

Wester Craiglockhart Hill and
Greenbank Community Woodland
Local Nature Reserve

Management Plan 2019-29

Review date 2024

Consultation Draft

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1. Introduction

1.1 The Local Nature Reserve

As of time of writing, the designation of Local Nature Reserve is not in place. However, this is expected to be implemented in close proximity to the implementation of the Management plan and will therefore be referred to as such.

The Wester Craiglockhart Hill and Greenbank Community Woodland Local Nature Reserve is a unique green space and wildlife habitat within Edinburgh.

The Reserve is made up of two interlinked areas, each with their own special character. The site is highly valued by local residents. Wester Craiglockhart Hill is one of the Seven Hills of Edinburgh that define the landscape of the city. It is a basaltic formation, separated from the neighbouring Easter Craiglockhart Hill by the Glenlockhart valley, formed approximately 17,000 years ago at the end of the last Ice Age. The hill has high biodiversity and historic value and houses a Site of Special Scientific Interest (SSSI). Greenbank Community Woodland was planted as a joint enterprise by the City of Edinburgh Council and residents of the new residential developments adjacent to the site, to enhance the amenity and biodiversity of the neighbourhood.

The reserve makes an important contribution to Edinburgh's landscape and biodiversity and provides a peaceful space for reflection and recreation. It also contributes to Edinburgh's green network by linking with neighbouring green spaces.

1.2 Purpose of the management Plan

This site-specific management plan covers the period from 2019 to 2029. It was produced by the City of Edinburgh Natural Heritage Service (CEC NH) and Friends of Wester Craiglockhart Woods and Greenbank Community Woodland (FOWG), in consultation with Scottish Natural Heritage (SNH), the local Community Council and Merchants of Edinburgh Golf Course (MoEGC).

The plan is intended to offer guidance on all aspects of the management of Wester Craiglockhart Hill and Greenbank Community Woodland Local Nature Reserve (WGLNR). A yearly report on the actions of the work plan should be prepared, and the management plan should be reviewed after 5 years.

1.3 Policy and legislative context

1.3.1 National policy

The following national policies are relevant and were considered when identifying partners (section 2.3) and devising this Management plan.

- **The National Parks and Access to the Countryside Act (1949) (Section 21)**¹. Under the Act, Local Authorities have exclusive statutory powers to set up and manage Local Nature Reserves (LNR). A LNR is a place with special local natural interest, set up to protect nature, and for people to enjoy and appreciate.
- **Wildlife and Countryside Act 1981 (as amended)**². Under schedule 6, badgers and all species of shrew are listed as protected, as are bluebells under Schedule 8. All of these species are found in the LNR.

¹ <https://www.legislation.gov.uk/ukpga/Geo6/12-13-14/97>

² <http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/legal-framework/wca-1981/>

- **Wildlife and Natural Environment (Scotland) Act 2011 (WANE)**³ – The Act amends a number of other pieces of legislation and aims to modernise game laws, introduces new wildlife offences (vicarious liability), adds further regulation to snaring, updates to the ways Invasive Non-Native Species (INNS) are dealt with, updates to the licensing system, amendments to deer stalking and deer management, strengthens protection of badgers, makes changes to Muirburn practices and operational changes to the management of Sites of Special Scientific Interest.
- **Protection of Badgers Act 1992**⁴ (as amended by the WANE Act 2011⁵). These acts give comprehensive protection to badgers and their setts, making it illegal to take, kill or injure a badger or disturb a sett.
- **Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland)**. This lists common and soprano pipistrelle bats (under schedule 2) as protected animals⁶. It is an offence to capture, injure, kill or harass a wild bat, disturb it in a way that is likely to significantly affect local distribution or abundance or impair its ability to survive or breed, or damage or destroy a breeding site or resting place⁷.
- **The Land Reform (Scotland) Act 2003** made the land covered by the LNR accessible for a wider range of recreational pursuits than had previously been the case.
- **The Scottish Outdoor Access Code, 2005**⁸ lays out the guidelines for recreational use of green space. It establishes the responsibilities of land managers and users that are associated with rights of access, including care of the natural and cultural heritage, keeping dogs under control, non-disturbance of wildlife, and special considerations applying to cultural heritage sites. The management plan includes maintenance of paths with provision of maps and other information to ensure that visitors have access to the LNR, while at the same time conserving plant habitats and minimising disturbance.
- **Nature Conservation (Scotland) Act, 2004**⁹. This Act provides the legal framework that governs conservation of natural landscapes and habitat and protection of wildlife in Scotland.

Part 1, Biodiversity, states that “It is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions.” This is relevant to the entire LNR.

Part 2, Chapter 1, Sites of Special Scientific Interest (SSSI), lays out responsibilities for conservation and maintenance of SSSIs. These include the requirement for the owner or occupier of a SSSI to:

- Further the conservation and enhancement of the natural feature specified in the SSSI notification and
- Maintain or enhance the representative nature of any series of sites of special scientific interest to which the SSSI notification contributes.

³ <http://www.legislation.gov.uk/asp/2011/6/contents/enacted>

⁴ <http://www.legislation.gov.uk/ukpga/1992/51/contents>

⁵ <http://www.legislation.gov.uk/asp/2011/6/section/33>

⁶ <http://www.snh.gov.uk/docs/B551085.pdf>

⁷ <http://www.snh.gov.uk/protecting-scotlands-nature/protected-species/which-and-how/mammals/bat-protection/>

⁸ <http://www.snh.org.uk/pdfs/publications/access/full%20code.pdf>

⁹ <http://www.legislation.gov.uk/asp/2004/6/contents>

The chapter also states that it is an offence to intentionally or recklessly damage any natural feature specified in an SSSI notification.

The Act also includes protection of wildlife, with Schedule 6 of the Act providing directives relating to protection of badgers.

- **The Equality Act (2010)¹⁰.** In 2010, the Disability Discrimination Act (DDA) 1995 (and the extension made in the Disability Discrimination Act (2005)). was replaced with the Equality Act in England, Scotland and Wales. The Equality Act covers all the provisions in the Disability Discrimination Act as well as some additional protection from indirect discrimination, discrimination arising from disability and discrimination on the basis of association or perception. The management plan takes account of this Act in making provision for upkeep of main paths, particularly in the Community Woodland.
- **Occupiers' Liability (Scotland) Act 1960.** The City of Edinburgh Council's liability to users of parks and other green spaces owned by the City of Edinburgh Council derives from this Act. The Act makes provision regarding any hazards or dangers on the land. It requires the owner to:

"in respect of any dangers which are due to the state of the premises or to anything done.... on them... [to take] such care as in all the circumstances of the case is reasonable to see that the person will not suffer injury or damage by reason of any such danger."

Scottish law does not allow the transfer of liability where the landowner is negligent. The management plan takes account of the Act with respect to maintenance of trees in wooded areas and provision of information to the public.

- **Dog Fouling Act (Scotland), 2003.** This makes failing to clear up after a dog an offence.
- **The Ancient Monuments and Archaeological Areas Act, 1979¹¹.** The act requires a schedule of monuments to be compiled and from time to time published. It also makes it an offence to destroy or damage or to be reckless as to whether the monument would be destroyed or damaged. It requires works that are done to or may affect scheduled monuments to be authorised.
- **The Scottish Historic Environment Policy, December 2011¹²** refers to the Ancient Monuments Act 1979. It states that:

"2.44. Once an area has been designated, it becomes the duty (see Note 2.23) of the planning authority and any other authority concerned, including Scottish Ministers, to pay special attention to the desirability of preserving or enhancing the character and appearance of the area"

"Some historic assets will comprise or form part of sites designated also for their national or international biodiversity, natural environment or landscape interest. In such cases an appropriate balance will have to be found between any different management requirements."

This policy is important for two reasons. Firstly, it emphasises the importance of preserving or enhancing the character of the hill as well as protecting the scheduled monument. Secondly, it

¹⁰ <https://www.rnib.org.uk/information-everyday-living-your-rights/equality-act-2010>

¹¹ http://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf
http://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

¹² <https://www.historicenvironment.scot/media/3079/shep-dec2011.pdf>
<https://www.historicenvironment.scot/media/3079/shep-dec2011.pdf>

emphasises the need to consider the effect on the monument when planning any biodiversity conservation actions for the SSSI.

1.3.2 Local policy

- **Craiglockhart Hills Conservation Area Character Appraisal, 2001.**

WGLNR lies within the Craiglockhart Hills Conservation Area¹³. Trees within conservation areas are protected¹⁴ by Tree Preservation orders (TPO's) and CEC must be consulted before any work is carried out on them.

- **SNH and HES Draft Guidance on Special Landscape Areas, 2010¹⁵ and the CEC review of Local Landscape Designations, 2010¹⁶**

The SNH guidelines outline the criteria and process for selecting local landscape areas. Table 5.2 of the CEC review lists Craiglockhart Hills as one of designated Special Landscape Areas, following a CEC consultation, and specifically mentions the Wester Craiglockhart Hill SSSI.

- **Edinburgh State of the Environment (SOE) Audit, 2007-8 and update 2011¹⁷**

Chapter 14 (undated but appears to have been produced in 2007 or 2008) notes the designation of a SSSI on Wester Craiglockhart Hill and also notes (in Table 5) that it was not at that time being well maintained. Since 2014, CEC NH has carried out scrub clearance on the SSSI as part of a conservation plan. The management plan outlined here in Chapter 4 includes a strong component of SSSI conservation and maintenance.

Chapter 15 lists the Craiglockhart Hills as Local Nature Conservation Sites of wildlife interest that “Support a wide variety of important habitats.” (Table 12). The management plan outlined here in Chapter 4 takes account of the need to protect species listed on the Scottish Biodiversity List as well as providing an environment for locally uncommon species to flourish. Chapter 15 of the SOE also notes that “Although the [badger] population is considered to be reasonably healthy, it is still precarious enough that it could easily be jeopardised by inappropriate or unsympathetic development. Badgers are particularly vulnerable because they are creatures of habit, tending to use the same routes, setts and foraging areas over many decades despite changing pressures on the landscape from human activity.” There are active badger setts within the area proposed for the LNR, and the management plan includes actions to monitor and protect them.

- **Edinburgh Local Biodiversity Action Plan 2019-21¹⁸**

The Nature Conservation (Scotland) Act, 2004, requests local authorities in Scotland to prepare biodiversity action plans to describe in practical terms how the Act will be put into force. Edinburgh's Plan includes both biodiversity (diversity of plants and animals) and geodiversity (diversity of the geological landscape, rocks and minerals).

Wester Craiglockhart Hill is an important contributor to Edinburgh's biodiversity and geodiversity and is specifically mentioned in the Local Biodiversity Plan in Action Point G24: “Through active

¹³ Craiglockhart Hills Conservation Area Character Appraisal, 2001,

http://www.edinburgh.gov.uk/directory_record/377095/craiglockhart_conservation_area

¹⁴http://www.edinburgh.gov.uk/download/downloads/id/6842/guidance_on_protected_trees.pdf
file:///C:/Users/annie_000/Downloads/Guidance_on_Protected_Trees_v2.pdf

¹⁵ <https://www.nature.scot/sites/default/files/2017-07/A2170571%20-%20Local%20Landscape%20Designations%20-%20consultation%20draft%20-%20published%2021%20December%202016%232.pdf>

¹⁶ http://www.edinburgh.gov.uk/downloads/file/1561/review_of_local_landscape_designations

¹⁷ http://www.edinburgh.gov.uk/downloads/download/799/edinburghs_environment_state_of_the_environment_audit

¹⁸ <http://www.edinburgh.gov.uk/biodiversity>

management, continue to increase diversity within meadow habitats at the following CEC Natural Heritage Service-managed sites.... Wester Craiglockhart Hill SSSI”.

Several additional action points from the Local Biodiversity Plan are relevant to the management plan for the LNR described in Chapter 4:

- “Manage Local Nature Reserves and other natural heritage parks to benefit biodiversity.” (G53)
- “Identify sites or projects which require a woodland management plan and can be funded under Woodlands In and Around Towns (WIAT).” (G94). “Deliver WIAT funding to enable management of urban woodlands.” (G89)
- “Encourage and support Friends of Parks and other community groups to deliver biodiversity improvements in their local greenspace.” (G50).
- “Develop accessible spatial data on biodiversity priorities and projects for stakeholders and communities.” (G49)
- Various actions related to monitoring and preservation of particular species (SP8, 14-21, 25, 29, 39-42, 56, 64)
- Actions related to identifying, promoting, protecting and monitoring local geodiversity sites. (Actions GD1 – 6).
- **Current Pesticide Reduction Policy (2018).**¹⁹

This policy, produced for the Parks and Greenspace unit within the City of Edinburgh Council, states that herbicide application is only used when cultural practises will not provide adequate control of weeds. When non-chemical alternatives are not suitable and chemical applications will be required, the City of Edinburgh Council will ensure that application methods use will reduce the quantity of chemicals applied, reduce chemical drift and ensure that any risk to the environment is reduced or eliminated.

