels.

There are populations of rabbits throughout the scrub and woodland parts of the site. Individual tree protection will be a general requirement to safeguard any new replacement or enrichment planting. Rabbits predation may also impact on the survival of natural regeneration.

Roe deer may also visit the area, but are unlikely to be resident owing to the levels of disturbance and the lack of adequate cover. Damage through browsing or fraying can severely limit the development of young trees. Currently there are no signs of damage occurring.

- **Woodland Condition**

The condition of mature woodland areas in terms of health and stability is generally good.

There are a number of notable exceptions with some large trees showing signs of senescence. Dieback, stem rots and breakages in the crown are indicative of the deteriorating condition of some of these mature specimens, and these are of concern in terms of public safety.

Semi-mature trees forming woodland areas and also present within mature woodland areas as part of the upper canopy layer and forming a successional understorey is also generally good. Sycamore is the main component of semi-mature areas, and many of the trees are suffering from herbivore damage in the form of Squirrel damage in the tree crowns and Rabbit damage to the bases.

Dutch Elm Disease (DED) is present and is gradually taking its toll on the remaining Elms still present in the area. Annual controls in the form of selective felling and removal of diseased trees have reduced the presence of Elm in the area. The retention of the Limited number unaffected specimens and monitoring of these is desirable.

Both mature and semi-mature woodland areas have suffered from a lack of thinning. Many trees are tall and elongated from the resultant competition. Exposure to wind as a result of thinning and group felling may compromise the stability of these trees and result in wind damage.

- **Ecological Constraints**

One of the main constraints facing the woodland areas within the LNR is the presence, and dominance in some areas, of non-native vegetation.

The woodland canopy is for the most part dominated by non-native Sycamore, possibly introduced as a productive element to the estate woodland planting around Hermitage of Braid House. The dominance of Sycamore in the tree canopy limits the biodiversity of the woodlands.

Although natural regeneration of trees and shrub species is occurring within the woodland areas, most of this is non-native stock which is developing as the successional woodland layer. Native species which would normally be present in the locality, but are generally missing from the woodland understorey layers include Oak, Rowan, Birch and Hazel.

Woodland flora is threatened by the shading effects of a dense tree canopy which has resulted from a lack of thinning, and is exacerbated by the presence of non-native tree species such as Beech and Sycamore which cast a heavy shade.

The attractive and largely native woodland ground flora is additionally threatened by the encroachment of invasive non-native ground cover species such as Himalayan Balsam.

Deadwood is present in limited quantities in mature woodland areas, and is generally lacking elsewhere within the LNR. The extent to which fallen and felled timber, and standing deadwood can be retained on site is limited by public safety concerns and fire risk. The draft Urban Forestry Strategy for Edinburgh sets out an aim to meet the minimum recommendations made by the World Wildlife Fund (2004) to achieve 20-30m3 per hectare of deadwood in woodland areas.

- **Recreational Use**

The extensive public use of the site over an extensive path network means that the levels of disturbance are fairly high throughout the site, which will limit its use by certain species of fauna.

The public's use of the site will impose restrictions on the working practices used in the woodland management.

Management operations may require the exclusion of the public from working areas whilst implementation is underway, while the extent of operations at any one time may be limited by a desire to minimise any disquiet among users of the site.

- **Landscape**

The landscape features formed by the woodland and grassland are locally prominent and as a result the area is highly sensitive to any visual change which may result from major woodland management operations.

- **Services**

There are many services passing through the site, mostly within the west and north sides of the site and around the Visitor Centre. There are underground water and gas mains in the west part of the site which must be protected from excavation and heavy machinery use. There are also numerous overhead electrical powerlines located in the vicinity. The presence of services may limit the nature of suitable operations and the methodology required to undertake management works.

- **Badgers**

There are badger setts within the LNR. The adherence to the appropriate guidelines will limit the nature, extent and timing of management operations.

- **Other habitats**

Woodland is only one of a number of valuable habitats present with the LNR, and currently woodland cover is expanding through natural regeneration into adjacent areas. This expansion threatens to encroach on other sensitive habitats represented within the LNR. Protection of these valuable and sensitive areas should be included as an objective of woodland management.

Woodland management operations could also impact on these areas, and will need to be implemented using suitable appropriate methodology and specifications to avoid negative impacts.

Opportunities

Future management of the woodland areas provides a number of opportunities to improve and enhance their amenity, condition, structure and ecological value.

- **Silviculture**

The woodlands represented fall into two distinct age categories, each with their own silvicultural issues which could be addressed through pro-active management.

Mature woodland areas are generally located on steep slopes with limited accessibility. Individual tree felling could be carried out in these areas to remove safety risks and also to target non-native canopy species, helping to rejuvenate these areas and to influence the species balance towards a more native composition.

Semi-mature woodland areas are generally underthinned and lacking in diversity. In addition many of the Sycamore stems which dominate these areas are disfigured from predation by Squirrels and Rabbits. Thinning of these areas provides an opportunity to remove a significant proportion of the Sycamore canopy, and selection of the poorest quality stems for removal will improve the overall appearance of these areas. Planting of native tree species into gaps formed by thinning operations will diversify the woodland towards a more native composition.

- **Expansion of the LNR**

There is an opportunity to incorporate the newly established community woodland area in Blackford Quarry within the LNR boundaries. The inclusion of the young woodland area are will expand the woodland resource and diversify the age structure represented within

the area. The inclusion of will also increase the proportion of native woodland present within the LNR.

- **Biodiversity**

Currently a number of factors limit the biodiversity value of the woodlands. There is a range of age classes represented by the existing woodland areas, although mature woodland aged ~100 years or more, and semi-mature woodland aged ~30-40 years dominate. There are opportunities to diversify this age range through selective felling and enrichment planting

Currently the woodlands are dominated by non-native species. There are opportunities to diversify and re-proportion the woodland composition through enrichment planting and restocking of gaps using native trees.

Natural regeneration is occurring in some locations, both within and outwith existing woodland, but a significant proportion of this regeneration is being browsed by deer. Within most of the woodland areas, this regeneration is dominated by Ash and to a lesser degree by Sycamore and Beech, while in the grassland areas Gorse regeneration is dominant, with some Hawthorn regeneration also occurring. There is an opportunity to incorporate some of the advanced regeneration by heavily thinning the surrounding canopy trees.

- **Recreation**

The site is located on the fringe of Edinburgh, within walking distance for a large residential population, and located on bus routes serving the City. In addition the area is served by car parks located at various points on the boundary. The site is therefore well located as the setting for recreational activities, for both pleasure and health purposes.

The types of recreational activity which can be undertaken is somewhat limited by the rugged terrain, and the sensitivity of many areas of the site to disturbance and potential damage.

There is already a widespread network of hardcore, beaten earth and grass path routes through the site, so the main opportunities relate to the improvement of the surfacing and immediate confines of the existing paths rather than to the development of new routes.

- **Access**

Woodland management works will offer opportunities to improve existing access through the cutting back of tree and shrub encroachment along path routes. Sections of the path network are in poor repair, and there are opportunities to upgrade path sections as part of a programme of works for the LNR area.

Woodland areas are well served by an extensive access network which provides routes along which management access can be taken. Use of the woodland paths for management access is likely to result in damage to the path surfacing, and where possible should be avoided, and in any case should be subject to re-instatement following the taking of access by machinery.

- **Community**

The area has an active Friends Group which is involved with the management and monitoring of the LNR. The Friends of Hermitage of Braid and Blackford Hill are involved in

the development and implementation of projects to improve and conserve features of interest.

The general goodwill shown by the various users of the site helps to maintain the site in good condition through sensitive use.

The visitor centre at Hermitage House provides a resource for visitors, with an increasing variety of leaflets and other information relating to the LNR available. Organised events led by CEC Ranger Service are regularly arranged, and these provide opportunities to foster public interest in specific aspects of the site, as well as enhancing appreciation of the area as a whole.

There are opportunities to maintain public interest and to involve users and local people in a number of the ongoing and proposed management/conservation works.

The area is popular and is largely treated with respect by those using the site. Few incidences of vandalism are noted, and the main social issues affecting the park and the public enjoyment of the area seem to relate to littering and dog fouling.

- **Funding Opportunities**

Currently the Forestry Commission do not have an active grant scheme in place. However, a grant scheme is due to be announced in 2008 and it is likely that the type of works proposed will be well suited to the new grant scheme.

The availability of Forestry Commission funding is important as a contribution to the proposed works, and as a potential "pump-priming" mechanism to attract other funders seeking partnership benefits. This Management Plan will assist in providing a basis for funding applications.

Other funding sources may also be available to help fund various aspects of the management works, e.g. Landfill Tax, SNH, Lottery funding etc.

Section Seven

Aims and Objectives

General Statement of Intent

Under the current management plan for the LNR the General Statement of Intent is given as follows.

"To secure the long term future of the Blackford Hill and Hermitage of Braid Local Nature Reserve, by conserving and enhancing both the natural and the designed landscape, and its continued enjoyment by the public."

This statement still holds true in relation to woodland management aspects for the LNR.

Aims

To assist with the identification of the woodland management aims in the various parts of the LNR area, and to assist with management decisions, a broad zonation of the area is proposed.

The zones identified are shown on Map 6 and consist of 3 main habitat divisions.

Zone A – Woodland
Zone B – Scrub
Zone C – Grassland

Within each zone priorities will differ in accordance with the habitat requirements.

Each of the main habitat types, as well as other habitats, may be represented in each of the zones. There will be some crossover in terms of management objectives. Where the objectives are in conflict in a particular location, those objectives relevant to the particular zone covering that location would normally take precedence.

Zone A
Woodland

- ***To ensure the woodlands have a diversity of age structure and species mix,***
- ***To alter the woodland mix towards a more native composition***
- ***To retain the landscape design elements of the woodlands***
- ***To maintain and restrict the current woodland area cover***
- ***To conserve the woods as a habitat for flora and fauna.***

Zone B
Scrub

- ***To control the spread of woodland cover into scrub areas***
- ***To contain the spread of Gorse on Blackford Hill***
- ***To maintain a sufficient scrub habitat for nesting birds***
- ***To diversify the composition of scrub areas through the enrichment planting of native shrub species***
- ***To control the fire risk presented by scrub dominated areas.***

Zone C

Grassland

- ***To maintain the extent and amenity of grassland areas***
- ***To control areas of scrub encroachment***
- ***To control the effects of erosion on grassland areas.***

There are also a number of management aims which encompass all areas of the LNR:

- ***To ensure the LNR is kept in a safe condition***
- ***To maintain and enhance access, both to and within the LNR***
- ***To preserve the amenity of the LNR area***
- ***To safeguard and manage other priority habitats.***

Objectives

As with Management Aims, the Objectives for woodland management are set out in accordance with the proposed management zonation of the LNR area.

Zone A - Woodland Management

The management objectives designed to attain the aims of management have been summarised under the following headings:

- Silvicultural
  - Bring the woodland into sustainable management of the woodland by improving management access where possible and taking positive action through sensitive felling, thinning, clearance and replanting to improve the quality of the woodland.

- Conservation
  - Increase the biodiversity of the woodland, largely by restructuring the canopy to increase the proportion of native trees, reducing the dominance of Sycamore, and by diversifying the woodland structure and age variation
  - Control the spread of exotic and invasive species within the woodland areas
  - Control the spread of woodland onto other priority habitats.