¹⁹ [http://www.edinburgh.gov.uk/download/meetings/id/58090/item_81 -
_progress_in_implementing_the_integrated_weed_control_programme](http://www.edinburgh.gov.uk/download/meetings/id/58090/item_81_-_progress_in_implementing_the_integrated_weed_control_programme)

2. Significance of the site

2.1 Site location

National Grid Reference: NT 22828 70062 (Trig Point)

Postcode: EH10 5GB (Greenbank Drive Entrance)

Location: Wester Craiglockhart LNR and associated lands are located to the southwest of the City of Edinburgh, about 2.5 miles from the city centre. Wester Craiglockhart LNR lies next to the approach road of Colinton Road and south of Glenlockhart Road. It is surrounded by the populated areas of Craiglockhart, Colinton, and Morningside.

Size: The hill itself is a Basaltic lava outcrop and is approximately 650m from east to west and 260m from north to south. The total area covers approximately 10.3ha. It rises to 175m above sea level.

Stakeholders: WGLNR is open to all members of the public who wish to use the site in a responsible manner. The site is located within Fountainbridge and Craiglockhart Ward of Edinburgh, approximately 4.5 km from Edinburgh City Centre, with access from Glenlockhart Road and from the No 23 bus terminus on Greenbank Drive. Figure 1 shows the location of the LNR.

Main users: WG LNR is used by a number of different user groups including walkers, schools for educational activities, dog walkers, cyclists and as a location for activities such as geocaching.

Figure 1: Location of the Local Nature Reserve.



Key: — boundary of LNR

2.2 Ownership, tenure and responsible authorities

All of the land within WGLNR, with the exception of a small part of the access area, is owned by the City of Edinburgh Council. The Community Woodland is also directly managed by CEC. The remainder of the land within the LNR is leased by Merchants of Edinburgh Golf Course (MOEGC).

Scottish Natural Heritage has oversight of SSSIs. The owner/manager of a SSSI is required to “consult SNH before carrying out actions that may affect any land which is or forms part of a site of special scientific interest.”²⁰

The LNR designation means that the management responsibility of the land within its boundary is carried out by a management group through the implementation of a management plan. CEC NH has responsibility for furthering the conservation of biodiversity and wildlife habitat within Edinburgh, including within the LNR.

Crimes against wildlife (“the illegal destruction and theft of animals, plants and habitats, both in the countryside and urban areas²¹”) are the province of the Partnership for Action Against Wildlife Crime in Scotland (PAW Scotland), which includes the police, land managers, conservationists and the Scottish Government. Reporting of wildlife crimes in Edinburgh is done through the Wildlife Crime Liaison Officer (WCLO) of the Edinburgh Division of Police Scotland.

Main contact: City of Edinburgh Council
Natural Heritage
Hermitage House,
69a Braid Road, Edinburgh
EH10 6JF
0131 529 2401
E-mail: naturalheritageservice@edinburgh.gov.uk

Other contacts: Scottish Natural Heritage
Silvan House,
231 Corstorphine Rd,
Edinburgh
EH12 7AT
0131 316 2600
Enquiries: <https://www.nature.scot/about-snh/contact-us/feedback>

2.3 Partnerships

All of the following partners have a strong interest in the Local Nature Reserve and were consulted during the preparation of this management plan:

Scottish Natural Heritage (SNH). SNH is the national body with the mandate to promote, care for, and improve Scotland’s natural heritage, help people enjoy nature responsibly, enable greater understanding and awareness of nature and promote the sustainable use of Scotland's natural heritage. SNH designates SSSIs under the Nature Conservation (Scotland) Act 2004, and works with local authorities to see that SSSIs are sustained and protected.

SNH will contribute to the management of the reserve by providing guidance and practical advice, particularly on management of the SSSI, practical contributions from volunteer groups, and grants for specific conservation activities.

SNH will benefit from responsible management of the reserve as this will help fulfil its mandate.

²⁰ <http://www.legislation.gov.uk/asp/2004/6/contents>

²¹ <http://www.gov.scot/Topics/Environment/Wildlife-Habitats/paw-scotland>

The City of Edinburgh Councils Natural Heritage (CEC NH). The Service oversees the management all Local Nature Reserves in Edinburgh and is charged by Scottish Natural Heritage to maintain the SSSI.

CEC will carry out or oversee all of the routine management work of the LNR and will be involved or consulted in any special conservation activities or research activities conducted within its boundaries.

CEC will benefit from responsible management of the LNR as this will help it to fulfil its mandate for Edinburgh and its responsibility to SNH.

Merchants of Edinburgh Golf Course (MOEGC). The Golf Course leases its land from CEC. Its long leasehold includes the land occupied by the LNR. In the past there was a fairway and green on the land occupied by the LNR. More recently the golf course stopped using the land for active play but designated the mown areas for practice and a turf nursery. Now the golf course does not actively use the land but is responsible for mowing the widest of the main paths and an open area. The golf course area effectively acts as a buffer between the LNR and residential areas. This does not imply that any special management of the golf course is needed to protect the LNR, only that its presence as an area of green space is beneficial.

The Golf Course will contribute to managing the LNR by continuing to cut the wide main paths on the lower hill and the flat turf area on the hill. It will ensure that steps are taken to minimise damage to vegetation by golf course maintenance activities.

In the interest of promoting harmony between management of the Golf Course and management of the LNR, the Golf Course will be represented on the management group. The Golf Course will benefit from signage at the entrances to the LNR to guide users to established access paths and encourages respect for the course.

Friends of Wester Craiglockhart Hill and Greenbank Community Woodland (FOWG). This local Friends of Parks group was a major contributor to preparing this management plan. It is composed of voluntary members, most of them resident in the near neighbourhood of the LNR, who have a keen interest in the conservation and protection of the greenspaces and wildlife.

FOWG will benefit from good management of the LNR under an agreed plan by knowing that there is solid official backing for the conservation of the site and access to grants for conservation activities.

FOWG will contribute to the management of the LNR by assisting in monitoring of the animal and plant life, contributing to planting, maintaining a website, arranging educational activities and keeping the hill and woodland free of litter. FOWG will be represented on the management group.

2.4 Conservation status

WGLNR lies within the Craiglockhart Hills Local Conservation Area, in which trees are protected under TPO's.

The Craiglockhart Hills are listed as Local Nature Conservation Sites of wildlife interest. Wester Craiglockhart Hill has a history of notifications for scientific interest – in 1957 and 1972 for geological interest and in 1986 under the Wildlife and Countryside Act 1981 (renewed in 2008 under the Nature Conservation (Scotland) 2004 Act).

Wester Craiglockhart Hill also houses a Site of Special Scientific Interest (SSSI), site code 1615 and National Grid Reference NT 228702. The management plan described here takes into account the Site Management Statement for the SSSI.

The following SNH extract lists operations for which consent must be obtained that are relevant to the management plan and were considered when developing it.

- Cultivation, including ploughing, rotavating, harrowing and re-seeding.
- Mowing or other methods of cutting vegetation. [Where current and established practices acceptable] The introduction of mowing etc. [where applicable] (and) Changes in the mowing or cutting regime (including hay-making to silage and cessation).
- Application of pesticides, including herbicides (weed killers).
- The introduction or release into the site of any wild, feral or domestic animal, plant or seed.
- The killing or removal of any wild animal (including pest control, except; bird species covered by the General Licence issued by SEERAD under the Wildlife & Countryside Act 1981 (as amended); other species under a specific licence issued by SEERAD.)
- The destruction, displacement, removal or cutting of any plant or plant remains e.g. tree, shrub, herb, hedge, dead or decaying wood, moss, lichen, fungus, leaf-mould, turf etc.
- Construction, removal or destruction of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
- Use of vehicles likely to damage or disturb the vegetation.
- Recreational, research, educational or other activities likely to damage the vegetation, other than those carried out responsibly under the Scottish Outdoor Access Code.”²²

The prehistoric, Iron Age fort at the top of Wester Craiglockhart Hill is listed in the Schedule of Monuments, 2001, reference SM3193, Search Sheet no. 240²³. “The monument was first scheduled in 1972, but an inadequate area was included to protect all of the archaeological remains: the present scheduling rectifies this”²⁴.

2.5 Natural habitats and wildlife

WGLNR is notable for its diversity of habitat and the number of species present. Three different habitats on a mix of acid, neutral and calcareous soils support healthy ecosystems with a wide range of producer, consumer and decomposer species. Populations of high-level predators persisting from year to year indicate the health of entire ecosystems.

More than 250 animal, plant and fungus species are contained in the database developed and maintained by FOWG since 2017²⁵, while approximately 50 additional species of plants are recorded in the TWIC database. Animal species include those that breed within the LNR, those that use it as a food source and those use it as cover to pass through to other greenspaces.

Figure 2 shows the location of the three main habitat types found in the LNR: grassland, woodland and rocky crags. For the purposes of recording of species, two areas of grassland have been identified and three areas of woodland.

²² http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=1615#caseworks

²³ <http://portal.historicenvironment.scot/document/600009298> and

²⁴ <http://portal.historicenvironment.scot/designation/SM3193>

²⁵ Appendix A provides a species list

Figure 2. Location of habitats



- **Trig point**

- 2.5.1 *Grassland*

- The majority of Wester Craiglockhart Hill is unimproved open grassland. This is a locally rare habitat in the Edinburgh area. Wester Craiglockhart Hill is one of the largest examples remaining, and for this reason 3.46ha of the hill (most of the area labelled Upper Hill in Figure 2) has been designated an SSSI.²⁶ The SSSI also contains a Registered Ancient Monument (see section 2.5).

- Acid, neutral and calcareous grassland are found on the hill - the calcareous grassland type is relatively rare in Scotland. The saddle of the hill forms a broad sloping sweep of grassland while the sides are steep and rocky with thin soils.

- The mix of soils has resulted in a broad range of grasses and other plants. Locally uncommon plant species noted in the SSSI designation are:

- Meadow Oat Grass, *Helictotrichon pratense*;
 - Crested Hair Grass, *Koeleria macrantha*;
 - Purple Milk Vetch, *Astragalus danicus*;
 - Wild Onion, *Genus Allium*;
 - Welled Thistle, *Carduus crispus*;
 - Sea Mouse Ear *Cerastium diffusum*,
 - Meadow Saxifrage, *Saxifrage granulate*;
 - Shining Cranesbill, *Geranium lucidum*;
 - Common Rock Rose, *Helianthemum nummularium*;
 - Knotted Clover, *Trifolium striatum*.

²⁶ Wester Craiglockhart Hill SSSI Site Management Statement
WCH LNR MANAGEMENT PLAN

The nationally rare Maiden Pink, *Dianthus deltoides*, has also been recorded on Wester Craiglockhart Hill and was recently re-introduced by CEC NH.

The golf course regularly mows the area that was formerly a fairway and green, and these form part of the circuit of paths and open areas on the hill.

Within the grassland are patches of flowering shrubs including gorse, elder, broom, brambles and a large clump of blackthorn. On the saddle of the hill within the SSSI, gorse and elder have been cut to promote the growth of grass, but on the steep slopes and on the lower hill outside the SSSI, shrubs have been left to prevent erosion and provide cover for wildlife.

The mix of plants is different in the mown, un-mown and shrubby areas, adding to the overall plant biodiversity. In line with the SNH pollinator Strategy²⁷, this plan will look to introduce natural, native improvements to the grassy areas outwith the lowland Acid/Calciferous grasslands to encourage pollinator species and enrich the species mix and yield of the grassland. This will improve an already important area of Edinburgh's green infrastructure and network.

2.5.2 Rocky crag

The crags are striking landscape features of the hill, formed as the underlying igneous rock has become exposed. Previous SSSI notifications listed the site for its geological interest, in part because of the Craiglockhart Basalt within the rock structure. However, this interest was deleted since this type of basalt had only regional significance and therefore did not fulfil the criteria for inclusion in the Geological Conservation Review.