- Cultural
  - To manage the woodlands to retain and protect features of cultural interest.
  - To maintain and enhance designed landscape features

- Amenity
  - Maintain the extent of woodland cover within the LNR as a landscape feature
  - Improve the amenity of the woodland through removal areas of fly tipping, maintaining boundaries and countryside furniture, and keeping the site in a litter free condition.

- Recreation
  - Improve and enhance the woodland access network and related features throughout the area
  - Maintain clear access corridors through woodland areas.

- Safety
  - Ensure that the woodland does not present a safety hazard to the general public or to users of the site by monitoring the condition of mature trees and maintaining access routes.

- Maintenance
  - Maintain the woodland to ensure the long-term success of management operations.

Zone B - Scrub Management

- Conservation
  - Improve the biodiversity value of shrub areas through diversification of the age and species structure
  - Control the spread of woodland species into scrub dominated areas
  - Control the spread of exotics into scrub dominated areas.

- Amenity
  - Maintain the amenity of scrub areas through diversification of the appearance scrub composition and age structure, and maintaining the areas in a substantially litter free condition.

- Recreation
  - Control and manage scrub areas to maintain open access along established routes.

- Safety
  - Control and manage scrub areas to reduce fire risk.

Zone C - Grassland Management

- Conservation
  - Manage grassland areas to maintain and enhance existing species diversity
  - Carry out enrichment planting of native flora to re-establish communities
  - Control the spread of scrub and woodland into grassland areas
  - Control the spread of invasive exotic species into grassland areas.

- Amenity
  - Maintain the amenity of grassland areas through the implementation of appropriate grass maintenance regimes
  - Maintain open areas in a substantially litter –free condition.

- Recreation
  - Maintain main routes through grassland areas in a safe and accessible condition
  - Encourage access along main path routes to control and restrict the effects of erosion.

- Safety
  - Maintain open areas in a safe condition.

(Refer to Map 6 – Management Zones)

Section Eight

Management Proposals

The Blackford Hill and Hermitage of Braid LNR is composed of a variety of habitat types, each with their own distinct requirements in terms of management.

This section provides an assessment of management requirements, and provides details of proposals covering the management plan period to meet these requirements.

Zone A - Woodland Management Proposals

Woodland management proposals vary according the woodland types present within LNR.

Mature broadleaf and mixed woodland areas

Mature woodland areas are well stocked with a dominant upper canopy of mature trees and a healthy understorey in most areas. The mature canopy is senescing requiring the crown treatments or removal (where safety is an issue) of trees are suffering from dieback or rots.

The following is a list of general proposals for management of mature woodland areas.

Proposals

- Selective felling
- Thinning of woodland understorey
- Removal of non-native regeneration
- Enrichment Planting
- Management of veteran trees
- Deadwood management
- Ivy control.

Selective felling

Selective felling of mature canopy trees is proposed primarily to tackle safety issues, but also to open up canopy gaps to facilitate restructuring.

Non-native tree species will be targeted for removal throughout the woodland areas with the aim of altering the species composition and increasing the proportions of native species represented.

Thinning of woodland understorey

Areas of dense regeneration have resulted in a crowded understorey. Competition for light and space has formed trees with a tall and slender growth form. The majority of this understorey layer is composed of non-native species, with Sycamore dominant.

Thinning of the understorey layer is proposed to reduce competition between individuals, but also to open up gaps in the successional layer for the establishment of native tree species, and to favour the growth of native species

Control of cut stumps is also proposed to prevent coppice regrowth and resultant competition to again favour native enrichment planting.

Removal of non-native regeneration

In selected areas of woodland, there is a very limited presence of non-native regeneration present in the understorey or regeneration layers.

The removal of localised non-native regeneration will remove competition for native species establishing through natural regeneration or through enrichment planting.

Enrichment planting

Gaps created in the mature canopy and understorey layers will provide opportunities to establish native woodland species. Species should be in accordance with the appropriate NVC Woodland Type (W8 or W10)

Management of veteran trees

There were 26 veteran trees identified in a survey carried out by CEC. These were difficult to assess on site owing to the lack of a map accompanying the survey. It is however clear that there are many other candidate veteran trees present within the mature woodland sections of the Braid Burn valley.

Veteran trees are valuable components of the woodland ecosystem, providing unique habitat for many woodland species and their retention is desirable, for as long as is sensible and safe.

Dead wood management

Deadwood forms an important element of the woodland ecosystem, providing habitat and food sources to a wide range of woodland fauna and flora.

Management of deadwood habitat will involve the retention of existing valuable deadwood habitat, ensuring that existing deadwood is safe in terms of public access, and the creation of new deadwood habitats.

Ivy control

Ivy is a natural component of woodland, and provides habitat for a range of woodlands species. For the most part the presence of Ivy is not an issue in terms of woodland management. However Ivy can spread to colonise stems of trees and can have a detrimental effect on the health and stability of affected individuals, through the increased weight and "sail" effect on the tree crown.

Semi-mature broadleaf and mixed woodland areas

Semi-mature woodland areas are densely stocked to the extent that little ground flora or regeneration is present in most areas.

It is proposed that these areas are treated according to the following general proposals:-

Proposals

- Thinning
- Group felling

- Enrichment planting
- Removal of non-native regeneration

Thinning

Currently areas of semi-mature woodland are densely stocked, with competition between individual stems resulting in slender and misshapen stems. The intense competition also results in a lack of light reaching ground flora layers resulting in exposed bare soils, and subsequent erosion problems.

It is proposed that areas of semi-mature woodland are thinned out to create a more open canopy allowing light to penetrate to sub-canopy layers.

Group felling

To further open up the dense canopy layer in semi-mature woodland areas, the selective felling of small groups, targeting non-native broadleaf and conifers is proposed to create gaps for restocking with native species.

Enrichment Planting

Gaps created in the canopy through thinning works and group felling will be restocked. Species should be in accordance with the appropriate NVC Woodland Type.

Removal of non-native regeneration

In some areas of woodland the regeneration layer is dominated by non-native trees with few native species represented. In some other areas regeneration is sparse with only a few regenerating trees present.

In areas of little regeneration, the removal of non-native regeneration at an early stage, accompanied by enrichment planting, would be beneficial in establishing a native woodland understorey.

It is proposed to remove non-native regeneration progressively from woodland areas, targeting specific areas as an annual programme, and to carry out enrichment planting to establish a more native successional layer.

Young broadleaf woodland areas

Blackford Quarry Community woodland is the only area of young broadleaf woodland identified. This area currently lies outwith the management boundary for the LNR, and as such proposals for the area have not been costed for inclusion in the budget Work Plan section.

This area is being considered for inclusion within the LNR, and therefore outline proposals are put forward here for the ongoing management of the area.

The woodland area is well stocked with few management problems noted. The main current issue relates to the presence of exotic weed species, paths, and woodland edges (with respect to fire risk).

Scrub woodland areas

The expansion of woodland areas onto Blackford Hill has encroached on Gorse dominated areas and formed a Gorse dominated fringe as a woodland edge. This edge is prone to fire, is largely undefined in terms of extent (with woodland expansion continuing onto the hill), and is limited in terms of biodiversity.

These areas are currently dominated by Gorse, which in turn is spreading to encroach on valuable grassland swards.

It is proposed that the following management actions are implemented: -

- Cut back Gorse from woodland edges
- Remove regenerated trees from Gorse areas
- Enrichment planting of native woodland shrub species
- Create gaps in Gorse areas.

Cut Back Gorse

Areas of scrub form a fringe to a number of the semi mature woodland areas establishing around the base of Blackford Hill. To reduce the risk of fire, it is proposed that this Gorse edge is cut back periodically to form a fire break along the woodland edges.

The definition of a woodland edge will also fix the extent of woodland present on the hill, and form a boundary to which woodland can be controlled.

Enrichment planting

The managed Gorse areas along the edges of woodlands will for the most part be allowed to regrow. Selected areas could be planted with enrichment planting of woody shrubs, to further define the woodland edge and to diversify the woodland shrub component.

Create Gaps in Gorse Areas

Gorse dominated areas are generally limited in terms of their biodiversity value. It is proposed that areas of Gorse are cut restocked with native shrub species such as Hawthorn, Blackthorn, Hazel and Dog Rose, to diversify the scrub woodland element, and to help reduce the fire risk presented by Gorse areas.

Summary of Proposals

The proposed works, listed by sub-compartment, are summarised below:

(Refer to Map No.8 – Woodland Proposals)

Compartment 1 Proposals

Area = 2.55 ha

Sub-compartment 1a

Proposals	• Continue to maintain area as amenity parkland • Establish a dense screening hedge along roadside fence • Carry out baseline tree survey and monitor parkland trees • Carry out remedial works arising from tree survey.

Sub-compartment 1b

Proposals	• Lightly thin area to reduce competition. • Manage Laurel and retain screening effect • Carry out tree survey of edge trees • Carry out remedial works arising from tree survey.

Sub-compartment 1c

Proposals	• Lightly thin area to reduce competition. • Manage Laurel and retain screening effect • Carry out tree survey of edge trees Carry out remedial works arising from tree survey. • Maintain bench seats.

Sub-compartment 1d

Proposals	• Mature trees along the main path sides should be surveyed and monitored for safety purposes • Carry out enrichment planting to maintain avenue feature using root-balled standard trees. • Carry out remedial works arising from tree survey. • Manage Laurel and retain screening effect.

Sub-compartment 1e

Proposals	• Tree safety survey required • Carry out safety felling and tree surgery requirements • Investigate creation of a loop path • Eradicate Japanese Knotweed • Future management of the wet woodland areas should aim to reduce and eventually remove exotic tree species, replacing these with native wet woodland tree species e.g. Birch, Willow, Alder, Ash and possibly Aspen.

Sub-compartment 1f

Proposals	• Monitor trees on southern edge for tree safety and stability.

Compartment 2 Proposals

Area = 38.67 ha

Sub-compartment 2a

Proposals	• Control Gorse expansion through cutting and subsequent mowing to encourage the establishment of a grass sward • Control exotic weed species seeding into grassland areas • Control the spread of Himalayan Balsam onto edges of grassland areas • Control Himalayan Balsam established in Gorse thickets by cutting and pulling • Monitor path routes for erosion problems • Control access to safeguard sensitive areas from excessive traffic • Remove all non-native tree regeneration from the area • Plant specimen native trees as parkland features at selective locations on lower slopes • Carry out introduction programmes of planting of Juniper, Rock Whitebeam and wild flora species (e.g. Sticky Catchfly). • Cut and maintain firebreaks • Cut pathside edges to rejuvenate Gorse growth and maintain a dense screen • Cut areas of Gorse to rejuvenate areas and to reduce fire risk • Cut small areas of Gorse encroaching into grassland areas Seed if necessary with appropriate grass mix • Maintain as mown areas to encourage development of a grass sward.

Sub-compartment 2b

Proposals	• Thin area targeting Sycamore and Western Hemlock • Restock gaps to NVC W10 • Remove Sycamore regeneration and Sycamore coppice from southern fringe of the woodland • Carry out enrichment planting of native shrubs on woodland fringes

Sub-compartment 2c

Proposals	• Remove tree regeneration, Currants and Willowherb from hillside to south of the compartment and encourage regeneration of Gorse • Control Gorse colonisation in open areas to favour other woody shrub species • Carry out enrichment planting of native shrubs (Blackthorn/Hazel) in open areas and on woodland fringes.

Sub-compartment 2d

Proposals	• Lightly thin woodland to reduce crowding and encourage development of ground flora • Carry out enrichment planting of native woodland species to enrich understorey • Single coppice stems • Maintain open areas for habitat variation and for views • Restrict height growth of shrub areas to maintain views from top of slope • Remove Sycamore regeneration and Sycamore coppice from open areas • Control Gorse colonisation in open areas to favour other woody shrub species • Carry out enrichment planting of native shrubs (Blackthorn/Hazel) in open areas and on woodland fringes.

Sub-compartment 2e

Proposals	• Safeguard and monitor badger sett • Define the upper woodland edge by forming a clear edge in the form of shrub planting and firebreak creation • Thin woodland edge to encourage scrub to re-colonise and develop • Carry out enrichment planting of woody shrub species • Remove tree regeneration from along the top of the slope • Remove tree growth from southern edge of viewpoint area to retain open view • Remove Himalayan Balsam from the woodland areas at an early stage • Remove Himalayan Balsam from the slopes above the woodland • Expand on existing open areas along path route at selected points through further clearance to create views onto the cliff face from the main path • Thin area to encourage establishment of a ground flora • Treat stumps to prevent coppice regrowth. • Open up small gaps for the establishment of woody shrubs and to encourage the development of ground flora • Enrichment planting of Birch, Alder, Ash, and woody shrubs. • Possible introduction of oak on lower slopes.

Sub-compartment 2f

Proposals	• Cut back areas of shrub growth in groups along the edge of the Braid Burn route to rejuvenate these features • Carry out light thinning of trees to reduce competition • Maintain attractive ruderal path verges through seasonal cutting.

Sub-compartment 2g

Proposals	• Thin areas to reduce competition and to encourage the development of woodland flora • Create small gaps by selective felling for enrichment planting • Carry out enrichment planting of native trees and shrubs • Control tree and shrub regeneration to south.

	• Cut areas of Gorse to rejuvenate these areas and as fire control.

Sub-compartment 2h

Proposals	• Resolve path drainage issues • Investigate and resolve sewage problem • Tree safety survey along path and implement recommendations • Single coppice stems • Thin regeneration layer • Maintain/replace standard trees • Prepare planting sites and plant with native species.

Sub-compartment 2i

Proposals	• Maintain open edge to the woodland by creation of and maintaining fire breaks and through gorse management • Cut Gorse as fire control measure and allow to regrow • Remove non-native tree species from Gorse fringe • Thin woodland area to encourage the development of a woodland ground flora • Single coppice stems • Carry out enrichment planting of native tree and shrub species.

Sub-compartment 2j

Proposals	• Monitor shrub areas and restrict spread of shrub habitat onto grassland and rock faces • Remove non-native trees (e.g. poplar, sycamore) from woodland mix • Remove Sycamore from hillside scrub areas • Coppice groups of shrubs in a phased programme to rejuvenate growth, and as a fire control measure • Remove invasive weed species from the burn corridor

Compartment 3 Proposals

Area = 8.19 ha

Sub-compartment 3a

Proposals	• Remove young Sycamore in selected areas and carry out enrichment planting of native tree species into gaps • Remove young Sycamore and beech regeneration from upper slopes and rocky knolls • Selective felling based on safety to open canopy gaps for enrichment planting • Selective felling targeting Beech and Sycamore to open further canopy gaps for enrichment planting • Enrichment planting to NVC with Scots Pine introduced as a historic policy element • Thin areas of dense regeneration on mid slope sections.

Sub-compartment 3b

Proposals	• Selective felling based on safety reasons to open canopy gaps for enrichment planting • Selective felling targeting Beech and Sycamore to open further canopy gaps for enrichment planting • Thin areas of dense Beech and Sycamore regeneration • Create gaps within regeneration layer for enrichment planting • Carry out enrichment planting • Disperse/chip accumulated area of deadwood.

Sub-compartment 3c

Proposals	• Carry out tree safety assessment • Carry out selective felling based on safety issues • Control Cotoneaster and Laurel to restrict to pathside edge • Thin understorey layer favouring native species • Carry out enrichment planting of native trees • Replace/ renew bird boxes.

Sub-compartment 3d

Proposals	• Selective felling to form gaps for enrichment planting • Remove Sycamore form the woodland understorey • Remove Sycamore regeneration • Carry out enrichment planting of trees and shrubs • Control Few-flowered Leek

Sub-compartment 3e

Outline Proposals	• Clear and spray off vegetation from the felled woodland • Treat stumps to prevent re-coppicing • Cultivate area and sow to establish a grassland sward as interim measure to improve manageability of the area • Manage verge by cutting seasonally

	• Control invasive weed species by pulling/spot treatment • Control Few-flowered Leek • A long-term aim for the area is to restore the walled garden and bring the area back into some form of horticultural use

Sub-compartment 3f

Proposals	• Carry out a tree survey to identify safety issues • Carry out remedial works as detailed in tree survey • Control Ivy spread and limit to a few standing trees • Control Few-flowered Leek • Carry out selective thinning to reduce competition and alter composition of the woodland understorey • Carry out enrichment planting into gaps

Sub-compartment 3g

Proposals	• Carry out a tree survey to identify safety issues • Carry out remedial works • Carry out selective felling to remove individual trees targeting non-native and hazardous trees • Thin understorey targeting sycamore for removal • Control Few-flowered Leek • Carry out enrichment planting

Compartment 4 Proposals

Area = 10.90 ha

Sub-compartment 4a

Proposals	• Carry out recommended remedial works set out in tree survey (refer to Appendix 2) • Confirm presence of Few-flowered Leek and take appropriate measures to control spread. • Replace/renew bird boxes.

Sub-compartment 4b

Proposals	• Thin area targeting non-native species • Fell conifer groups to create gaps for enrichment planting • Carry out enrichment planting • Protect enrichment planting from rabbit predation • Investigate the significance of the underground entrance feature

Sub-compartment 4c

Proposals	• Clear banking of unwanted exotic species and restock to NVC • Maintain open glade around base of hollow in area of water issues • Thin area to open up canopy gaps for enrichment and to allow the establishment of a ground flora layer to help retain soil and reduce erosion • Target coniferous element and non-native trees for removal • Establish shrubs along top of hollow to discourage access and to help stabilise slope • Improve alternative access route along base of hollow.

Sub-compartment 4d

Proposals	• Thin area and single coppice • Group felling of conifers • Restock to native woodland • Remove dangerous Cherry tree on path edge • Carry out enrichment planting of low shrubs to maintain views.

Sub-compartment 4e

Proposals	• Carry out further thinning to open out canopy • Treat stumps to prevent coppice regrowth • Carry out enrichment planting.

Sub-compartment 4f

Proposals	• Selective felling targeting unstable and unsafe trees, and non-native canopy trees • Carry out enrichment planting into gaps • Thin out regeneration

	• Control areas of sycamore and beech regeneration to restrict their extent • Control Few-flowered Leek • Control Ivy to restrict the number of heavy infested trees.

Sub-compartment 4g

Proposals	• Maintain area as native Oak dominated woodland • Selective felling of Sycamore and other non-native trees • Remove Scots Pine group • Remove sycamore trees and regeneration from area, • Carry out enrichment planting based on NVC W10.

Sub-compartment 4h

Proposals	• Tree safety inspection is required for pathside trees • Selective felling of mature canopy trees on safety basis • Selective thinning targeting non-native trees to open gaps for enrichment planting. • Control Few-flowered Leek

Sub-compartment 4i

Proposals	• Carry out tree survey and monitoring • Carry out remedial works • Clear burn of accumulated debris • Carry out enrichment planting • Confirm presence of Few-flowered Leek and if present take appropriate measures to control spread.

Sub-compartment 4j

Proposals	• Retain open area as amenity parkland • Culvert drainage below road • Channel drainage water along edge of area to culvert • Carry out tree survey and monitoring • Selective felling to reduce competition and open gaps • Thin regeneration layer to favour native species • Enrichment planting.

Blackford Quarry Community Woodland

Proposals	• Control Giant Hogweed • Maintain slower growing species which are still to fully establish • Remove tree shelters from established trees where appropriate

In Zone B - Scrub management and Zone C - Grassland management, many of the proposed management operations have already been described as part of the operations proposed in the sub-compartments which contain these habitats.

The main proposed operations are listed here as a summary of the proposals for these areas:

Zone B - Scrub management

- Establish and maintain desired extent of Gorse dominated areas
- Remove tree regeneration from Gorse dominated areas
- Establish firebreaks through other gorse areas in the form of open rides of varying width and shaping these to maximise visual amenity
- Establish a staggered programme of cutting of mature Gorse scrub in patches to rejuvenate these areas
- Cut areas with a view to forming attractive in organic shaped sections for landscape amenity
- Allow to regrow

Zone C - Grassland management

- Remove tree and shrub regeneration where it is occurs
- Cut small groups of newly established Gorse, and carry out subsequent mowing to return the areas to a grassland sward
- Carry out widely-spaced planting of individual parkland trees in enclosures for amenity
- Discourage access onto sloping areas of ground susceptible to erosion.

General Management Proposals

Public safety

One of the main aims of site management will be ensure that the woodlands within the LNR are kept in a safe condition.

This will require a system of regular monitoring of all aspects of the site, including access, tree safety, fire risk and watercourses.

It is proposed that regular tree survey work is carried out with particular emphasis on trees located to boundaries, buildings and access routes. An initial survey should be carried out to provide baseline information on individual trees, and that monitoring visits to update the survey are carried out every second year. Monitoring visits will be greatly assisted by systematic numbering and mapping of the trees being surveyed, and the regular updating of the surveys to record changes in condition.

Action points, particularly those relating to safety issues, arising from the survey work should be implemented as a priority to avoid deterioration tree condition and the exacerbation of risks.

The provision of path routes through the area caters for access demand and concentrates traffic to narrow and manageable corridors, safeguarding other areas of habitat for wild flora and fauna.

This access provision needs to be maintained in a usable and safe condition. To ensure this the path network should be inspected on a regular (annual) basis and problems relating to accessibility, safety, and maintenance of features should be recorded and action points implemented

Amenity

Litter and debris are major detractors from the amenity of greenspace areas including woodlands. There is an ongoing effort made by CEC staff and volunteers to maintain the overall amenity of the LNR.

Littering is an ongoing problem and the current efforts need to be sustained and encouraged.

In addition public awareness of the impact of littering could be raised within the LNR, e.g. on public leaflets and on information and entry boards.

Dog fouling is another issue affecting the general amenity of the area. Facilities are in place to tackle the issue, and responsible owners dispose of arisings. There are a number of careless owners leading to a problem of dog mess, and these owners need to be encouraged to take responsibility.

Other Key Habitats

Within the three main habitats zones (Woodland, Scrub, and Grassland) there are a number of habitats which are priorities for conservation action under Edinburgh's LBAP.
The other key habitats present are Rock faces and Wetlands (watercourses), both of cover significant areas Hermitage of Braid and Blackford Pond areas.

Some management intervention of these areas is required to preserve and enhance these features which are covered in management proposals under the three management zones. Consideration of other habitat types is needed when implementing proposals relating to woodland which may affect these other habitats or management issues.

Section Nine

Prescriptions for Woodland Management

Safety and Selective Felling

Removal of individual mature trees for safety reasons or to create canopy gaps for enrichment planting.