There are three areas of rocky crag within the LNR. Two are north-facing basalt crags, one at the centre of the SSSI and the other at the northern edge, while the third area is south-facing, on the western part of the south edge of the SSSI. The northernmost crag has been protected by wire netting to prevent rock falls.

2.5.3 Woodland

WGLNR includes three areas of woodland - the Community Woodland and two areas of wood (shown in Fig 2 as north and south woods) at the base of Wester Craiglockhart Hill. The woods at the base of Wester Craiglockhart Hill have existed for more than 50 years, while the Community Woodland was planted approximately 20 years ago.

The woods are healthy, with trees of different ages and evidence of regeneration in all parts of the woodland and some spread of trees up the hill. They have received minimal attention, only requiring removal of a few dead trees that might endanger other trees or the public. The Community Woodland was very thickly planted and will need thinning.

The woodland is mixed, with deciduous trees predominating including Rowan, *Sorbus sp.* A long-established line of Beech trees, *Fagus sp.*, runs along the edge of the Community Woodland adjoining Greenbank Drive. There is a mixed stand of conifers at the base of the hill. Scots pine, *Pinus sylvestris* and Larch, *Pinaceae sp.*, mix with deciduous trees in the Community Woodland.

The woodland undergrowth is sparse but includes ferns, flowering plants (which vary in different areas of the woods) and seasonal fungi. The Community Woodland has bluebells, – mainly these appear to be the native *Hyacinthoides non-scripta*, but there are some Spanish bluebells, *H. hispanica*, and it may be possible to at least contain their spread.

²⁷ <https://www.nature.scot/pollinator-strategy-2017-2027>

Around the edges of the Community Woodland are thick clumps of brambles and raspberries, providing nesting sites and food for songbirds. Hawthorn and blackthorn were planted along the upper path by FOWG.

2.5.4 Wildlife

The grassland contributes to insect and songbird biodiversity. Eleven species of bumblebee (including one nationally uncommon) have been recorded, as well as honeybees, hoverflies, several butterflies and other insects²⁸. Rodents recorded include voles and shrews.

The grassland provides resident and migrant birds with nesting and feeding space. Examples of migrants include swifts, *Apus apus*, which nest in residential areas of Craiglockhart and Morningside and feed over the grassland of Wester Craiglockhart Hill and the surrounding golf course through June and July²⁹. Swallows and House Martins are regular visitors although fewer in number, and migrant wheatears have been observed passing through. Sparrowhawks, *Accipiter nisus*, Kestrels and Buzzards, *Buteo buteo*, hunt over the grassland.

Sparrowhawks (*Accipiter nisus*), Great Spotted Woodpeckers, (*Dendrocopos major*), and Wrens, (*Troglodytes troglodytes*), all nest in the woodland. It provides cover for roe deer, (*Capreolus capreolus*), red foxes, (*Vulpes vulpes*), and badgers, (*Meles meles*), which also pass from the grassland of the hill through the woods, across the residential area next to Greenbank Drive, and into the woods behind. Common (*Pipistrellus pipistrellus*) and soprano pipistrelle (*P. pygmaeus*), bats feed at the interface of woodland and the adjoining golf course and a short distance into the woodland.

A full species list can be found in the Appendix A.

2.6 The historic environment

According to the Conservation Area Character Appraisal, “The Craiglockhart Hills are referred to in 13th century documents as the “Craggis of Gorgin”, possibly derived from the Welsh “jor Cyn” meaning a spacious wedge.³⁰”

- The Act is relevant because there is a Scheduled Ancient Monument within the LNR, on Wester Craiglockhart Hill (see section 2.4). Nothing is proposed in the management plan that would be detrimental to the monument. However, it will be important to ensure that the site is not eroded or otherwise disturbed in any way that could damage the monument, and that any approval is obtained for any conservation work done in the vicinity of the monument.

A prehistoric fort occupied the top of Wester Craiglockhart Hill in the 1st or 2nd century AD and possibly as early as the Iron Age. It is described in the schedule of monuments as follows:

“Small-scale excavations of the fort in 1971 showed that the enclosing wall was about 2.5m wide and that its outer face survives to a height of about 0.7m. Within the interior, at least two phases of activity were discerned. The earlier phase comprised midden material mixed with rubble from the enclosure wall, indicating an episode of abandonment or destruction. Later paving and a hearth indicated that the site was re-occupied shortly afterwards. The site is comparatively rich in finds,

²⁸ A transect on Wester Craiglockhart Hill has been provided to the Bumblebee Conservation Society

²⁹ FOWG members were involved in the RSPB/CEC Swift survey in 2017.

³⁰ Craiglockhart Hills Conservation Area Character Appraisal, 2001,

http://www.edinburgh.gov.uk/directory_record/377095/craiglockhart_conservation_area

particularly shards of coarse pottery and burnt and unburnt animal bones, as well as fragments of Roman glass, a piece of samian ware and a round bead of Antrim bauxite, indicative of occupation at least in the 1st or 2nd century AD. A unique bronze spiral armlet has also been recovered from the hilltop, reportedly from a kitchen midden. Forts of this general type are characteristic of the Iron Age... The monument is of national importance because of its potential to contribute to our understanding of prehistoric defended settlement and economy.³¹

No recognisable feature of the fort is visible above ground. "The interior of the fort has been disturbed by the construction of two circular, ditched-and-banked gun emplacements of uncertain date: one immediately East of the rock-cut ditch, and another in the area of the fort entrance to the E. A third gun emplacement occurs further to the E.³²" The anti-aircraft gun emplacements were built at the top of the hill, on the site of the fort, in the First World War: "built for the protection of the city following the Zeppelin raid of 2 April 1916 which caused considerable alarm and several deaths³³". The sites of three of the gun emplacements are still clearly visible³⁴. One, at the top of the hill near the trig point, has become somewhat eroded and fires have been lit on it.

The management plan outlined in Chapter 4 aims to restore the turf on the eroded gun emplacement and ensure that visitors to the LNR are aware of the historic importance of the site. This will require working closely with Historic Environment Scotland for permissions and creating contacts within Edinburgh's Archaeological Society for any further investigations. There is also scope for installing information boards on the historic heritage of the site as well as other information points at relevant points on the hill.

³¹ <http://portal.historicenvironment.scot/designation/SM3193>

³² <http://portal.historicenvironment.scot/designation/SM3193>

³³ http://edinburghgeolsoc.org/downloads/rigsleaflet_craiglockharta4.pdf

³⁴ An aerial photo showing the sites of the gun emplacements is available on this link

<https://canmore.org.uk/collection/1478693> from Historic Environment Scotland's Canmore online database

3. Evaluation

3.1 Recreational use

The reserve is used for the following recreational purposes:

- Exercise, dog walking and enjoying views. By far the largest volume of use of the hill and in the Community Woodland fall into these categories, often by residents in the immediate locality.
- Running and hiking. A circuit of Wester Craiglockhart Hill and the adjacent Easter Craiglockhart Hill is popular with a small number of runners and hikers.
- Wild foraging. This is seasonal. The bottom of the hill is home to a healthy population of raspberry and blackberry bushes.
- Mountain biking. This is by far the smallest volume of use. A few bikers pass along the track through the woodland at the foot of the hill, and exit via the golf course or Greenbank Drive. A smaller number cycle to the top of the hill to enjoy the view. A small number of young bikers have previously dug illegal tracks on the side of the hill or in the Community Woodland. The groups have been firmly dissuaded from doing so by local residents, because this activity damages soils and vegetation and disturbs wildlife and other users of the reserve. The LNR is not suitable as a biking events venue – this is confirmed by the City of Edinburgh Council’s Park Management Rules: Section 7³⁵ and conversations with a broad selection of hill users including adult mountain bikers.

The management plan does not aim to expand the volume and type of usage, but the LNR designation ensures a quality of experience and maintenance of path networks for users while protecting the natural environment. It also aims to promote usage for research into ecology and the natural environment.

3.2 Access

The paths are mostly smooth and in places quite broad, but the hill is steep and it is impossible to access any of it without a steep climb.

As a result, while the hill is accessible for reasonably fit people with appropriate footwear and for cyclists with suitable tyres, even using the easiest routes it would be difficult to access by anyone using a walker and extremely difficult for a wheelchair user. The natural topography of the hill means that it is impractical to construct an access route without steep slopes. It is easy to access on foot or bicycle. Users of wheelchairs or walkers can easily access the path along the lower part of the wood but may find challenging to go around the entire reserve.

³⁵ http://www.edinburgh.gov.uk/downloads/file/62/management_rules_for_parks_and Greenspaces

Figure 3 Paths and access points



Key (Grading based on the Paths for All Grading System³⁶)

- Easy to Moderate paths. The easiest to access. Well maintained and broad.
- - Path crossing golf course. Care needed not to disturb golfers.
- Moderate path. Muddy when wet. Steep. Harder than Green paths.
- Strenuous path. Steep, rocky and eroded in places. Difficult terrain.
- Access entry point
- Old Golf Course Green nursery

Figure 3 shows the possible access points and the paths through the LNR, colour coded according to ease of use. Entrances include those which are not currently formal (2 and 3). There is scope to formalise these in the long term to provide improved and safer access.

There are three entrances into the LNR:

- 1) From the south-east, a path from Greenbank Drive leads into and around the Community Woodland. The path is generally in good condition and is maintained by CEC. It is proposed for it to become the formal entrance to the LNR.
- 2) A second path from Greenbank Drive winds through the woods at the base of the hill. The first part of the desire-line path runs through private ground that is owned as common property by residents of Wester Hill, but has been a well-used route to the hill for several years.
- 3) The third entrance is on the north of the site through a gate on Glenlockhart Road. There is no public parking available in the Napier University carpark and access to the entrance requires walking along a short stretch of Glenlockhart Road with no pedestrian crossing. This is the least accessible entrance.

³⁶ <https://www.pathsforall.org.uk/resource/path-grading-guide>
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A short stretch of orange path connects the Community Woodland with a winding path leading through the woods at the base of the hill and on up to the grassland area. These paths are accessible to walkers in all weathers and generally in good condition, but a short stretch becomes muddy in wet weather and will need maintenance work.

A well-kept path, with a surface mostly of short grass and in places mud and rocks, traverses the ridge to the trig point of the hill and connects with a flat open mown area that was formerly a green of the golf course.

From entrance 3 heading east the path is accessible in all weathers and is in generally good condition. It is steep in places owing to the topography of the hill, regularly rutted by tree roots, and often muddy. A Green path leads west between the base of the hill and Napier University. This connects at the south-west of the reserve to a Red, very steep and narrow path from the golf course up to the trig point. The path is accessible in all weathers but is eroded in places and rocky in others. This is the most difficult access route for all access types.

There are no Core paths, Locally Designated Paths, or Designated Public Rights of Way which are recorded or match the criteria for such designations. The paths shown within Figure 3 are those the management plan wishes to maintain or improve. There is no scope to create any new paths as those available are deemed sufficient.

By guiding users along the paths indicated in Figure 3, users can access much of the LNR and see views from the hill towards all points of the compass, while avoiding areas that are more ecologically sensitive, or may be dangerous to access. The indicated paths are in good condition. The main grass paths and open areas are mown often by the Merchants Golf Club.

3.2.1 Public Transport/Parking

The terminus for the 23 Lothian bus can be found on Greenbank Drive close to the two south-east access points. The 36 Lothian bus stops close to the start of the north path.

There is no car parking formally attached to the LNR, however there is public parking available on Greenbank Drive. There is no public parking nearby in the Craiglockhart University carpark unless pre-arranged with Edinburgh Napier University. Many of the users of the LNR live close to it and walk or cycle.

3.3 Safety

There is a good partnership working in place between the local community, FOWG, CEC NH, the Wildlife Crime Officers and Police Scotland. Any anti-social behaviour such as under-age drinking, drug use and lighting of fires which occur sporadically during the summer is reported directly to Police Scotland and thereafter to CEC NH.

For instance, recent incidents involving the construction of dangerous bike tracks have been dealt with successfully by engaging the local community, FOWG and CEC NH.

Local residents often spontaneously clear up litter, particularly broken glass and dog walkers are encouraged to clear up after their dogs.