There is very likely to be a high degree of public sensitivity to the removal of trees from the area, and public consultation will be required prior to commencing this type of operation.

Prescriptions:

- Remove identified trees
- Crown reduce selected trees, and section fell where required ensuring safe takedown and to avoid damage to adjacent trees
- Fell all trees and shrubs to low stumps.

Timber removal

The treatment of felled timber will depend on the accessibility of the area being worked.

Timber felled in areas of the woodland accessible to machinery should be extracted: -

Prescriptions:

- Remove timber to suitable timber stacking point for uplift
- Timber is to be sectioned into short lengths if required to enable extraction
- Chip and remove or disperse all lop and top (<12cm diameter) within the woodland
- Where dispersed, chipped material should avoid pathsides and sensitive areas such as burnsides, and should not form piles of more than 50mm depth.

Timber in inaccessible areas, and therefore not extractable, should be left in situ as deadwood habitat:

Prescriptions:

- Large timber sections should be limbed and the tree crowns broken down
- Small diameter branchwood should be chipped and dispersed
- Remaining log(s) are to be is secured to prevent rolling or dislodgement
- All formal and informal pathways will be left clear of obstruction.

In accordance with the Council's Dutch Elm Disease Control Policy, all Elm felled on site is to be burnt in situ.

Prescriptions:

- Elm arising from felling operations will be burnt on site
- Fires will be controlled to prevent damage to surrounding trees
- Fires shall not be allowed to burn unattended
- Fires will be doused daily at the end of the working day
- Fire sites shall be rounded up neatly and all non-combusted debris removed to tip.

Stump Treatment

Prescriptions:

- Cut stumps liable to coppice should be treated and re-treated using glyphosate to prevent regrowth.

Deadwood Habitat

It is proposed to leave some dead standing trees, and to leave a number of high stumps to provide additional deadwood habitat.

Felled timber arising from management proposals and inaccessible for the purposes of extraction can be used to provide additional deadwood habitat.

Prescriptions:

- Assess and retain existing standing deadwood
- Create new deadwood habitat through proposed felling operations
- Manage deadwood to provide a diameter range
- Manage to prevent risk of fire or dislodgement of large stems.

Management proposals for deadwood are as follows:

Prescriptions:

- Assess and retain existing standing deadwood.

Veteran Trees

Veteran trees will be recorded assessed and mapped for future monitoring

Prescriptions:

- Map and record veteran trees
- Monitor for signs of deterioration
- Monitor candidate trees for inclusion.

Group Felling

It is proposed to remove groups of trees, targeting non-native species such as Sycamore, Beech, Western Hemlock, from selected woodland areas, to create gaps for enrichment planting.

As with selective felling, public consultation should be carried out prior to commencing tree removal works.

Prescriptions:

- Fell and remove non-native species groups from selected areas
- Remove timber and chip arisings
- Treat cut stumps to prevent coppice regrowth
- Carry out enrichment planting in accordance with NVC type.

Thinning

Thinning works are prescribed to reduce competition, to alter the species composition of the developing canopy, and allow enrichment planting to take place.

The developing woodland understorey with mature woodland areas has largely arising through natural regeneration, and is dominated by non-native tree species.

Regeneration has occurred in canopy gaps that have arisen naturally, or been created through thinning and safety felling operations. Competition between individual stems for a place in the woodland canopy has resulted in a dense stand of thin stemmed trees relying on the shelter and mutual support of neighbouring trees for stability.

It is proposed that the woodland understorey layer is thinned out, targeting poor form stems, and non-native tree species for removal.

Thinning in semi-mature woodland areas will reduce competition, and create gaps in the canopy for future regeneration and enrichment planting with a view to increasing the proportion of native trees.

Public consultation should be carried out prior to commencement of thinning operations.

Prescriptions:

- Thin the woodland understorey in mature woodland areas
- Thin semi-mature woodland areas to reduce competition
- Target non-native trees for removal
- Create gaps for enrichment planting
- Treat cut stumps to prevent coppice regrowth.

Enrichment Planting

Enrichment planting is proposed to fill in canopy gaps created by thinning, felling and wind throw. The planting mixes will be accordance with the appropriate NVC woodland types, with some additional species introduced in selected locations to maintain a policy element in keeping with the existing woodland character and the historical context of the woodlands.

The following tables are intended as a guide to the likely proportions for planting. Other suitable species may be introduced, in particular to diversify the policy woodland element (e.g. Larch, Whitebeam, Hornbeam, Sweet Chestnut).

Planting Mixes

Mix 1 - Based on NVC W8

This mix will generally be used on sloping ground and valleyside plateaus of the Braid Burn valley.

Mixed Broadleaf Woodland	NVC W8	Comments
Species	**% Mix**	
Ash	30%	Where regeneration is sparse.
Pedunculate oak	35%	
Downy birch	10%	Generally lacking.
Silver birch	5%	Generally lacking.
Rowan	5%	For amenity and diversity.
Wild Cherry	5%	For amenity and diversity.
Hawthorn	5%	Woodland shrub layer.
Holly	2%	Woodland shrub layer.
Crab apple	1%	For amenity and diversity.
Scots pine	1%	As policy trees.
Horse chestnut	1%	As policy trees.
Total	**100%**	

Prescriptions: -

- Trees will be planted in small species groups of 10 -25 trees
- Shrub species will be planted in small, single species groups located on the internal and external edges, and interspersed with Birch, Crab Apple, and Rowan
- Protect planting from rabbit predation through the use of tree shelters.

Mix 2 - Based on NVC W10

This mix will generally be planted on areas of drier elevated ground, rocky knolls, and in areas of semi-mature regenerated woodland.

Mixed Broadleaf Woodland	NVC W10	Comments
Species	**% Mix**	
Pedunculate oak	50%	Generally lacking.
Silver birch	25%	Generally lacking.
Downy birch	5%	For amenity and diversity.
Rowan	5%	For amenity and diversity.
Wild cherry	5%	Woodland shrub layer.
Hawthorn	4%	For amenity and diversity.
Hazel	2%	In groups at edges.
Blackthorn	1%	In groups at edges.
Scots pine	1%	As policy trees.
Horse chestnut	1%	As policy trees.
Total	**100%**	

Prescriptions:

- Trees will be planted in small species groups of 5-15 trees
- Shrub species will be planted in small, single species groups located on the internal and external edges, and interspersed with birch and rowan
- Protect planting from rabbit predation through the use of tree shelters.

Control of Exotic Weed Growth

Invasive plants introduced into the LNR have established and thrived despite efforts to control their spread, and are gradually expanding their range within the area. The spread of invasive species such as Himalayan Balsam, Japanese Knotweed and Giant Hogweed have been monitored over the last 10 years as part of the site management programme.

A variety of control measures are available including the following:

Chemical control - Application glyphosate or similar effective herbicide. Application needs to be is best carried out in early spring when the plant is actively growing

Cutting/mowing/strimming - cut plants at ground level before the flowering stage in June. (Earlier cutting than this promotes greater seed production in any plants that regrow). Cutting should be repeated annually.

Pulling - shallow-rooted plants can be pulled up very easily and disposed of by burning or composting (unless seeds are present)

Grazing - Grazing can effective but is impractical in the circumstances of the LNR.

To date most control efforts have been in the form of manual weeding (with the exception of Giant Hogweed which has been periodically sprayed). Manual control is labourious and time-consuming, with a limited time available for implementation prior to the flowering and seeding of the pest species.

With the continued increase in the prevalence of these species, control efforts have also increased, but the evidence suggests that the methods employed are having little lasting effect.

The use of chemical control methods have generally been avoided to date primarily, as a result of concerns of damage to desirable plant species also present in effected swards, and of contamination of the water system feeding into the Braid Burn. Whilst these concerns are understandable for sensitive, species rich vegetation and for areas along watercourses, there are areas of the LNR which are dominated by these exotics, and which are sufficiently distant from the burn and catchment tributaries to allow the safe use of herbicides.

It is suggested that such areas are identified and treated using herbicide to more easily attain quick and effective control of these areas, and allowing manual control measures to be concentrated more effectively on sensitive habitats.

Prescriptions:

- Map sensitive areas to exclude these from proposed herbicide application
- Continue to treat these sensitive species rich and riparian areas by hand
- Carry out chemical control within other defined areas
- Re-apply herbicide as follow up treatment to treated areas to prevent re-seeding and re-establishment
- For areas remaining as open ground, sow wild flower mix to establish a new, manageable sward.

Control of exotic weed growth

It is recommended that a proportion of Ivy covered trees within the area are retained, but that the extent and spread of Ivy is controlled in selected tree crowns.

Prescriptions:

- Sever Ivy stems around selected tree trunks at around waist height removing a 5 -10 cm section of each stem.

Maintenance

Planting Maintenance

Enrichment planting of trees and shrubs will be maintained to ensure successful establishment.

Prescriptions:

- Carry out replacement planting of failed trees
- Maintain shelters where fitted
- Weed trees as necessary, either manually or with herbicides, to ensure that competing weeds do not hinder the growth of the planted trees
- Remove competing non-native regeneration if required during the establishment phase.

Litter

Access routes and all woodland edges will be monitored on a regular basis and any litter removed prevent this building up and/or spreading.

This will be carried out on a regular basis (20 visits per year), with an annual clean-up being carried out through the whole woodland.

Prescriptions:

- Clear litter from all areas of woodland.

Fly-tipping

Clear garden waste, debris, litter accumulations and fly-tipping from the site.

Prescriptions:

- Materials to be disposed of in skips and removed from site
- The site will be monitored.

Other Works

Fence removal

There are a limited number of derelict fence feature found within the LNR. Some of these have been renewed along boundaries with the old fence left in situ. The effect of this is somewhat unsightly but has limited detrimental impact on the area as a whole.

Metal railing fences feature prominently along the southern boundary of the LNR. These are former estate features, and are in a generally poor state as a result of lack of regular maintenance. The do however provide a secure barrier against undesirable access. Some sections of railing fence are now redundant ore have deteriorated to form a gappy and ineffective boundary feature. The impact of this is also unsightly, and some sections of this fencing could be removed.

With the restoration off Blackford Quarry and its re-instatement to woodland, the boundary fence along the western edge of the area is now redundant. It is proposed

that the community woodland area be incorporated within the LNR and the fence, which formerly was a safety feature restricting access to the quarry, be removed.

Prescriptions:

- Remove redundant and derelict fencing from the LNR
- Repair and renew boundary features where required
- Remove all arisings to licensed tip for disposal.

Bird and Bat Boxes

There are several bird and bat boxes positioned on mature trees within the Braid valley woodland areas. Many are numbered along with a year date indicating when they were erected.

These features were noted as being in a generally poor condition and in reed of repair or replacement.

Re-erection on boxes on existing and new tree sites is proposed, along with monitoring of these features to check on condition and occupancy.

Prescriptions:

- Inspect existing bird and bat boxes in terms of condition and suitability
- Repair/replace boxes where required
- Identify suitable locations for new bird and bat boxes
- Erect boxes.

Monitoring

In order to effectively manage the woodland areas, a monitoring system both of the health and condition of the woods and the elements associated with these, and of the works implemented.

The Work Plan set out in Section 11 will allow proposed works to be timetabled and recorded for management and budgetary purposes, as well as allowing a degree of flexibility to managers to amend the proposals, and specifications where appropriate, to suit changing circumstances.

Prescriptions:

- Monitor the impact of implemented works
- Amend and monitor work plan to fit with resources and budgets
- Amend plan to take advantage of opportunities as these arise
- Record works completed and add proposals as these are identified
- Monitor works in map form for clarity, presentation, and for future reference.

Section Ten

Access

The main paths making up the LNR's access network are outlined in this section. This assessment of the path system is an extension to the woodland management plan and covers not only those routes providing access through woodlands, but also those giving access to other areas of the LNR.

There is a range of access provision present consisting of a hierarchy of paths varying in terms of surfacing, gradient and width.

The main purpose of the paths is to provide for pedestrian access for public enjoyment. There are however some routes which also provide for vehicular access to key areas for management and servicing of the site.

In addition other users groups, including cyclists and horse riders make use of the path network, giving rise to issues with regard to damage to surfaces, erosion and conflict with pedestrians. To some extent this use could be controlled and confined to those routes best able to withstand multi-use through the placement of informal barriers such as logs to discourage the use of certain routes.

This section aims describe the path system in terms of path type and condition, and to identify areas requiring attention in terms of replacement, upgrading, and maintenance. To assist in the description of these routes a series of node points have been identified, using letters. The various existing path routes, and the path nodes are shown on Map 5 – Access features.

Formal Path Routes

Waymarked Routes

Two main recreational path routes, the Red Route and the Blue Route have been identified within the LNR and are waymarked with short colour marked posts. A map leaflet showing the waymarker routes has been produced.

The Red Route forms a loop route along the Braid Burn and through the woodland to the north of the valley. The Blue Route forms a loop around the south west and north sides of the Hill and runs from the observatory areas to the west, up to the summit of Blackford Hill. The route then returns eastwards down the Hill and links back to the Blackford Glen area, through the Blackford Quarry Community woodland.

The two routes are shown on Map 5 – Access features.

Core Paths

Two of the access routes within the LNR have been identified as candidate routes for inclusion in Edinburgh's Core path Network

The lines of these routes are shown on Map 2 – Context.

The Braid Burn Route which follows the Right of Way along the Braid Burn Valley is one of the Core path routes identified. The path runs from point A at the western entrance to point F at the eastern edge of the site near the Blackford Road Depot.

The Round the Hill route forms a circular route. Starting at the northern entrance of Charterhall Road, the route follows paths around Blackford Hill.

Path Network by Purpose and Path Types

The path routes making up the path system are formed by connecting paths with a variety of surfacing. The types of surfaced paths present range from formal tarmac routes, to grass paths and desire lines.

The following section describes the range and extent of the access network.

(Refer to Map 5 - Access Routes)

The path network varies in terms of width, gradients and construction, but can broadly be classified into the following categories:

- **Tracks and roadways**
- **Tarmac footpaths**
- **Surfaced paths**
  - **Woodland paths**
  - **Hill paths**
- **Unsurfaced paths**
  - **Woodland paths**
  - **Hill paths**

Tracks and roadways

Wide tracks and tarmac surfaced roadways form part of the access network within the LNR. Most have a functional use with vehicles using these to gain access for access and servicing.

Path AC
Route A-C is a wide tarmac path providing the main access into the LNR from the west. The drive is ~4m wide and is used by vehicles to gain access to the House. The use of the access drive by public vehicles is discouraged for safety reasons and owing to a lack of suitable car parking space.

Along the drive there are a number of speed restrictors in the form of "sleeping policemen". The driveway leads past the stable block (with CEC staff parking) and continues on to the visitor centre.

The driveway is lined by an avenue of mature trees, which is senescing with gaps appearing. Replacement planting into some gaps has been carried out in an attempt to rejuvenate the feature.

The drive is heavily used by pedestrians as a route to the visitor centre to other parts of the Park.

Path DF
The eastern section of Route DF is a firm roadway with a compacted hardcore surface. This route was formerly used as an access for quarrying activities and has most recently used for management purposes. The roadway forms part of the Braid Burn right of way and is used by pedestrians as part of the LNR path network. A tubular steel vehicle barrier is in place at F.

Route PQ
Route PQ is a cement road which has been constructed mainly to provide access to the radio mast on Blackford Hill. This route is commonly used by pedestrians visiting the area. A vehicle barrier is in place at the eastern end of the route.

Tarmac footpath

There is one main tarmac surfaced footpath route.

Path LM
The path LM is a tarmac surfaced path located in Compartment 1 and leads around the southern edge of Blackford Pond.

The path is 2m wide and caters mainly for pedestrian access, but also allows for prams, buggies, and wheelchairs to access the area.

The path is accessed through metal gates at either end of the route forming a loop route with path section KN.

The path is in good condition and does provide a possible route for woodland management access, but is extensively used, with other quieter routes available to provide access to woodlands in the area

Surfaced paths

There are a number of surfaced paths present in the area designed primarily to provide access for pedestrian users. These routes form the majority of the formal LNR path network, and are of various age and condition.

These path form links with the tarmac routes and vehicle tracks and connecting to various areas of the LNR.

Surfaced Woodland paths

These paths provide mainly for pedestrian access within the areas of established woodland. The paths are generally surfaced with whinstone and vary in width from 1-2m.

These paths are of limited use in terms of management access as a result of their limited width and are their construction is not designed for access by vehicles or machinery. The routes do however follow the more obvious routes (and in some areas the only possible routes) through the woods, and it is inevitable that management access will require to make use of these routes at some stage.

Paths that are used for management purposes should be re-instated once access has been taken, and future construction and upgrading of woodland paths should take the requirement for machinery access into account when specifying widths and construction methods.

Path AI
Path AI is a long woodland path route which leads along the northern edge of the Braid Burn Valley. The path is whinstone surfaced and varies slightly in width along the route between 1.5m and 2m. From the entrance area A and heading west, the path is accessed through a disability-friendly access gate next to the

parapet of the road bridge over the Braid Burn. The path initially follows the edge the Braid Burn below the meadow area to the north.

Once past the meadow, the path continues along the southern edge of a woodland section, with a series of steps with timber sleeper treads in place to negotiate jutting sections of rock from the valley sides. The path leads to the southern edge of the walled garden, where it forks to the east and west. The path continuing east links to the main access drive (route AC) to the west side of the stable block. The other fork leads up through the walled garden to the dovecot at the top of the valley slope, via a set of timber steps.

The path continues around the dovecot and through an open arched gateway in the garden wall. The path then continues east and generally along the northern edge of the woodland forming an extended and generally flat woodland walk. At the eastern end of the path the route descends slightly to link to an entrance through the low estate wall marking the edge of Compartment 3, and links to route DK.

The path is generally in good condition along its entire length, although there are a number of drainage issues evidenced by muddied sections. The paths are also affected by leaf fall, and by the encroachment of edge vegetation which narrows the path corridors.

Route AD

Route AD forms another extended section of woodland path in this case along the south of the Braid Burn Valley. The route is accessed from the west off the main access drive AC, just to the west of the road bridge.

This path occupies the mid slope of the valley, rising above the steep and rocky sides of the valley slopes adjacent to the main access drive AC.

The path is 1.5m wide and timber edged, with timber culvert crossings in places to allow drainage from the slopes above to pass below the route. At intervals there are formalised link paths forming short steep sections down the valley slope to link with the main access drive. These routes are also surfaced and have steps in place to negotiate the slope.

Opposite the stable block area on the main access drive, the path climbs from the mid-slope on a steady but fairly steep gradient. The path then continues along the southern woodland boundary on the upper part of the valley slope.

The path continues to form link to the Lang Linn Path (route DH), at which juncture the path continues within the woodland area and parallel to the north of the Lang Linn path. The woodland path links with the Lang Linn route just above the Scout Bridge at point D.

The path is in generally good condition, but there are sections where drainage problems with wet sections and erosion evident, where further culverting and drainage is required.

Leaf fall and vegetation encroachment is an issue for the entire length of the woodland paths, with clearance works and regular maintenance being required to maintain a dry and safe surface.

Some of the sections of steps are in a poor condition and in need of maintenance or replacement.

Route DM
Route D-M is one of the most popular routes linking from the Blackford Pond area to the Braid Burn valley. This section of path forms part of the Round the Hill route.

The path follows a route around the western edge of Blackford Hill close to the base of the slope, and is fringed by woodland to the east from point M to point J where the path links to the access from Midmar Road. The path is 2-3m wide and is whinstone surfaced. The path surface is in generally good condition along this section, with few drainage problems noted.

From point J the path continues to the top of the Braid Burn valley and continues down the sloping side of the valley to meet with the Braid Burn Valley route A-F. The path is wooded to both sides along this section but a wide corridor if formed through the trees forming a fairly open and attractive route through dappled shade.

This section of path is again formed by a 2-3m wide whinstone path which is badly eroded in places, particularly on the steeper section where surface water run-off from adjacent slopes is channelled along the centre of the path forming deep gullies in places and washing out sections of the path. Pathside drainage installed is evident towards the base of the valley slope where drainage pipes have been exposed by erosion, and the drains appear to be choked and are ineffective.

Route ID
This section refers to the woodland route which runs along the western edge of the estate wall forming the boundary of Compartment 3.

The path passes through an attractive open area of mature woodland located on rocky knolls above the valley, and descends via a set of steep and narrow timber steps to link to an entry point through the boundary wall.

The path is dry and follows a gentle gradient across the wooded knolls. The stepped section is steep and could be daunting to users, particularly in adverse weather. The timber treads are formed by narrow strips of timber held in place by short posts. A number of these have been damaged or displaced through use and are in need of replacement.

Route DH
The southern section of the path runs north-south in the form of a narrow single track path route with a firm surfaced base. The path crosses Hermitage Family Golf Course from the southern edge of the woodland to link with Braid Hills Road. This section of the path is known locally as the Lang Linn path.

The path is partially fenced along the southern section of the route leading from the woodland areas. The fencing consists of semi-derelict metal railing. Although unsightly, the fences still serve to funnel access along the intended path route and prevent visitors straying onto the golf course.

The path edges have a few shrubs present along a rough grassy verge with vegetation encroaching onto the path surface and into the walking corridor.

The path links to the woodland from Braid Hills Road, through an area of more formal surfacing around the Club House area of the Hermitage Family Golf Club.

The path links to the woodland edge on the south side of the Braid Burn valley and heads east along the outside southern edge of the woodland. The path is 3m wide along this section. To the east the path starts to descend the valley slope. This section suffers from drainage and erosion problems, with water moving across the path surface to wash out sections of surfacing. Cut off bars are present in places but are only partially effective.

Route EG
Route EG is known as the Howe Dean path.

This path follows the line of the Howe Dean along the woodland strip making up sub-compartment 4i.

The path is 1m-1.2m wide and crosses the Howe Burn at two points via short timber bridges. The path is sunk between edge stones and in places is eroding badly as a result of the burn channel being diverted or overflowing onto the path.

Sets of steps are present along the route to negotiate steep sections. A long set of timber steps lead west and up from the valley floor to adjacent field-side path, where it continues out to Braid Hills Drive. A further set of steps provides access through a set of pillars onto Braid Hills Drive.

Some path repairs have been carried out in the past on sections in the form of stone paving setts. More recent repair and upgrading works have been carried out over the summer of 2007(and since the time of the woodland survey) to restore the burn channel, resurface the path route and renew timber bridges and step features.