Any work carried out in the LNR that requires the use of machinery, such as scrub clearance within the SSSI or removal of dead or diseased trees, must be done with permissions of the appropriate landowners (SNH, CEC, MoEGC) by trained operators.

3.4 Sustainability

The LNR does not include any formal planted areas that might require peat or herbicides to maintain them. Where planting has been done, notably the original planting of the Community Woodland, the plants have been left to grow with minimal maintenance. Any further planting that is needed for conservation purposes will use healthy plants of indigenous species and no fertiliser or pesticides. Leaf litter and fallen tree branches are left in situ where it is safe to do so and moved away from paths. When diseased or dead trees are felled any non-diseased wood will be moved away from paths and left on site. The grassland areas of the hill that were formerly part of the golf course are being incorporated into the unimproved grassland – no herbicide is applied and they are mown when and where necessary to maintain paths or open areas.

Visitors are encouraged to dispose of their waste using the bin provided at the entrance to the Community Woodland. Any litter that is left is removed and disposed of or recycled if possible. There have been no instances of fly-tipping recorded.

Use of herbicide is carried out as per INNS management plan in consultation with the management group.

3.5 Education and interpretation

There is currently no information about the LNR available on the site, only an old and weathered sign at the entrance with the logos of the organisations that contributed to establishing it. Information about Wester Craiglockhart Hill is scattered around several internet websites and a small number of guide books. There is no accessible documented information about the Community Woodland.

An informal survey by FOWG in the summer of 2017 showed that very few visitors to the site were well informed about it. However, most were interested in learning more and some asked detailed questions about the natural and social history of the area.

FOWG has recently developed a website³⁷ with the aim of providing current and coherent information. It has also developed a database of plant and animal species, collected through regular monitoring and information sent in by members.

The management plan outlined in Chapter 4 includes actions for the provision of interpretation and keeping the FOWG website up-to-date. It also includes ideas for involving the community and local educational bodies in conservation activities.

³⁷ www.fowg2014.btck.co.uk

4. Management Objectives

4.1 – To comply with all legal and policy requirements in management of the LNR

In order to ensure compliance with the national and local policies and legislation relevant to the LNR, the following are proposed. Details are provided in the Workplan in Chapter 5.

A management structure and consultation process that facilitates communication and collaboration between main partners.

CEC will designate the LNR and continue to have overall responsibility for its management. Other partners are SNH, Merchants of Edinburgh Golf Course and FOWG.

The role of a management group: Implementation of the management plan, coordination of programme of activities and project delivery, fundraising.

An update to the management plan will also be carried out after 5 years.

4.2 – To conserve and enhance the natural environment

(geology and soils, flora and fauna)

The diversity of habitats within the LNR is a great asset. The aim is to proactively enhance the grassland habitat within the SSSI, while at the same time conserving the diversity of habitats throughout the LNR. The aims and actions listed here consider the needs of each type of habitat.

4.2.1 Maintain the conservation status of the SSSI

The aim is to implement appropriate management regimes including naturalised cutting and grazing to preserve both Lowland Acid Grassland and Lowland Calcareous Grassland areas within the SSSI and the species that thrive in each.

The aim of management within the SSSI is to achieve and/or maintain 'Favourable Condition' for these features. The management should aim to produce a variety of sward heights throughout the grassland (between three and 20cm for acid grassland, and between two and 15cm if calcareous). Precise in 2019, both features are classed as 'Unfavourable Recovering' – they are deemed to be Recovering due to a positive management regime being in place. This will be secured by the commitment to an appropriate management regime for the duration of the Management Plan. This entails additional detail of management prescriptions found in the Workplan.

Crags and steep slopes will be protected from erosion and disturbance to conserve landscape value and promote growth of uncommon plants found there. The LNR will be monitored for invasive species and these will be controlled as per the NH Draft INNS management plan. Management approaches will favour manual methods.

4.2.2 Improving biodiversity present in the LNR

The aim is to carefully manage a wide range of existing habitats within the LNR, including long-grass, short-grass, wood, shrubs and crag to promote biodiversity as outlined in the EBAP. Areas of shrubs will be managed to provide suitable nesting habitats for songbirds. Long and short grass areas will be managed to promote a high diversity of grassland species and to provide a suitable food source/habitat for insects and pollinators. Woodlands will be managed following CEC good practice such as tree operations to take place outside of bird nesting season, leaving dead wood in situ, leaving standing monolith, planting of native species etc. Badger setts and bat roosts will be

monitored and protected. Invasive species will be monitored and controlled as per INNS management plan.

Grass areas damaged by fire will be re-turfed or re-planted when needed. Damaged or removed trees and shrubs will be replaced with indigenous species.

The EBAP includes a section on targeted conservation and this includes the reintroduction of Maiden Pink, a vascular plant reintroduced in 2018 to LNR (2.5.27).

4.3 – Preserve and protect archaeological features and monuments

In order to maintain a balance between conservation of ancient monuments and conservation of biodiversity, as required by The Scottish Historic Environment Policy, the site will be kept in good condition.

This includes repairing existing damage to the turf on the gun emplacements (not an archaeological feature but a historical feature) and monitoring to ensure that any future damage to the site is minimised and, if necessary, repaired.

4.4 – Contribute to research in ecology and natural history

The LNR has considerable potential to contribute to research due to the presence of the actively managed SSSI and the recently planted and more mature woodland habitats. However, the publicly accessible scientific information about the site is quite poor – for example, many of the records in the TWIC database are old and there has been no systematic attempt to compare them with recent records.

The aim is to improve biological recording and understanding of the natural history and ecology of the site.

4.4.1 Monitor vegetation cover

The aim is to keep regular chronological records of changes to vegetation cover (natural succession) across the LNR, by means of drone surveys and seasonal photographs.

4.4.2 Expand the species database and share data with national conservation bodies

The aim to keep a systematic record of plants and animal species observed on informal walks and in quadrat surveys, regularly updating the computer database established by FOWG and to share recorded species information with a range of conservation bodies and contribute to their own surveys.

Recordings will be sent to TWIC (The Wildlife Information Centre) and their spreadsheet will be used as preferred format to ensure continuity.

4.4.3 Support scientific research into the ecology of the LNR

The proximity of the site to several Edinburgh University campuses offers the potential to carry out research projects on the geology, ecology and natural history. The intention is to establish links with suitable research organisations, particularly the appropriate departments of Edinburgh-based universities and the research departments of national conservation groups, in order to develop student projects and research proposals.

4.5 – Provide educational resources and interpretation for the public

The focus is to enhance visitor's experience by deepening their understanding of its natural and social history, while at the same time stimulating interest in conserving and protecting the site. The

aim is to provide pertinent on-site interpretation to all visitors, and more detailed information in accessible formats on the Internet and through occasional events.

4.5.1 Develop relevant on-site interpretation for visitors.

Install interpretation appropriate to the setting at the main access points to the LNR. These could provide summary information about the natural and historic importance of the LNR and the SSSI, maps of paths and information about SOAC/ Parks Management Rules, wildlife, geology. There is also scope for exploring and installing information boards on the historic and natural heritage of the site as well as other form of interpretation at appropriate areas of the hill.

4.5.2 Develop other forms of information

Develop and maintain the FOWG website to provide an information portal on the history and biodiversity of the LNR. In addition, a flyer or leaflet could be designed to advertise events.

4.6 – Encourage community involvement in conservation

4.6.1 Involve interested community members in biodiversity recording and conservation activities

Occasional presentations and other educational events will be organised for Friends Group members and other interested local residents. In addition, community members will be encouraged to become involved in biodiversity recording, planting and other conservation activities through the FOWG website, information on entrance boards, links with Craiglockhart Community Council and links with local schools.

4.6.2 Promote conservation through Edinburgh Friends of Greenspace Forum

FOWGs affiliation with the Friends of Greenspace Forum offers an excellent opportunity to exchange ideas on biodiversity conservation and recording with other Friends Groups and to maintain contact with the Friends of Parks and other Scottish Greenspace initiatives.

5. Ten-year work plan

Activity	Responsible	Detail/Budget if applicable	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Objective 1. Comply with all legal and policy requirements in management of the reserve.												
<u>1.1 Establish a management group</u>	CEC NH	Create LNR Status Convene the group.	X									
<u>1.2 Ensure the management group follows due process</u>	Management group NH/FOWG FOWG	Meeting schedule to review progress bi/annually? Prepare an annual report. Organise an AGM.	X	X	X	X	X	X	X	X	X	X
<u>1.3 Carry out Management Plan update</u>	Mgt Group	FOWG overseen by CEC NH in consultation with Merchants G.C.					X					
Objective 2. Conserve and enhance the natural environment (geology and soils, flora and fauna)												
<u>Geology</u>												
<u>2.1 Maintain the conservation status of the SSSI</u>	CEC NH, FOWG, SNH (SSSI)	NH to continue with H&S assessment of Craggs, netting Plant blackthorn, Hawthorn and wild rose to fill gaps in vegetation. Maintain open rock faces to provide habitat for rarer species by cutting back encroaching Ivy NH/TCV to cut/rake SSSI grassland 3x year - Spring	X	X	X	X	X	X	X	X	X	X
<u>Flora</u>												

<u>2.2 Improving biodiversity present in the LNR</u>	CEC NH and SNH agreement with The Conservation Volunteers – cutting and disposal	SNH regular budget. Tri-Annual rough-cut of grassland areas Disperse gorse monoculture to enhance the development of grass. Keep those on steep slopes to minimise erosion. Encourage natural herbivores. Review the potential for controlled grazing by livestock.	X	X	X	X	X	X	X	X	X	X
<u>2.3 maintain and enhance mixed long-grass and shrub habitat outwith the SSSI</u>	CEC NH, FOWG	Minimal or no cutting of long grass outwith SSSI. Introduction of seed enrichment. Replacement of shrubs when needed.	X	X	X	X	X	X	X	X	X	X
<u>2.4 Maintain mown areas and grass paths on hill</u>	MoEGC, CEC NH	Annual or bi-annual mowing of main paths. Seek funding for weather proofing of lower path. Annual mowing of short-grass areas.	X	X	X	X	X	X	X	X	X	X
<u>2.5 Control invasive species as needed</u>	CEC NH – supervise FOWG – regular monitoring visits SNH Conservation volunteers	Annual monitoring visit to establish plan. Control using manual methods as needed. SNH agreement with TCV for control.	X	X	X	X	X	X	X	X	X	X
<u>2.8 Maintain and enhance wooded areas</u>	CEC NH – and FOWG	Inspect wooded areas and agree management strategy. Retain old trees as standing or fallen deadwood. Monitor Ash	X		X		X		X			

		Dieback and control Dutch Elm disease.										
	CEC NH	Remove diseased trees using methods designed to minimise habitat damage. Repair/replant as needed.	X	X	X	X	X	X	X	X	X	X
		Thin trees in community woodland according to CEC management strategy.	X	X								X
	CEC NH, FOWG, JMA pupils	Plant edges of community woodland with shrubs to preserve "private" feeling of woodland		X	X	X	X	X	X	X		
	NH FOWG	Maintain fungal interest and habitat	X	X	X	X	X	X	X	X	X	X
<u>Fauna</u>												
<u>2.9. Repair areas damaged by fires</u>	CEC NH FOWG	Funding from SNH for repairs within SSSI CEC NH possible budget for repairs outwith SSSI and interplanting.	X	X	X	X	X	X	X	X	X	X
<u>2.10 carry out regular site inspections to Report damage</u>	FOWG	One per two months, monitor and report to CEC NH.	X	X	X	X	X	X	X	X	X	X
Objective 3. Preserve and Protect archaeological features and monuments												

	NH/ FOWG	investigate projects from HES/ Edinburgh Arc. Society on site			X	X	X					
	NH/FOWG	Investigate project to increase awareness of monuments including info panels, etc.						X	X	X		
Objective 4. Contribute to research in ecology and natural history												
<u>4.1 Monitor vegetation cover</u>	FOWG	Seasonal photography of cover.	X	X	X	X	X	X	X	X	X	X
	SNH/NH/FOWG	Possible student project to document changes in cover from historical photos. Explore possibility of Drone survey. If not, regular satellite imagery updates.										
<u>4.2. Expand species database</u>	FOWG SNH	SNH – budget for training FOWG - Opportunistic recording of plant and animal species Annual quadrat sampling of plant species Monthly transect survey of bumblebees and butterflies (spring/summer)	X	X	X	X	X	X	X	X	X	X
<u>4.3. Share data with national conservation bodies</u>	FOWG & CEC NH	Share species at least 1/year with SNH, Bumblebee Conservation Society, RSPB,	X	X	X	X	X	X	X	X	X	X