Surfaced Hill Paths

Surfaced hill paths are located on the lower edges of Blackford Hill leading from the base of the hill, along the top of or through areas of woodland and scrub domination, to link to the informal, unsurfaced, grass path network.

There are a number of these link paths located along the western and southern fringe of the Hill. These paths are surfaced with whinstone, generally in the form of an open, unbound surface, resembling components of scree, and in keeping with the attractive natural settings through which they pass.

Steep sections of the routes are negotiated by timber sleeper steps. Some of the paths show signs of erosion, mainly in the form of edges falling away. Repair works have been carried out in the past, with routes being slightly altered, and reinforcement edging being installed.

Some sections of path are still suffering from erosion issues, and drainage and resurfacing is required along some of the path sections.

Where paths are badly eroded, alternative routes have been formed by users. The wearing of the alternative unsurfaced routes leads to further erosion.

Unsurfaced paths

Unsurfaced woodland paths

A number of the well worn and in most cases well drained unsurfaced path routes which a series of circular routes within the woodlands, and also connect from the top of the valley slopes down to the level of the valley. These paths generally follow a gentle gradient across the valley slopes, but are steep in places, with this restricting access particularly in wet weather.

These paths are generally used as short-cut routes, duplicating the more formal access routes available, and none are in any particular need of formalising or surfacing.

On some steeper sections the installation of timber steps may be desirable to provide secure footing when using these routes.

Unsurfaced hill paths

This category of path refers to the numerous desire lines formed on Blackford Hill which have resulted in the wearing away of vegetation to form obvious tracks. These tracks are particularly noticeable on aerial photographs covering the area. (Refer to Map 11 – Aerial view). Many of the routes duplicate and cross each other.

The paths are obviously popular and well used. There are however issues in the use of some of these routes in terms of damage to the sensitive grass sward, and erosion of steeper section of slope.

Geotextile has been used on some areas in the past, aiming to protect steep sections and to retain soil on the hillside. Continued use of eroded section results in an increase in the damaged areas, and avoidance of these sections altogether would be preferred to encourage the recovery of vegetation.

All of the hill paths are well drained as a result of the free-draining substrate over which they travel. There are therefore few drainage issues to be addressed, and generally these paths are in a condition which requires little in the way of maintenance.

Other Access Features

Interpretation

Noticeboards are in place at the main entrances into the area, at point A, at the entrance from Cluny Gardens, and at point F near the Blackford Glen entrance. Other boards are present at points G, H, and Q. These are updated by CEC staff promoting events and highlighting issues pertinent to the reserve.

There are also interpretation boards with information on the LNR and particular aspects features in the area, at entrance point A, at Blackford Pond, at the glacial erratic feature to the northwest of the pond, in the wet woodland area next to the pond (sub-compartment 1e), at the southern end of the Howe dean, on the summit of Blackford Hill (a viewpoint feature), at point J from Midmar paddock, and at the visitor centre, and at the observatory car park area to the east of Blackford Hill.

A further interpretation feature is normally present on the Agassiz Rock, highlighting the importance of the area in the history of geological study. The tribute plaque marking the significance of Agassiz's revelation is prone to vandalism and theft, and is currently located in the visitor centre.

The interpretation strategy produced in 2006 for Hermitage of Braid highlighted a number of areas in which site interpretation could be enhanced and improved, including the

design a layout of entry signs and interpretation boards, and the potential to introduce functional sculptural features based on the local area and heritage.

Currently self-guide leaflets provide one of the main sources of information for visitors to the reserve. Suggestions for a more standardised approach to the design of the various leaflets available and adaptation of the contents was also made in the Interpretation Strategy.

Entrances

The main entrances into the LNR are at the entrance off Braid Road (point A), at the entrance from Charterhall Road, from Blackford Glen Road (point F), from the observatory area east of Blackford Hill (point Q), and from the corner of Hermitage Drive and Midmar drive through the Midmar paddocks area (point J).

These five main entrances have a car parking facility located in the vicinity.

Additional entrances linking into the LNR area link from Braid Farm Road, Braid Hills Drive (at points G and H), Cluny Gardens, Midmar Drive, and Observatory Road (point O).

(Refer to Map 5 – Access Features)

Bridges

There are a number of road and pedestrian bridges present within the LNR. Most of these are concentrated along the Braid Burn, providing access to both sides of the burn. Pedestrian bridges spanning the burn are typically in the form of a timber decking and superstructure resting on metal beams secured onto concrete abutments.

The bridges are ~2m wide and are not designed for access by large machinery for management purposes, although smaller maintenance vehicles may be able to cross.

Scout Bridge is a major landmark feature in the area. The bridge is ~70m long and 3m wide, with timber decking and rails on metal superstructure. The bridge is designed primarily for pedestrian access has recently come under some level of scrutiny by CEC engineers in terms of it fitness for purpose.

Benches

There a large number of benches located at various locations throughout the LNR area. Both metal and timber benches are present, with most occupying prominent positions along main path routes, around the pond area or on open grassland and in gorse enclosed glades on Blackford Hill.

The benches are generally in good condition, but a number of benches were noted as being in need of maintenance such as timber treatments and painting. The benches in poor repair tend to occupy secluded and less frequented areas of the LNR. The benches have been mapped, and assessed by CECCRS staff, to allow them to be monitored and maintained on a regular basis.

The benches are prone to vandalism and dislodgement. Benches which are secured onto a concrete plinth base have fared better and the securing of other benches in this manner is suggested.

Access Proposals

Path Reconstruction

Sections of surfaced path are badly worn or eroded and are in need of total reconstruction to resurface the routes and install suitable drainage to reform an all weather surface.

Sections identified for treatment include:

- The eastern part of route DH
- The eastern part of route DK
- The woodland link path from point B connecting upslope from the main access drive south-west to link to the midslope path AD.

Major Path Repairs

A number of path sections are in need of major repair works involving the rebuilding of some sections, resurfacing of other sections, and the installation of drainage features.

Paths identified for major path repair works are:

- A section of the midslope woodland path AD, running to the north of Braid Farm
- Path section part NO

Minor Repairs

Most of the path network is need of minor repair works, removal of dips and pot-holes.

Vegetation Management

Side growth of trees, shrubs and ground flora encroach into the path corridors of many of the woodland paths in the LNR. The impact of this growth is liable to increase following proposed selective felling and thinning operations.

To maintain and open walking corridor, periodic cutting and pruning back of edge vegetation is required.

In addition the clearance of accumulated leaf litter will be required thought the woodland areas to prevent a humic layer from developing on the path surfaces, and for safety reasons on stepped sections.

Proposals

- Control path edge vegetation by strimming 2-3 times/year
- Cut back and prune of encroaching woody vegetation annually.
- Scrape path surfaces to remove accumulated leaf litter.

Drainage Works

A number of paths are affected by drainage issues, with surface erosion and drainage issues on most routes. Drainage problems will require ditching, culverting or the use of cast-off bars to alleviate the problems where these arise.

Proposals

- Carry out drainage improvements where required.

Step repairs

There are a number of stepped path sections present within the LNR. Most of these sections are constructed using sleeper timber risers held in place by timber or metal posts, and treads made up of aggregate material in keeping with adjacent path sections.

Maintenance of these features is required on many sections including re-positioning or replacement of risers and resurfacing of treads.

Proposals

- Carry out step repairs where required.

Path Maintenance

Path maintenance and upkeep will involve the scraping of muddied path sections clearance of drainage features, maintenance of vegetation growth seeding onto or growing through surfaces, and maintenance of verges. This should be carried out annually on all surfaced routes.

Proposals

- Maintain surfaced paths

Management Access

As with many woodland areas, existing access caters mainly for pedestrian use, with narrow paths and stepped sections restricting access for machinery.

For the most part works involving the treatment or takedown of mature canopy trees would normally be undertaken using large forestry machinery with lifting and pulling capabilities. Access for such machinery is not generally feasible on the valley slopes, and access would be restricted to the valley floor or the upper edges of the area.

Access on the main path along the valley floor is further restricted by narrow pedestrian bridges crossing the Braid Burn, which are unsuitable for tractor access. Fording of the burn to gain access may be possible but is undesirable.

Access from the woodland edges on the tap of the valley will generally require permission from the adjacent land ownerships.

In any event the areas of woodland capable of being accessed are limited, and some of the steeper woodland sections will be beyond the reach of forest machinery without major disturbance and damage resulting.

Smaller forestry machinery such as chippers and small tractors could use the pedestrian routes to gain access further into some woodland areas, with minimal impacts on path surfaces, and should be used in preference to larger equipment whenever possible.

The restrictions to access for machinery will inevitably result in the increased cost of forestry operations.

Management Access Proposals

- Investigate the possibility of improving bridge crossing points to accommodate large machinery
- Identify access routes within woodland areas, linking these to suitable access points and avoiding where possible existing pedestrian routes
- Use small forestry equipment where possible/feasible to minimise disturbance to existing path surfaces.

Section Eleven

Work Plan

The proposed works for the management of the woodlands within the LNR are set out in this section in the form of a proposed timetable with outline budget costs set against each of the work items. The costs given are on the basis of current costs of using commercial contractors, and are exclusive of VAT.

Most of the major works are scheduled to occur in the early part of the work programme. This is partly due to the lack of intensive woodland management which has led to a backlog of works required within the woodland.

The works have been timetabled based on what is envisaged to be practical with similar activities grouped to occur within the same period of time in order to achieve economies of scale.

The timetabling of the work proposals also aims to divide the works into smaller manageable areas and to concentrate efforts in particular areas, localising the impact (of woodland operations in particular) to reduce disruptive impacts on the LNR as a whole.

The suggested timetable is flexible, and can be amended to spread the workloads and budgetary requirements over a number of years, with annual works separated according to work type and location. This flexibility also allows managers to be responsive to changing circumstances, altering where necessary to encompass changes which may result from factors such as funding availability, safety issues or other external influences.

Timing

Given the access difficulties, and the likelihood of damage arising from woodland management operations, it is recommended that particular attention is paid to the timing of the works. Woodland management and clearance operations should be undertaken before the completion of any of the access works, although it may be necessary to undertake some initial basic access work to allow certain woodland management operations to be undertaken effectively.

Implementation

The large majority of tasks contained with the Plan could effectively be undertaken by either specialist commercial contractors or directly by Council workers, or by a combination of both. The main elements proposed works could be sensibly divided into separate packages, with the likely division being into path works, tree works, and general maintenance tasks. More specialist tasks would include signage, entrance and furniture construction.

There is also considerable scope to continue the involvement of the Friends Group and volunteers, and the wider community in the implementation process. Tasks such as tree shelter removal, path corridor widening, manual weed control, and litter clearance could, at least partially, be undertaken by local community groups and volunteers.

Management

Professional input will be advisable in organising and supervising the proposals contained within the Work Plan. The methods of implementation detailed above would require different degrees of input from CEC. The co-ordination of the works detailed in this Plan with other proposed works will be an essential and demanding task.

The staff requirement will be highest in the initial stages, but it is imperative that the proposed maintenance tasks are carried out to ensure the success of any capital works undertaken. Adequate and regular maintenance will be fundamental in ensuring in maintaining a site that is both attractive and functional. This will require a commitment to ongoing management.

Monitoring

Monitoring of the works carried out on the woodland is important in ensuring that the operations are scheduled and implemented in an appropriate timeframe, and that they will fit with the available budget.

The Work Plan is designed to provide a simple method of timetabling, costing works, and monitoring budgets for the management of the woodlands within the LNR.

The work plan can operate as a budget spreadsheet which can be updated as and when works are implemented or to reflect changes in the availability of resources.

Plan Review

This plan is subject to consultation and approval by CEC. Once adopted, the plan will be subject to review through the monitoring process and should be updated and amended to keep proposals current and relevant.

The management plan covers a ten year management period, and should be revisited towards the end of this timeframe to review the works implemented during this period, and to update recommendations and proposals based on contemporary woodland survey information.

WORK PLAN SHEET 1

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
	Compartment 1															
1a	Establish roadside hedge		60	m	15.00		£900									£900
1a	Maintain hedgerow			sum				£100	£60	£60	£60	£200			£200	£680
1a	Tree survey and monitor parkland trees.			item		£50		£25		£25		£25		£25		£150
1a	Carry out remedial works			sum		£100			£100				£100			£300
1b	Lightly thin area to reduce competition.	0.45	0.45	ha	4000.00				£1,800							£1,800
1b	Maintain laurel shrub layer by staged pruning		0.15	ha	2000.00	£300	£300	£300	£300	£300	£300	£300	£300	£300	£300	£3,000
1b	Carry out tree survey of edge trees			item		£50		£25		£25		£25		£25		£150
1b	Carry out remedial works			sum		£900			£300				£300			£1,500
1c	Lightly thin area to reduce competition.	0.57	0.57	ha	4000.00	£2,280			£2,280							£4,560
1c	Carry out tree survey of edge trees			item		£50										£50
1c	Carry out remedial works			sum		£450			£150			£150				£750
1d	Survey mature trees along main paths	0.13		item		£100		£50		£50		£50		£50		£300
1d	Carry out remedial tree works			sum		£600			£300				£300			£1,200
1d	Carry out enrichment planting to maintain avenue feature		200	no.	1.00		£200									£200
1d	Maintain enrichment planting			sum				£40	£40	£40	£40					£160
1e	Tree safety survey	0.11		item		£50		£25		£25		£25		£25		£150
1e	Carry out safety felling and tree surgery			sum		£300			£200			£200				£700
1e	Eradicate knotweed patch		20	m2			£50	£50	£50	£50						£200
1f	Monitor trees on southern edge for tree safety and stability.			item		£50		£25		£25		£25		£25		£150
	Compartment 1 Total					**£5,280**	**£1,450**	**£640**	**£5,580**	**£600**	**£400**	**£1,000**	**£1,000**	**£450**	**£500**	**£16,900**

WORK PLAN SHEET 2

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
	Compartment 2															
2a	**Blackford Hill Area**															
2a	Control gorse expansion by cutting and mowing	27.25	0.6	ha	3500.00		£2,100	£2,100	£2,100			£2,100	£2,100	£2,100		£12,600
2a	Control exotic weeds seeding into grassland (manual)			sum			£450	£450	£300		£300		£150			£1,650
2a	Control the spread of himalayan balsam (spray)			sum			£100	£100	£100		£100		£50			£450
2a	Control himalayan balsam in gorse areas (manual)			sum			£900	£450	£450	£300	£300	£150	£150			£2,700
2a	Remove all non-native tree regeneration			sum				£500	£200			£100			£100	£900
2a	Plant specimen native trees as parkland features at selective locations on lower slopes		10	no.	85.00				£850							£850
2a	Carry out introduction planting of juniper			sum					£500							£500
2a	Maintain and monitor									£50	£50	£50				£150
2a	Carry out introduction planting of rock whitebeam			sum					£350							£350
2a	Maintain and monitor									£50	£50	£50				£150
2a	Carry out planting of wild flora species (e.g. sticky catchfly).			sum					£350							£350
2a	Maintain and monitor									£50	£50	£50				£150
2a	Cut and maintain firebreaks through gorse areas		450	m	2.50			£1,125		£4,500		£4,500		£4,500		£14,625
2a	Cut pathside edges to rejuvenate gorse growth.		470	m	5.00			£2,350								£2,350
2a	Cut areas of gorse to reduce fire risk		1	ha	3500.00		£3,500		£3,500		£3,500		£3,500		£3,500	£17,500
2a	Cut small gorse areas in grassland		0.2	ha	3500.00		£700									£700
2a	Seed if necessary with appropriate grass mix.			sum				£200								£200
2a	Mow to encourage development of a grass sward.			sum					£200	£200	£200	£200				£800
2a	Remove redundant fencing.		120	m	10.00		£1,200									£1,200
	Blackford Hill Sub-compartment Total					**£0**	**£8,950**	**£7,275**	**£8,900**	**£5,150**	**£4,550**	**£7,200**	**£5,950**	**£6,600**	**£3,600**	**£58,175**

WORK PLAN SHEET 3

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
2b	Thin area targeting non-natives	0.62			3000.00			£1,860								£1,860
2b	Restock gaps to native woodland		250	no.	2.00				£500							£500
2b	Remove sycamore regeneration and coppice from south			sum				£400								£400
2b	Carry out enrichment planting of native shrubs		200	no.	1.00				£200							£200
2b	Maintain enrichment planting			sum						£40	£40	£40	£40			£160
2c	Remove tree regeneration, currents and willowherb	0.39		sum				£400	£100	£100						£600
2c	Control gorse colonisation in open areas			sum			£300									£300
2c	Carry out enrichment planting of native shrubs (blackthorn/hazel) in open areas and on woodland fringes.		200	no.	2.00				£200							£200
										£40	£40	£40	£40			
2d	Lightly thin woodland	1.72	1.72	ha	4000.00			£6,880								£6,880
2d	Carry out enrichment planting		200	no.	2.00				£200							£200
2b	Maintain enrichment planting			sum												
2d	Restrict height growth of shrub areas to maintain views			sum			£300									£300
2d	Remove sycamore from open areas.			sum			£300									£300
2d	Control gorse colonisation			sum			£300									£300
2d	Carry out enrichment planting of native shrubs		200	no.	1.00				£200							£200
2d	Maintain enrichment planting			sum						£40	£40	£40	£40			£160
2e	Heavily thin woodland edge	2.32	0.45	ha	4500.00			£2,025								£2,025
2e	Carry out enrichment planting of shrub species		400	no.	1.00				£400							£400
2e	Remove tree regeneration from along the top of the slope			sum				£300		£150		£150		£150		£750
2e	Remove tree growth from edge of viewpoint			sum				£100								£100
2e	Remove himalayan balsam from the woodland			sum			£150	£150	£100	£100	£50					£550
2e	Remove himalayan balsam from upper slopes						£300	£300	£300	£200	£100	£50	£50			£1,300
2e	Create views by group felling.		0.2	ha	3500.00	£700		£700								£1,400
2e	Thin area to encourage establishment of a ground flora		1.67	ha	4000.00	£6,680		£6,680								£13,360
2e	Treat stumps to prevent coppice regrowth.			sum				£250	£100	£50	£50	£50	£50	£50		£600
2e	Enrichment planting of native species.		300	no.	2.00			£600								£600
2e	Maintain enrichment planting			sum						£40	£40	£40	£40			£160

WORK PLAN SHEET 4

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
2f	Cut back shrub growth along burn and paths	3.02	500	m	2.00		£1,000									£1,000
2f	Thin to reduce competition		0.5	ha	3000.00		£1,500									£1,500
2g	Thin area	0.89	0.89	ha	4000.00			£3,560								£3,560
2g	Carry out enrichment planting		200	no.	1.00				£200							£200
2g	Treat stumps to prevent coppice regrowth.			sum			£25									£25
2g	Cut areas of gorse as fire control.		0.1	ha	3000.00		£300		£300		£300					£900
2g	Maintain enrichment planting			sum				£20	£20	£20	£20					£80
2g	Control tree and shrub regeneration			sum			£150									£150
2h	Tree safety survey along path	0.45		sum		£50		£25		£25		£25		£25		£150
2h	Thin woodland areas and single sycamore coppice		0.45	ha	4000.00			£1,800								£1,800
2h	Plant gaps with shrub and pioneer species.		100	no.	1.00				£100							£100
2h	Seasonally cut gorse areas for fire control		0.15	ha	3000.00		£150		£150		£150					£450
2i	Cut gorse as fire control measure	1.1	0.3	ha	3000.00		£300		£300		£300					£900
2i	Remove non-native tree species form gorse fringe.			sum			£300									£300
2i	Thin woodland area to encourage the development of a woodland ground flora		1.1	ha	4000.00			£4,400								£4,400
2i	Treat stumps to prevent coppice regrowth.															
2i	Carry out enrichment planting of native tree and shrub species		150	no.	1.00				£150							£150
2i	Maintain enrichment planting			sum				£20	£20	£20	£20					£80
2j	Restrict spread of shrub habitat	0.91		sum			£450		£300		£150					£900
2j	Remove non-native trees (e.g. poplar, sycamore) from woodland mix.			sum				£500								£500
2j	Remove sycamore from hillside scrub areas.			sum				£300								£300
2j	Treat stumps to prevent coppice regrowth.			sum				£200								£200
2j	Coppice groups of shrubs in phased programme			sum				£600		£600		£600				£1,800
2j	Remove invasive weed species from the burn corridor (manual)			sum			£600	£300	£150	£150	£150		£150		£150	£1,650
	Sub-Compartments 2b - 2j Total					**£7,430**	**£6,425**	**£32,370**	**£3,990**	**£1,575**	**£1,450**	**£1,035**	**£410**	**£225**	**£150**	**£55,060**

WORK PLAN SHEET 5

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
	Compartment 3															
3a	Remove young sycamore in selected areas	2.49		sum			£450									£450
3a	Remove young sycamore and beech regeneration from upper slopes and rock knolls.			sum			£300									£300
3a	Thin areas of dense regeneration on mid slope sections		1	ha	1500.00		£1,125									£1,125
3a	Selective felling			sum			£1,000									£1,000
3a	Enrichment planting		300	no.	1.00		£300									£300
3a	Protect enrichment planting against rabbit predation		300	no.	1.00		£300									£300
3a	Maintain enrichment planting			sum				£60	£60	£60	£60					£240
3b	Selective felling based on safety	0.89		sum			£800									£800
3b	Selective felling targeting beech and sycamore			sum			£800									£800
3b	Thin areas of dense beech and sycamore regeneration		0.1		1500.00		£150									£150
3b	Create gaps within regeneration layer for enrichment planting			sum			£150									£150
3b	Carry out enrichment planting.		200	sum	1.00		£200									£200
3b	Protect enrichment planting against rabbit predation		200	no.	1.00		£200									£200
3b	Maintain enrichment planting			sum				£60	£60	£60	£60					£240
3b	Disperse/chip accumulated area of deadwood			sum			£200									£200
3c	Carry out tree safety assessment	1.13		sum		£50		£25		£25		£25		£25		£150
3c	Carry out selective felling			sum			£1,000									£1,000
3c	Control cotoneaster and laurel			sum			£150	£50								£200
3c	Remove salmonberry			sum			£100	£50	£50	£25						£225
3c	Thin understorey layer favouring native species		1.13	sum	1500.00		£1,695									£1,695
3c	Carry out enrichment planting of native trees		100	no.	100.00		£100									£100
3c	Protect enrichment planting against rabbit predation		300	no.	1.00		£300									£300
3c	Maintain enrichment planting			sum				£60	£60	£60	£60					£240
3c	Replace/ renew bird boxes			sum			£500									£500