		Bat Conservation Trust, Badger Trust Scotland and TWIC											
<u>4.4 Support scientific research into the ecology of the LNR</u>	FOWG	Establish links with local universities, possible student projects. Develop at least one research project funding proposal with a Scottish university or research organization		X	X	X	X	X	X	X	X	X	X
Objective 5. Provide educational resources and interpretation for the public													
<u>5.1 Provide on-site information</u>	Management group – CEC NH	CEC NH budget Install signage, with path maps and information.	X	X	X	X							
<u>5.2 Provide interpretative information</u>	FOWG – maintain and expand website FOWG/CEC	circulate flier/business card at appropriate public events	X	X	X	X	X	X	X	X	X	X	X
Objective 6. Encourage community involvement in conservation													
<u>6.1 Involve interested community members in biodiversity recording and conservation activities</u>	FOWG (website) FOWG/CEC (educational event)	Seek funding for events as needed Post information on FOWG website and Craiglockhart Community Council website Organise at least one educational event a year	X	X	X	X	X	X	X	X	X	X	X

<u>6.2 Promote conservation through Edinburgh Friends of Parks Forum</u>	FOWG	Initiate one meeting annually focussing on conservation and biodiversity issues of Edinburgh LNRs	X	X	X	X	X	X	X	X	X	X
<u>6.3 Engage with educational bodies</u>	FOWG	Continue engagement with John Muir Award pupils from Firrhill School, through The Green Team	X	X	X	X	X	X	X	X	X	X
Objective 7. Upkeep and General Maintenance of site												
<u>7.1 Ensure a clean and welcoming site</u>	NH/FOWG/ Volunteers	Ensure entrances, gates barriers and displays match CEC guidelines Undertake regular (FOWG) and irregular (1 per 6-months NH) litter sweeps of whole site.	X	X	X	X	X	X	X	X	X	X
<u>7.2 Improve condition and appearance of site features</u>	NH/FOWG	Scrape and spot infill all formal unbound surfaced paths Undertake site boundary condition assessment	X	X	X	X	X	X	X	X	X	X
<u>7.3 promote responsible access within the park</u>	NH/FOWG	Promote Scottish outdoor access code Ensure sightlines on path network	X	X	X	X	X	X	X	X	X	X

Appendix A: species list January 2019

Group	Type	Common name	Scientific name
Terrestrial mammal	Badger	Eurasian Badger	Meles meles
Terrestrial mammal	Bat	Soprano Pipistrelle	Pipistrellus pygmaeus
Terrestrial mammal	Bat	Common Pipistrelle	Pipistrellus pipistrellus
Terrestrial mammal	Deer	Roe Deer	Capreolus capreolus
Terrestrial mammal	Fox	Red Fox	Vulpes vulpes
Terrestrial mammal	Mouse	Wood Mouse	Apodemus sylvaticus
Terrestrial mammal	Rabbit	European Rabbit	Oryctolagus cuniculus
Terrestrial mammal	Shrew	Common Shrew	Sorex araneus
Terrestrial mammal	Squirrel	Grey Squirrel	Sciurus carolinensis
Terrestrial mammal	Squirrel	Eastern Grey Squirrel	Sciurus carolinensis
Terrestrial mammal	Vole	Short-tailed Vole	Microtus agrestis
Slime mould	Slime mould	Dog Vomit Slime Mould	Fuligo septica
Non-flowering plant	Fern	Western Polyplody	Polypodium vulgare
Non-flowering plant	Fern	Broad Buckler-fern	Dryopteris dilatata
Non-flowering plant	Fern	Male Fern	Dryopteris filix-mas
Non-flowering plant	Tree - conifer	European Larch	Larix decidua
Non-flowering plant	Tree - Conifer	Yew	Taxus baccata
Non-flowering plant	Tree - Conifer	Scots Pine	Pinus sylvestris
Mollusc	Snail	White-lipped Snail	Cepaea hortensis
Mollusc	Snail	Common Garden Snail	Cornu aspersum
Mollusc	Snail	Brown-lipped Snail	Cepaea nemoralis
Insect	Bee	Common Carder bee	Bombus pascuorum
Insect	Bee	Early Bumblebee	Bombus pratorum
Insect	Bee	Field Cuckoo Bumblebee	Bombus campestris
Insect	Bee	Forest Cuckoo Bumblebee	Bombus sylvestris
Insect	Bee	Garden Bumblebee	Bombus hortorum
Insect	Bee	Gypsy Cuckoo Bumblebee	Bombus bohemicus
Insect	Bee	Heath Bumblebee	Bombus jonellus
Insect	Bee	Red-tailed Bumblebee	Bombus lapidarius
Insect	Bee	Blaeberry Bumblebee	Bombus monticola
Insect	Bee	White-tailed Bumblebee	Bombus lucorum
Insect	Bee	Western Honey Bee	Apis mellifera
Insect	Bee	Buff-tailed Bumblebee	Bombus terrestris
Insect	Bee	Tree Bumblebee	Bombus hypnorum
Insect	Beetle	Common Red Soldier Beetle	Rhagonycha fulva
Insect	Butterfly	Meadow Brown	Maniola jurtina
Insect	Butterfly	Ringlet	Aphantopus hyperantus
Insect	Butterfly	Green-veined White	Pieris napi
Insect	Butterfly	Small White	Pieris rapae
Insect	Butterfly	Small Tortoiseshell	Aglais urticae
Insect	Butterfly	Orange Tip	Anthocharis cardamines
Insect	Butterfly	Painted Lady	Vanessa cardui
Insect	Butterfly	Peacock	Aglais io
Insect	Butterfly	Red Admiral	Vanessa atalanta

Insect	Butterfly	Small Copper	Lycaena phlaeas
Insect	Dragonfly	Common Darter	Sympetrium striolatum
Insect	Gall wasp	Robin's Pincushion	Diplolepis rosae
Insect	Grasshopper	Common Field Grasshopper	Chorthippus brunneus
Insect	Hoverfly	Lesser Banded Hoverfly	Syrphus vitripennis
Insect	Ladybird	Seven Spot ladybird	Coccinella septempunctata
Insect	True fly	St Mark's fly	Bibio marci
Insect	Wasp	Common Wasp	Vespula vulgaris
Fungus		Coral Spot Fungus	Nectria cinnabarina
Fungus		Candlesnuff Fungus	Xylaria hypoxylon
Fungus		Parasol Mushroom	Macrolepiota procera
Fungus		Egghead Mottlegill	Panaeolus semiovatus
Fungus		Fairy Inkcap	Coprinellus disseminatus
Fungus		False Chanterelle	Hygrophoropsis aurantiaca
Fungus		Larch Boletus	Suillus grevillei
Fungus		Turkey Tail	Trametes versicolor
Fungus		Root Rot	Heterobasidion annosum
Fungus	Deceiver	Amethyst Deceiver	Laccaria amethystina
Fungus	Earthstar	Collared Earthstar	Geastrum triplex
Fungus	Fieldcap	Yellow Fieldcap	Bolbitius titubans
Fungus	Geoglossum	Geoglossum cookeanum	Geoglossum cookeanum
Fungus	Grassland coral/club	Golden Spindles	Clavulinopsis fusiformis
Fungus	Grassland coral/club	Apricot club	Clavulinopsis luteoalba
Fungus	Inkcap	Common Inkcap	Coprinopsis atramentaria
Fungus	Jelly fungus	Common Jellyspot	Dacromyces stillatus
Fungus	Jelly Fungus	Jelly Ear	Auricularia auricula-judae
Fungus	Jelly fungus	Yellow Brain	Tremella mesenterica
Fungus	Leaf rust	Violet Bramble Rust / Blackberry leaf rust fungus	Phragmidium violaceum
Fungus	Leaf Spot	Tar Spot Fungus	Rhytisma acerinum
Fungus	Leaf Spot	Ramularia rubella	Ramularia rubella
Fungus	Mossicap	Orange Mossicap	Rickenella fibula
Fungus	Mottlegill	Brown Mottlegill	Panaeolina foenicicii
Fungus	Mushroom - Melanoleuca	Spring Cavalier	Melanoleuca cognata
Fungus	Oysterling	Bitter Oysterling	Panellus stipticus
Fungus	Polyspore	Dryad's Saddle	Polyporus squamosus
Fungus	Puffball	Giant Puffball	Langermannia gigantea
Fungus	Stagshorn	Small Stagshorn	Calocera cornea
Fungus	Waxcap	Butter Waxcap	Hygrocybe ceracea
Fungus	Waxcap	Goblet Waxcap	Hygrocybe cantharellus
Fungus	Waxcap	Golden Waxcap	Hygrocybe chlorophana
Fungus	Waxcap	Meadow Waxcap	Hygrocybe pratensis
Fungus	Waxcap	Blackening Waxcap	Hygrocybe conica
Flowering plant	Atypical umbellifer	Sanicle	Sanicula europaea
Flowering plant	Avens	Herb Bennet	Geum urbanum
Flowering plant	Bedstraw	Crosswort	Cruciata laevipes
Flowering plant	Bedstraw	Cleavers	Galium aparine

Flowering plant	Bedstraw	Lady's Bedstraw	Galium verum
Flowering plant	Bedstraw	Heath Bedstraw	Galium saxatile
Flowering plant	Bellflower	Harebell	Campanula rotundifolia
Flowering plant	Bindweed	Hedge Bindweed	Calystegia sepium
Flowering Plant	Birdsfoot Trefoil	Narrow-leaved Birdsfoot Trefoil	Lotus tenuis
Flowering Plant	Birdsfoot Trefoil	Birdsfoot Trefoil	Lotus corniculatus
Flowering plant	Bittercress	Hairy Bittercress	Cardamine hirsuta
Flowering plant	Blinks	Pink Purslane	Claytonia sibirica
Flowering plant	Bramble	Raspberry	Rubus idaeus
Flowering plant	Bramble	Bramble	Rubus fruticosus agg.
Flowering plant	Brassica	Garlic Mustard	Alliaria petiolata
Flowering plant	Bugle	Wood Sage	Teucrium scorodonia
Flowering plant	Burdock	Greater Burdock	Arctium lappa
Flowering plant	Buttercup	Lesser Celandine	Ficaria verna
Flowering Plant	Buttercup	Creeping Buttercup	Ranunculus repens
Flowering plant	Calamint	Wild Thyme	Thymus polytrichus
Flowering plant	Campion	Red Campion	Silene dioica
Flowering plant	Campion	White Campion	Silene latifolia
Flowering plant	Chamomile	Scentless Mayweed	Tripleurospermum inodorum
Flowering plant	Clover	White Clover	Trifolium repens
Flowering plant	Comfrey	Tuberous Comfrey	Symphytum tuberosum
Flowering plant	Cranesbill	Dovesfoot Cranesbill	Geranium molle
Flowering plant	Cranesbill	Herb Robert	Geranium robertianum
Flowering plant	Cranesbill	Hedgerow Cranesbill	Geranium pyrenaicum
Flowering plant	Daffodil	Wild Daffodil	Narcissus pseudonarcissus
Flowering plant	Daisy	Ox-eye Daisy	Leucanthemum vulgare
Flowering plant	Daisy	Feverfew	Tanacetum parthenium
Flowering plant	Daisy	Daisy	Bellis perennis
Flowering plant	Dandelion	Dandelion section Ruderalia	Taraxacum officianale agg.
Flowering plant	Dandelion	Dandelion section Erythrosperma	Taraxacum officianale agg.
Flowering Plant	Dandelion	Dandelion	Taraxacum officinale
Flowering plant	Dead nettle	Yellow Archangel	Lamiastrum galeobdolon ssp. Argentatum
Flowering plant	Dead-nettle	White Dead-nettle	Lamium album
Flowering plant	Dock	Broad-leaved Dock	Rumex obtusifolius
Flowering plant	Everlasting Pea	Meadow Vetchling	Lathyrus pratensis
Flowering Plant	Flax	Fairy Flax	Linum catharticum
Flowering plant	Fleabane	Yarrow	Achillea millefolium
Flowering plant	Forgetmenot	Field Forgetmenot	Myosotis arvensis
Flowering plant	Forgetmenot	Early Forgetmenot	Myosotis ramosissima
Flowering plant	Foxglove	Foxglove	Digitalis purpurea
Flowering plant	Goldenrod	Pineappleweed	Matricaria discoidea
Flowering plant	Grass	Meadow Foxtail	Alopecurus pratensis
Flowering plant	Grass	Meadow Oat-grass	Avenula pratense
Flowering Plant	Grass	Common Bent	Agrostis capillaris

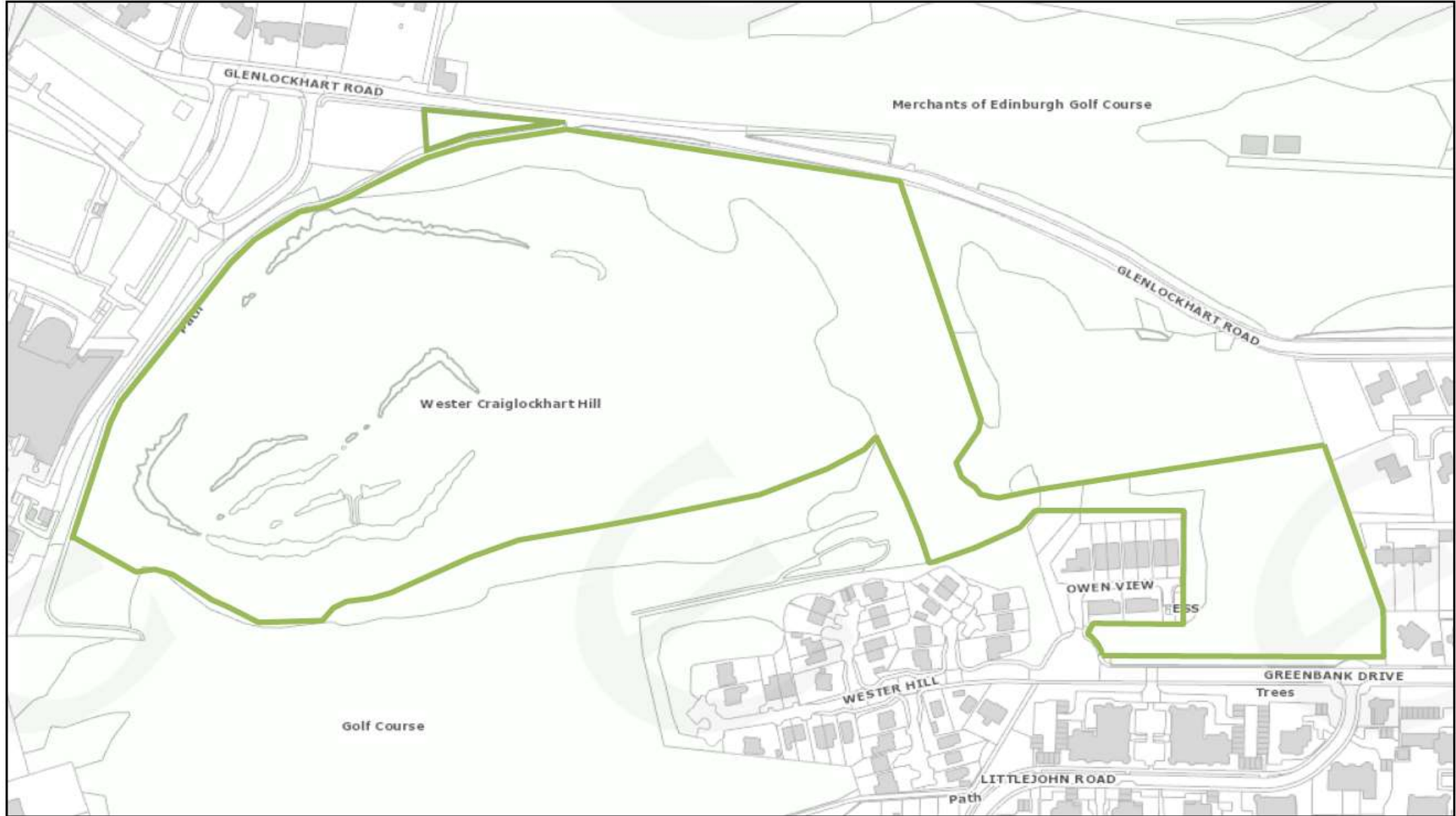
Flowering plant	Grass	Yorkshire fog	Holcus lanatus
Flowering plant	Grass	Annual Meadow-grass	Poa annua
Flowering plant	Grass	Barren Brome	Anisantha sterilis
Flowering Plant	Grass	Wavy Hair-grass	Deschampsia flexuosa
Flowering plant	Grass	Cocksfoot	Dactylis glomerata
Flowering plant	Grass	Sweet Vernal Grass	Anthoxanthum odoratum
Flowering plant	Grass	Perrenial Ryegrass	Lolium perenne
Flowering plant	Grass	Common Couch	Elytrigia repens
Flowering plant	Grass	Creeping Bent	Agrostis stolonifera
Flowering plant	Grass	Crested Dogstail	Cynosurus cristatus
Flowering plant	Grass	Crested Hair-grass	Koeleria macrantha
Flowering plant	Grass	Smaller Catstail	Phleum bertolonii
Flowering plant	Grass	False Oat-grass	Arrhenatherum elatius
Flowering plant	Hawkbit	Nipplewort	Lapsana communis
Flowering plant	Hawkbit	Catsear	Hypochaeris radicata
Flowering Plant	Hawksbeard	Northern Hawksbeard	Crepis mollis
Flowering plant	Hawkweed	Fox-and-cubs	Pilosella aurantiaca
Flowering Plant	Hawkweed	Basal Leaved Hawkweed	Hieracium anglicum
Flowering plant	Hawkweed	Narrow-leaved Hawkweed	Hieracium umbellatum
Flowering plant	Hawkweed	Mouse-ear Hawkweed	Pilosella officinarum
Flowering plant	Hellebore	Stinking Hellebore	Helleborus foetidus
Flowering plant	Honeysuckle	Honeysuckle	Lonicera periclymenum
Flowering plant	Honeysuckle	Himalayan Honeysuckle	Leycesteria formosa
Flowering plant	Ivy	Ivy	Hedera helix
Flowering plant	Knapweed	Common Knapweed	Centaurea nigra agg.
Flowering plant	Leopardsbane	Leopardsbane	Doronicum pardalianches
Flowering plant	Milk-vetch	Purple Milk-vetch	Astragalus danicus
Flowering plant	Mouse-ear	Common Mouse-ear	Cerastium fontanum
Flowering plant	Nettle	Stinging Nettle	Urtica dioica
Flowering plant	Nightshade	Bittersweet	Solanum dulcamara
Flowering plant	Onion	Ramsons	Allium ursinum
Flowering plant	Plantain	Ribwort Plantain	Plantago lanceolata
Flowering plant	Plantain	Greater Plantain	Plantago major
Flowering plant	Poppy	Welsh Poppy	Meconopsis cambrica
Flowering plant	Purslane	Spring Beauty	Claytonia perfoliata
Flowering plant	Ragwort	Common Ragwort	Senecio jacobaea
Flowering plant	Rock-rose	Common Rock-rose	Helianthemum nummularium
Flowering plant	Rose	Dog Rose	Rosa canina
Flowering plant	Rosebay	Rosebay	Chamerion angustifolium
Flowering plant	Shrub - deciduous	Flowering Currant	Ribes sanguineum
Flowering plant	Shrub - deciduous	Broom	Cytisus scoparius
Flowering plant	Shrub - evergreen	Gorse	Ulex europaeus
Flowering plant	Snowdrop	Snowdrop	Galanthus nivalis
Flowering plant	Sorrel	Sheep's Sorrel	Rumex acetosella
Flowering plant	Sorrel	Common Sorrel	Rumex acetosa
Flowering plant	Sow-thistle	Smooth Sow-thistle	Sonchus oleraceus
Flowering plant	Sow-Thistle	Wall Lettuce	Mycelis muralis

Flowering plant	Sow-thistle	Rough Sow-thistle	<i>Sonchus asper</i>
Flowering plant	Speedwell	Grey Field Speedwell	<i>Veronica polita</i>
Flowering plant	Speedwell	Green Field Speedwell	<i>Veronica agrestis</i>
Flowering plant	Speedwell	Slender Speedwell	<i>Veronica filiformis</i>
Flowering plant	Speedwell	Germander Speedwell	<i>Veronica chamaedrys</i>
Flowering plant	Speedwell	Heath Speedwell	<i>Veronica officinalis</i>
Flowering plant	Squill	Spanish Bluebell	<i>Hyacinthoides hispanica</i>
Flowering plant	Squill	Bluebell	<i>Hyacinthoides non-scriptus</i>
Flowering plant	Squill	Glory of the Snow	<i>Scilla forbesii</i>
Flowering plant	St. John's Wort	Square-stalked St. John's Wort	<i>Hypericum pulchrum</i>
Flowering plant	Stitchwort	Lesser Stitchwort	<i>Stellaria graminea</i>
Flowering Plant	Stitchwort/Chickweed	Common Chickweed	<i>Stellaria media</i>
Flowering plant	Stock	Cuckooflower	<i>Cardamine pratensis</i>
Flowering plant	Stock	Honesty	<i>Lunaria annua</i>
Flowering plant	Stonecrop	English Stonecrop	<i>Sedum anglicum</i>
Flowering plant	Stonecrop	Biting Stonecrop	<i>Sedum acre</i>
Flowering plant	Thistle	Spear Thistle	<i>Cirsium vulgare</i>
Flowering plant	Thistle	Creeping Thistle	<i>Cirsium arvense</i>
Flowering plant	Thistle	Wetted Thistle	<i>Carduus crispus</i>
Flowering plant	Toadflax	Purple Toadflax	<i>Linaria purpurea</i>
Flowering plant	Tree - deciduous	Sycamore	<i>Acer pseudoplatanus</i>
Flowering plant	Tree - deciduous	Beech	<i>Fagus sylvatica</i>
Flowering plant	Tree - deciduous	Swedish Whitebeam	<i>Sorbus intermedia</i>
Flowering plant	Tree - deciduous	Alder	<i>Alnus glutinosa</i>
Flowering plant	Tree - deciduous	White Willow	<i>Salix alba</i>
Flowering plant	Tree - deciduous	Ash	<i>Fraxinus excelsior</i>
Flowering plant	Tree - deciduous	Silver Birch	<i>Betula pendula</i>
Flowering plant	Tree - deciduous	Horse Chestnut	<i>Aesculus hippocastanum</i>
Flowering plant	Tree - deciduous	Rowan	<i>Sorbus aucuparia</i>
Flowering Plant	Tree - deciduous	Norway Maple	<i>Acer platanoides</i>
Flowering plant	Tree - deciduous	Field Maple	<i>Acer campestre</i>
Flowering plant	Tree - deciduous	Common Whitebeam	<i>Sorbus aria</i>
Flowering plant	Tree - deciduous	Pedunculate Oak	<i>Quercus robur</i>
Flowering plant	Tree - deciduous	Wych Elm	<i>Ulmus glabra</i>
Flowering plant	Tree/Shrub - deciduous	Blackthorn	<i>Prunus spinosa</i>
Flowering plant	Tree/Shrub - deciduous	Hawthorn	<i>Crataegus monogyna</i>
Flowering plant	Tree/Shrub - deciduous	Hazel	<i>Corylus avellana</i>
Flowering plant	Tree/Shrub - deciduous	Elder	<i>Sambucus nigra</i>
Flowering plant	Tree/Shrub - deciduous	Guelder-rose	<i>Viburnum opulus</i>
Flowering plant	Tree/Shrub - evergreen	Holly	<i>Ilex aquifolium</i>
Flowering plant	Umbellifer	Hogweed	<i>Heracleum sphondylium</i>
Flowering plant	Umbellifer	Pignut	<i>Conopodium majus</i>
Flowering plant	Umbellifer	Cow Parsley	<i>Anthriscus sylvestris</i>
Flowering plant	Umbellifer	Hedge Parsley	<i>Torilis japonica</i>
Flowering plant	Vetch	Bush vetch	<i>Vicia sepium</i>
Flowering plant	Violet	Common Dog Violet	<i>Viola riviniana</i>
Flowering plant	Willowherb	Marsh Willowherb	<i>Epilobium palustre</i>