WORK PLAN SHEET 6

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
3d	Selective felling to form gaps for enrichment planting	0.58		sum			£1,000									£1,000
3d	Remove sycamore from the woodland understorey			sum			£400									£400
3d	Remove sycamore regeneration			sum			£200									£200
3d	Treat stumps to prevent coppice regrowth			sum			£25	£25	£25							£75
3d	Carry out enrichment planting of trees and shrubs		200	no.	1.00			£200								£200
3d	Protect enrichment planting against rabbit predation		200	no.	1.00			£200								£200
3d	Maintain enrichment planting			sum					£20	£20	£20	£20				£80
3e	Clear and spray off vegetation from the felled woodland area.	0.62	0.3	ha	3000.00		£900									£900
3e	Cultivate area and sow to establish a grassland sward as interim measure to improve manageability of the area.		0.3	sum	8000.00		£2,400									£2,400
3e	Manage area by cutting seasonally.			sum			£400	£400	£400	£400	£400	£400	£400	£400	£400	£3,600
3e	Control invasive weed species by pulling/spot treatment			sum			£300	£300	£150	£150	£50	£50	£50	£50	£50	£1,150
3f	Carry out a tree safety survey to identify safety issues	1.4		sum		£100		£50		£50		£50		£50		£300
3f	Carry out remedial works			sum			£450				£150				£150	£750
3f	Control ivy spread and limit to a few standing trees			sum			£200									£200
3f	Carry out selective thinning to reduce competition and alter composition of the woodland understorey		1.4	ha	1500.00		£2,100									£2,100
3f	Carry out enrichment planting into gaps.		150	no.	1.00			£150								£150
3f	Protect enrichment planting against rabbit predation		150	no.	1.00			£150								£150
3f	Maintain enrichment planting			sum					£30	£30	£30	£30				£120
3g	Carry out tree safety assessment	1.07		item		£50		£25		£25		£25		£25		£150
3g	Carry out remedial works			item			£200				£100				£100	£400
3g	Carry out selective felling			sum			£1,000									£1,000
3g	Thin understorey targeting sycamore for removal		1.07	sum	1500.00		£1,605									£1,605
3g	Carry out enrichment planting		100	no.				£100								£100
3f	Maintain enrichment planting			sum					£20	£20	£20	£20				£80
	Compartment 3 Total					**200.00**	**21000.00**	**1905.00**	**875.00**	**925.00**	**950.00**	**620.00**	**450.00**	**550.00**	**700.00**	**£28,175**

WORK PLAN SHEET 7

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
	Compartment 4															
4a	Carry out recommended remedial works set out in tree survey (refer to Appendix 2).	0.24		sum		£1,400		£25		£25		£25		£25		£1,500
4a	Control of few-flowered leek (if present)			sum		£100	£50	£25								£175
4b	Carry out recommended remedial works set out in tree survey (refer to Appendix 2).	1.67				£1,300		£25		£25		£25		£25		£1,400
	Replacement planting on driveway avenue		7	no.	175.00		£1,400	£100	£100	£50						
4b	Thin area targeting non-native species		1.37	ha	4000	£5,480										£5,480
4b	Fell conifer groups to create gaps for enrichment planting		0.3	ha	3000.00	£900										£900
4b	Carry out enrichment planting		200	no.	1.00	£200										£200
4b	Protect enrichment planting from rabbit predation		200	no.	1.00	£200										£200
4b	Maintain enrichment planting			sum			£40	£40	£40	£40						£160
4b	Investigate significance of underground entrance feature.			n.a.												-
4c	Carry out recommended remedial works set out in tree survey (refer to Appendix 2).	1.12		sum		£1,300		£25		£25		£25		£25		£1,400
4c	Replacement planting on driveway avenue		8	no.	175.00		£1,400	£100	£100	£50						
4c	Clear banking to south		0.35	ha	4000.00	£1,400										£1,400
4c	Restock with native species		1500	no.	1.00		£1,500									£1,500
4c	Maintain planting			sum				£300	£200	£200	£200					£900
4c	Maintain open glade around base of hollow in area of water issues			sum			£50			£50			£50			£150
4c	Thin area		0.77	sum	4000.00	£3,080										£3,080
4c	Establish shrubs along top of hollow		100	no.	1.00	£100										£100
4d	Thin area	0.74	0.54	ha	4000.00	£2,160										£2,160
4d	Fell conifer groups		0.2	ha	3000.00	£600										£600
4d	Restock to native woodland		500	no.	1		£500									£500
4d	Maintain enrichment planting		500	no.	1			£100	£100	£100						
4d	Remove dangerous cherry tree on path edge			sum		£150										£150
4d	Carry out enrichment planting of low shrubs to maintain views			sum			£300	£50	£50	£25						£425
4e	Carry out further thinning to open out canopy	0.84	0.84	sum	1500.00	£1,260										£1,260
4e	Treat stumps to prevent coppice regrowth			sum		£200	£100	£50								£350
4e	Carry out enrichment planting		200	no.	1.00		£200									£200
4e	Maintain enrichment planting			sum				£40	£40	£40	£40					£160

WORK PLAN SHEET 8

WOODLAND MANAGEMENT WORKS

S.Cpt	Task	Area	Qty	Unit	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
4f	Selective felling targeting unstable trees, safety issues, and non-native canopy trees.	2.16		sum		£600										£600
4f	Carry out enrichment planting into gaps		100	no.	1		£100									£100
4f	Maintain enrichment planting			sum				£20	£20	£20	£20					
4f	Thin out regeneration		2.16	ha	500	£1,080										£1,080
4f	Control areas of sycamore and beech regeneration			sum		£150										£150
4f	Control ivy to restrict the number of heavy infested trees			sum		£200										£200
4g	Selective felling	0.29		sum		£300										£300
4g	Remove scots pine group			sum		£450										£450
4g	Remove sycamore trees and regeneration from area,			sum		£600										£600
4g	Treat stumps to prevent coppice regrowth			sum		£50	£50	£50								£150
4g	Carry out enrichment planting		300	no.			£300									£300
4g	Maintain enrichment planting			sum				£60	£60	£60	£60					£240
4h	Tree safety inspection for pathside trees.	1.97		sum		£100		£50		£50		£50		£50		£300
4h	Selective felling of mature canopy trees on safety basis			sum			£600									£600
4h	Selective thinning targeting non-native trees to open gaps for enrichment planting			sum		£1,500										£1,500
4i	Tree safety survey and monitoring	0.63		sum		£50		£25		£25		£25		£25		£150
4i	Carry out remedial works			sum		£1,700			£1,000				£1,000			£3,700
4i	Clear burn of accumulated debris forming dams			sum		£1,000										£1,000
4i	Carry out enrichment planting		100	no.	1		£100									£100
4i	Maintain enrichment planting			sum				£20	£20	£20	£20					£80
4i	Control of few-flowered leek (if present)			sum			£100	£50	£25	£25						£200
4j	Carry out recommended remedial works set out in tree survey (refer to Appendix 2).	1.24		sum		£1,300		£25		£25		£25		£25		£1,400
4j	Culvert drainage below road			sum		£700										£700
4j	Selective felling to reduce competition and open gaps			sum		£1,000										£1,000
4j	Thin regeneration layer to favour native species			sum		£500										£500
4j	Enrichment planting		100	no.	1.00		£100									£100
4i	Maintain enrichment planting			sum				£20	£20	£20	£20					£80
	Compartment 4 Total					**£31,110**	**£6,890**	**£1,200**	**£1,775**	**£875**	**£360**	**£175**	**£1,050**	**£175**	**£0**	**£43,610**

WORK PLAN

WOODLAND MANAGEMENT SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
Compartment 1	**£5,280**	**£1,450**	**£640**	**£5,580**	**£600**	**£400**	**£1,000**	**£1,000**	**£450**	**£500**	**£16,900**
Sub Compartment 2a	£0	£8,950	£7,275	£8,900	£5,150	£4,550	£7,200	£5,950	£6,600	£3,600	£58,175
Sub compartment 2b-2j	£7,430	£6,425	£32,370	£3,990	£1,575	£1,450	£1,035	£410	£225	£150	£55,060
Compartment 2	**£7,430**	**£15,375**	**£39,645**	**£12,890**	**£6,725**	**£6,000**	**£8,235**	**£6,360**	**£6,825**	**£3,750**	**£113,235**
Compartment 3	**£200**	**£21,000**	**£1,905**	**£875**	**£925**	**£950**	**£620**	**£450**	**£550**	**£700**	**£28,175**
Compartment 4	**£31,110**	**£6,890**	**£1,200**	**£1,775**	**£875**	**£360**	**£175**	**£1,050**	**£175**	**£0**	**£43,610**
Woodland Management Totals	**£44,020**	**£44,715**	**£43,390**	**£21,120**	**£9,125**	**£7,710**	**£10,030**	**£8,860**	**£8,000**	**£4,950**	**£201,920**

WORK PLAN

OUTLINE PATHWORKS BUDGET

Task	Location	Amount	Unit Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6-10	Totals
Reconstruction	east part H -D, east part D-K, woodland path south of B	450m	£30.00		£13,500					**£13,500**
Major Repair	north of Braid Farm, part of route N - O	525m	£15.00		£7,875					**£7,875**
Minor Repair/Remedial Work	throughout (ex. tarred/Blackford Hill routes)	6500m	£3.00		£19,500					**£19,500**
Vegetation Management	within woodland	4500m	£1.00	£2,250	£2,250					**£4,500**
Drainage Works	Surfaced routes and primary woodland paths		sum	£2,000						**£2,000**
Step Repair	where required		sum		£2,500					**£2,500**
Maintenance	throughout (ex. Blackford Hill)	7500m	£0.35	£2,625	£2,625	£2,625	£2,625	£2,625	£13,125	**£26,250**
			Total	**£6,875**	**£48,250**	**£2,625**	**£2,625**	**£2,625**	**£13,125**	**£76,125**

WORK PLAN

OUTLINE BOUNDARY MAINTENANCE BUDGET

Task	Location	Amount	Unit Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Years 6-10	Totals
Replace Post and wire	Blackford Glen, Howe Dean	750m	£30.00		£13,500					**£13,500**
Remove Railings		430m	£12.00		£7,875					**£7,875**
Replace railings with post and wire	Lang Linn, Howe Dean	430m	£6.00		£2,580					**£2,580**
Remove Post and wire	Blackford quarry	150m	£2.50		£375					**£375**
Boundary Maintenance			sum		£500	£500	£500	£500	£2,500	**£4,500**
			Total	**£0**	**£24,830**	**£500**	**£500**	**£500**	**£2,500**	**£28,830**

WORK PLAN

FINAL SUMMARY

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total £
Woodland Management Totals	£44,020	£44715	£43390	£21120	£9125	£7710	£10030	£8860	£8000	£4950	**£201,920**
Pathworks Totals	£6,875	£48,250	£2,625	£2,625	£2,625	£2,625	£2,625	£2,625	£2,625	£2,625	**£76,125**
Boundary Maintenance Totals	£0	£24,830	£500	£500	£500	£500	£500	£500	£500	£500	**£28,830**
GRAND TOTAL	**£50,895**	**£117,795**	**£46,515**	**£24,245**	**£12,250**	**£10,835**	**£13,155**	**£11,985**	**£11,125**	**£8,075**	**£306,875**