Flowering plant	Willowherb	Broad-leaved Willowherb	<i>Epilobium montanum</i>
Flowering plant	Willowherb	Great Willowherb	<i>Epilobium hirsutum</i>
Flowering plant	Woundwort	Hedge Woundwort	<i>Stachys sylvatica</i>
Flowering plant	Woundwort	Marsh Woundwort	<i>Stachys palustris</i>
Bird	Accentor	Dunnock	<i>Prunella modularis</i>
Bird	Corvid	Jackdaw	<i>Corvus monedula</i>
Bird	Corvid	Magpie	<i>Pica pica</i>
Bird	Corvid	Carrion Crow	<i>Corvus corone</i>
Bird	Crest	Goldcrest	<i>Regulus regulus</i>
Bird	Finch	Chaffinch	<i>Fringilla coelebs</i>
Bird	Finch	Greenfinch	<i>Carduelis chloris</i>
Bird	Finch	Siskin	<i>Carduelis spinus</i>
Bird	Finch	Bullfinch	<i>Pyrrhula pyrrhula</i>
Bird	Finch	Goldfinch	<i>Carduelis carduelis</i>
Bird	Flycatcher	Wheatear	<i>Oenanthe oenanthe</i>
Bird	Flycatcher	Robin	<i>Erithacus rubecula</i>
Bird	Harrier	Hen Harrier	<i>Circus cyaneus</i>
Bird	Martin	House Martin	<i>Delichon urbica</i>
Bird	Owl	Tawny Owl	<i>Strix aluco</i>
Bird	Pheasant	Pheasant	<i>Phasianus colchicus</i>
Bird	Pigeon/Dove	Stock Dove	<i>Columba oenas</i>
Bird	Pigeon/Dove	Wood Pigeon	<i>Columba palumbus</i>
Bird	Raptor	Sparrowhawk	<i>Accipiter nisus</i>
Bird	Raptor	Buzzard	<i>Buteo buteo</i>
Bird	Raptor	Kestrel	<i>Falco tinnunculus</i>
Bird	Swallow	Barn Swallow	<i>Hirundo rustica</i>
Bird	Swift	Swift	<i>Apus apus</i>
Bird	Thrush	Blackbird	<i>Turdus merula</i>
Bird	Thrush	Redwing	<i>Turdus iliacus</i>
Bird	Thrush	Song Thrush	<i>Turdus philomelos</i>
Bird	Thrush	Mistle Thrush	<i>Turdus viscivorus</i>
Bird	Tit	Coal Tit	<i>Parus ater</i>
Bird	Tit	Great Tit	<i>Parus major</i>
Bird	Tit	Long-tailed Tit	<i>Aegithalos caudatus</i>
Bird	Tit	Blue Tit	<i>Cyanistes caeruleus</i>
Bird	Treecreeper	Treecreeper	<i>Certhia familiaris</i>
Bird	Warbler	Blackcap	<i>Sylvia atricapilla</i>
Bird	Warbler	Chiffchaff	<i>Phylloscopus collybita</i>
Bird	Warbler	Garden Warbler	<i>Sylvia borin</i>
Bird	Warbler	Whitethroat	<i>Sylvia communis</i>
Bird	Warbler	Willow Warbler	<i>Phylloscopus trochilus</i>
Bird	Warbler	Wood Warbler	<i>Phylloscopus sibilatrix</i>
Bird	Woodpecker	Great Spotted Woodpecker	<i>Dendrocopos major</i>
Bird	Wren	Wren	<i>Troglodytes troglodytes</i>

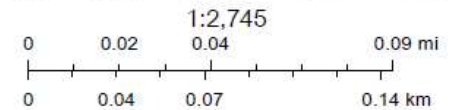
Appendix B: WCH LNR proposed Boundary Map

WCH LNR Boundary Map



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— Override 1



Appendix B: SNH 2014 Memo of SSSI and specific management regime (2018)

Specific Management of the SSSI grasslands is currently 3 days/year of active management. This is: 3 instances of cutting followed by raking. 1st cut during March/April, second during August/September and the 3rd during October/November. The cuts should be followed by raking (Volunteers) no less than 3 days and no more than 1 week after cutting. Arisings can be disposed of discreetly on site. Pertaining to the marked satellite view and the NVC map, the area currently being cut (and to expand where possible) is outlined in green and includes MG1a south of Q10.



Scottish Natural Heritage Dualchas Nàdair na h-Alba

All of nature for all of Scotland
Nàdar air fad airson Alba air fad
Memo / Meòrachan

To / Gu Ewan Campbell
From / Bho Jane MacKintosh
Date / Latha 14 April 2014
Subject / Cuspair Wester Craiglockhart Hill SSSI

We visited this site on 19th March 2014 with Susan Falconer and Jenny Hargreaves, rangers from Edinburgh Council, to advise on the management of the grassland feature.

Figure 1 shows the site boundary, with the trig pillar marked as a blue dot.

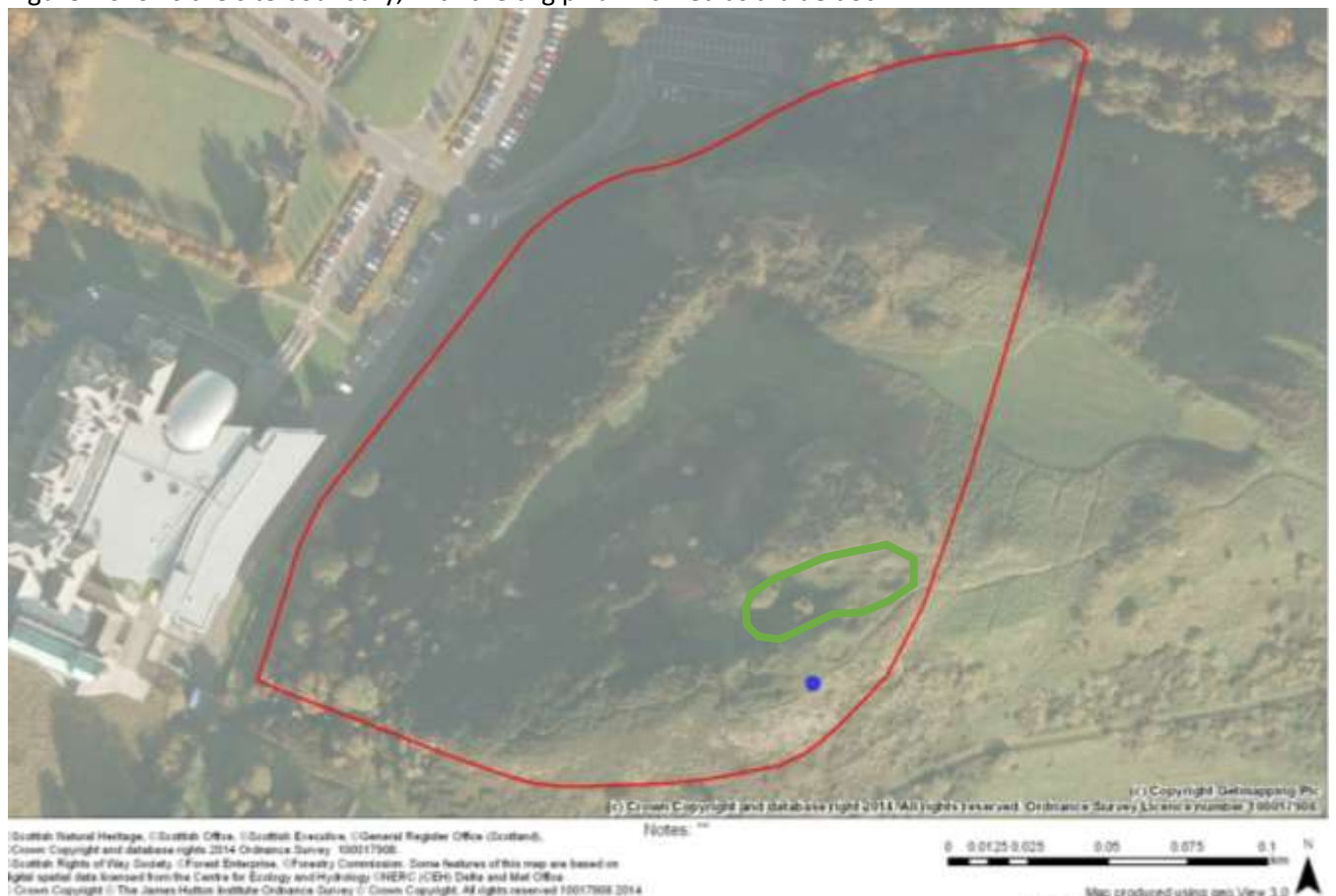


Figure 2 is a clearer aerial view of the site from Flash Earth, dated 2009 and without shadow, showing the extent of gorse on the site.



Both lowland calcareous and lowland acid grassland features have been designated at Wester Craiglockhart. The vegetation map in Annex 1 shows the distribution of NVC communities on the site. The calcareous grassland is mapped as NVC community CG7 (*Festuca ovina* - *Hieracium pilosella* - *Thymus praecox/pulegioides* grassland) and is confined to steep slopes and shallow soils around the top of the hill. It is very short, rabbit-grazed, and dominated by fine-leaved grasses (see fig 3). The acid grassland is mapped as U1 (*Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland) and U4 (*Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland). However, there is little of this habitat left now and the main grassland type on the site is MG1 (*Arrhenatherum elatius* grassland), In contrast to the hilltop, the MG1 grassland is long and tussocky, dominated by *Arrhenatherum elatius* false oat-grass (see Fig 4) and with dead litter accumulating at ground level.

The SSSI has not been managed for years. In the past I have discussed the possibility that the golf club would cut some of the grassland on the site but it seems that this has never happened.

The calcareous grassland

The scarce species listed in the citation (*Astragalus danicus* purple milk vetch, *Helianthemum nummularium* common rock rose, *Koeleria macrantha* crested hair grass, *Allium vineale* wild onion, *Asplenium adiantum-nigrum* black spleenwort and *Helictotrichon pratense* meadow oat-grass) all grow on calcareous soils so these species are probably restricted to the lowland calcareous grassland feature on the steep, south-facing slopes on shallow soils and around rock outcrops near the trig pillar at the top of the hill.

Management of this habitat should concentrate on preventing further loss to invading gorse, and on encouraging the recovery of grassland where gorse has been removed. I would focus efforts around the locations of the scarce species. It might be best to cut the gorse when these species are visible, so that cutting can be concentrated around the scarce species, and so that care can be taken not to disturb or damage these species. Once the scarce species are safeguarded, gorse could be removed from the top of the hill where there is potential for typical calcareous grassland, including the scarce species, to become re-established.

All litter under the cleared gorse should be removed and, where this is practicable, the top layer of soil should be scraped away to remove excess nutrients. This will leave a nutrient-poor substrate suitable for the establishment of a variety of small, non-competitive species. Rabbit grazing, together with trampling by visitors, currently keeps the hilltop grassland short so there is no need for grass cutting here.

Figure 3, showing the hill summit



Figure 4, showing the long grassland



The acid grassland

Craiglockhart Hill would have been grazed before the golf course was opened in 1907 and perhaps for years afterwards. The grassland would have been kept short and would have been dominated by bents (*Agrostis* spp.) and fescues (*Festuca* spp.). This is probably the vegetation that occupied most of the hill, except where scrub dominated, at the time of notification in 1986. The aim of management should be to restore the acid grassland as far as possible - with the hope of restoring a greater level of botanical diversity - by keeping the grass within the ideal sward height range for acid grassland: 5 and 20 cm.

Given the difficulties of managing this site it is essential to arrive at a management regime that will be practicable and sustainable in the long term. I suggest that an area of long grass, where mapped as MG1, is selected near the summit of the hill (such as around the fort ramparts) and that management is focussed on this area for several years. The cut area should be monitored together with an adjacent un-cut area for comparison. After five years or so, it should be possible to see a significant difference between the cut and uncut grassland. Evidence of the beneficial effect of cutting might then be used to justify extending the management regime over the rest of the long grassland.

The grass should be cut once in August as for a late hay cut and, ideally, cut a second time to mimic the effects of aftermath grazing on a hay meadow. Cuttings must always be raked off and the process of raking will scarify the soil surface and create small bare patches where new seedlings can establish. The second cut could be in late autumn or, if bad weather prevents that, in early spring. It is a good idea to leave a few flower heads uncut to provide winter seed. Many grassland plants germinate in the autumn or spring and this regime creates a short open sward at these times, ideal conditions for seedling establishment.

The area chosen for cutting should be no more than can be managed in a single day. We discussed the possibility that the Lothians Conservation Corps could be asked to spend a day cutting the grass with a Council owned SCAG mower, and raking off the cuttings. Cuttings can be disposed of further down the hill, off the SSSI. Strimmers could be used to cut small sensitive areas such as the banks of the summit forts.

Grassland management by cutting tends to create a uniform sward. This is not a problem while only a limited area is under management. In the long term, however, if management is restored to the whole hill, some areas should be left uncut each year in order to create a variety of sward structures and leave shelter for over-wintering invertebrates.

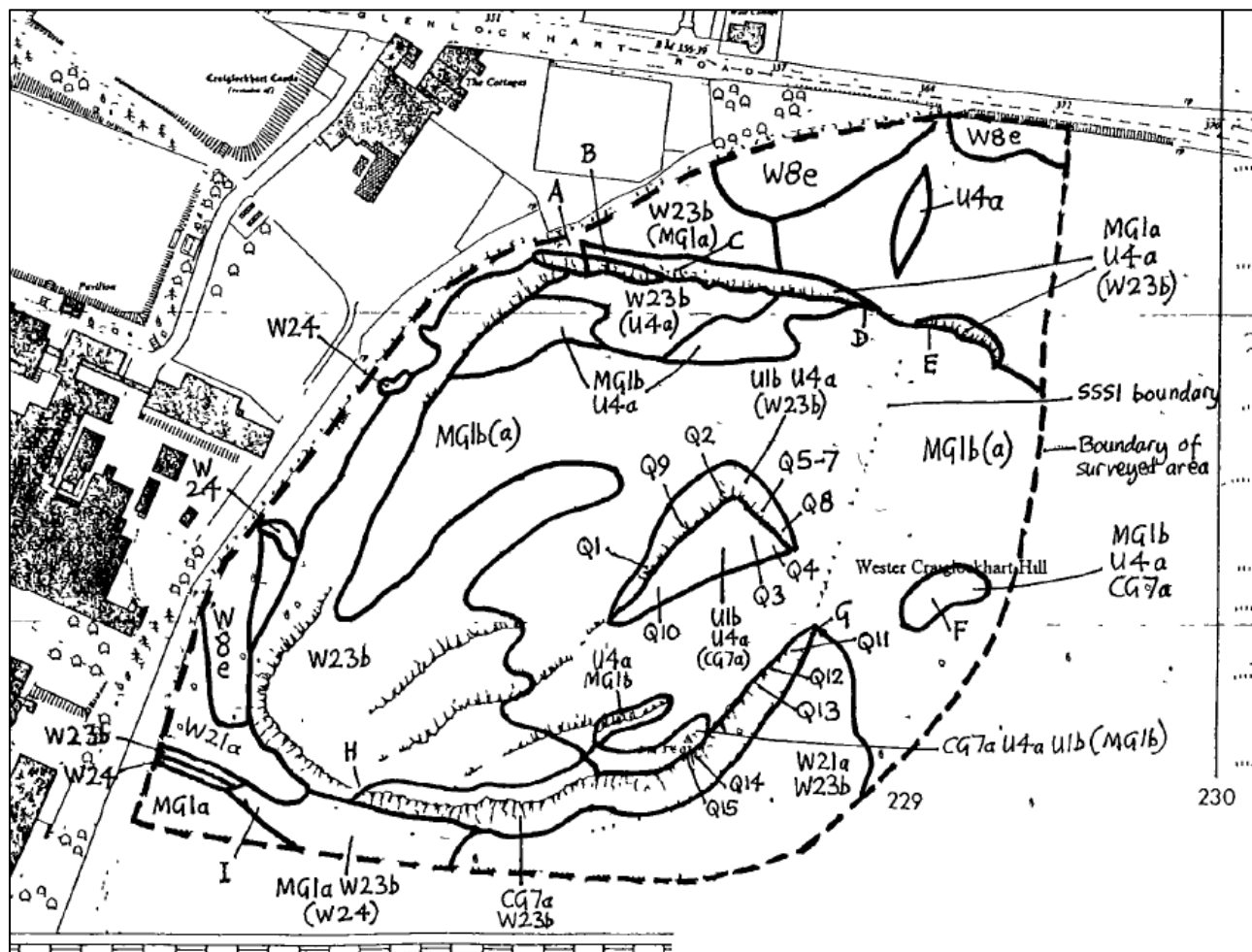
We discussed how the effects of regular management could be monitored. I have inserted below (as Annex 2) an account of the Mini-quadrat monitoring methodology devised by Simon Leach for English Nature in the 1990s. It is designed to be completed in a day. The methodology is little used now because it has been superseded by the rapid assessment methods of Site Condition Monitoring. However, it is ideal for a small and not very variable patch of grassland (where sampling locations might be adequately located by throwing the quadrat frame at random). A simpler analysis than the statistical test recommended below is simply to compare the frequency of +ve and –ve indicators from one year to the next. I attach (as Annex 3) lists of +ve and –ve indicator species for lowland acid grassland.

In summary, I recommend:

- further gorse clearance from the calcareous grassland around the locations of the scarce plant species and
- regular grass cutting on a trial area of MG1 grassland that would originally have been acid grassland.

ANNEX 1

MAP OF NVC COMMUNITIES AT WESTER CRAIGLOCKHART HILL SSSI



ANNEX 2

MINI-QUADRAT MONITORING METHODOLOGY

The objective of a grassland monitoring programme is normally to compare species composition and species richness on a grassland at two or more dates, usually before and after a change in management. The method described here is known as the Mini-quadrat method. A large number of small quadrats are placed randomly throughout the site and the presence of each species within each quadrat is recorded. Estimates of cover/abundance are not used. This method allows comparison of the frequency of occurrence of each species and the number of species per quadrat from one monitoring visit to the next.

The advantages of this method are that:

- The use of small quadrats increases species detection and recording rates. Presence/absence data is quick to collect: quadrats are normally 10x10cm in size and can be recorded at an average rate of 10 quadrats per hour.
- There are no problems with subjectivity; there is no need to estimate plant cover values so different field workers are likely to achieve very similar results.
- There is no need to mark and relocate permanent quadrats.
- The data from randomly placed quadrats can be analysed statistically.

The disadvantages of this method are that:

- Tall and coarse vegetation causes difficulties with small quadrats. Where necessary, quadrat size may have to be increased to 20x20cm and in this case the larger quadrats must be used over the whole site and at each subsequent visit.
- The measurement of shoot frequency can create bias in over-representation of larger species.

Monitoring methodology

The methodology below is for a single grazing unit. Separate units should be monitored separately.

1. The quadrats are not permanent but quadrat positions should be mapped out in advance, firstly so that they can be positioned truly randomly, secondly, so that variation between different parts of a site can be identified and, thirdly, so that an efficient route can be planned between quadrats.
2. The locations of random quadrats can be generated by GIS or GPS. Alternatively, the traditional method for mapping random sample points requires a 1:5,000 map of the site (1:10,000 for large sites), a grid of 1cm squares marked on an acetate sheet with the x and y axes numbered, and a table of random numbers (which can be created in Excel). Lay the grid over the area to be monitored on the map and use the random numbers to generate x and y co-ordinates for 100 points on the map, discarding any which fall outside the area to be monitored. (Co-ordinates should be to one decimal point so that each sample point can be positioned to the nearest millimeter). Mark these on the map by pushing a pin through the acetate sheet and labelling the pinprick in ink.
3. On the ground, GPS can be used to locate sample points. Alternatively, locate the sample points by starting at a mapped landmark such as a fence corner. Use the map and a compass to determine the direction to the nearest sample point and pace out the required distance. Pace from one point to the next in this way, starting again from a mapped landmark whenever practical in order to minimise cumulative errors in locating the sample points.
4. At each sample point, place a 10x10cm quadrat on the ground immediately in front of the right foot. The quadrat should be carefully lowered into the vegetation, avoiding pushing vegetation from outside into the quadrat area. (This can be difficult with small quadrats in tall vegetation. If it proves impossible a larger quadrat should be used.)
5. Record the presence of litter (as a mat or thatch of dead material at the base of the sward) and bare ground (in an area of 5 cm² or more) and measure the height of the vegetation before the vegetation is disturbed by searching for species. Measure the vegetation height in the centre of the plot using a ruler.
6. Record all vascular plant species whose shoots are present within the quadrat area.

Data Storage

The data should be recorded in Excel spreadsheets, one for each site, with species names in the rows and quadrat numbers in the columns.

Timescale

Quadrats must be recorded at roughly the same time each year, during the period from mid-June to mid-August. Once the first visit has been made, subsequent visits should be made within two weeks of this date.

Data analysis

For each site, the frequency of occurrence of each species recorded during monitoring should be compared with that recorded during the first monitoring visit, using the Chi-square test to assess whether there has been any significant change. The number of vascular plant species per quadrat and the % cover of bare ground and of litter should be compared using the t-test.

ANNEX 3

POSITIVE AND NEGATIVE INDICATOR SPECIES FOR LOWLAND ACID GRASSLAND

POSITIVE INDICATORS	NEGATIVE INDICATORS
<i>Aira</i> spp. / hair-grasses	<i>Anthriscus sylvestris</i> / cow parsley
<i>Anemone nemorosa</i> / wood anemone	<i>Cirsium vulgare</i> / spear thistle
<i>Aphanes</i> spp. / parsley-pierts	<i>Equisetum arvense</i> / field horsetail
<i>Astragalus danicus</i> / purple milk-wort	<i>Galium aparine</i> / cleavers
<i>Calluna vulgaris</i> / heather	<i>Rumex crispus</i> / curled dock
<i>Campanula rotundifolia</i> / Scottish bluebell	<i>Rumex obtusifolius</i> / broad-leaved dock
<i>Carex</i> spp. / small sedges	<i>Senecio jacobaea</i> / common ragwort
<i>Centaureum erythraea</i> / common centaury	<i>Urtica dioica</i> / common nettle
<i>Cetraria</i> spp. / Iceland lichens	<i>Holcus lanatus</i> / Yorkshire fog
<i>Cladonia</i> spp. / reindeer lichens	<i>Lolium perenne</i> / perennial rye-grass
<i>Erica cinerea</i> / bell heather	<i>Phleum pratense</i> / Timothy
<i>Erica tetralix</i> / cross-leaved heath	<i>Trifolium repens</i> / white clover
<i>Erodium cicutarium</i> / stork's-bill	<i>Arrhenatherum elatius</i> / false oat-grass
<i>Galium saxatile</i> / heath bedstraw	<i>Dactylis glomerata</i> / cock's-foot
<i>Galium verum</i> / lady's bedstraw	<i>Phalaris arundinacea</i> / reed canary-grass
<i>Genista tinctoria</i> / dyer's greenweed	<i>Deschampsia cespitosa</i> / tufted hair-grass
<i>Lathyrus linifolius</i> / bitter-vetch	<i>Phragmites australis</i> / common reed
<i>Leontodon</i> spp. / hawkbits	<i>Pteridium aquilinum</i> / bracken
<i>Lotus corniculatus</i> / bird's-foot-trefoil	Scrub and trees
<i>Orchidaceae</i> spp. / orchids	
<i>Ornithopus perpusillus</i> / bird's-foot	
<i>Pedicularis sylvatica</i> / lousewort	
<i>Pilosella officinarum</i> / mouse-ear hawkweed	
<i>Pimpinella saxifraga</i> / burnet-saxifrage	
<i>Plantago coronopus</i> / buck's-horn plantain	
<i>Polygala</i> spp. / milkworts	
<i>Potentilla erecta</i> / tormentil	
<i>Rumex acetosella</i> / sheep's sorrel	
<i>Sanguisorba officinalis</i> / great burnet	
<i>Sedum acre</i> / biting stonecrop	
<i>Sedum anglicum</i> / English stonecrop	
<i>Serratula tinctoria</i> / saw-wort	
<i>Stachys officinalis</i> / betony	
<i>Succisa pratensis</i> / devil's-bit scabious	
<i>Thymus</i> spp. / thymes	
<i>Vaccinium myrtillus</i> blaeberry / bilberry	
<i>Veronica officinalis</i> / heath speedwell	
<i>Vicia orobus</i> / wood bitter-vetch	
<i>Viola</i> spp. / violets	