Embleton Quarry Local Wildlife Site

Management Plan

2019-2029

Embleton Quarry Steering Committee

Version 1.1 – April 2020

Written By: Ellie Coleman – Coast Care Graduate Trainee

Contents

1. Introduction

This 10-year management plan has identified existing conditions of the site through collaboration with the Embleton Quarry Steering Committee and Coast Care. It has identified future aspirations for the site and the current relevant threats and pressures facing the site. These observations have been used to identify a suitable management scheme which allows conservation and enhancement of site biodiversity, as well as enhancement of the site for access, enjoyment and learning.

The primary considerations included in this management plan are:

- Maintenance and enhancement of site biodiversity
- Access and environmental education
- Monitoring and survey

Embleton Quarry is designated as a Local Wildlife Site with varied habitats including rare whin grassland on whinstone ridges to the north east and north west of the quarry. This plan aims to continue and expand on the management plan prepared by the Northumberland Wildlife Trust in September 2015. It considers not only the need to preserve the biodiversity of flora and fauna but also the access needs of the community in which the wildlife site is based and the opportunity to use the site for environmental engagement and education. It is anticipated that conservation management will be delivered through local volunteers directed by the Steering Committee and through the use of Coast Care volunteers.

After being left to nature in the late 1980's, the quarry was transferred by community asset transfer from the Northumberland County Council to Embleton Parish Council in 2017. Currently the predominant habitat includes species-poor unimproved neutral grassland and mixed scrub including bramble (*Rubus fruticosus*) and gorse (*Ulex europaeus*) which is currently being managed through meadow cutting and scrub removal. The main threats to the site include invasive species, notably entire-leaved cotoneaster (*Cotoneaster integrifolius*), Himalayan cotoneaster (*Cotoneaster simonsii*) and Pirri-pirri bur (*Acaena novae-zelandiae*) and the invasion of dense stands of scrub that supports low biodiversity.

2. Site Background

Embleton Quarry Local Wildlife Site is located to the north east of the village of Embleton on the north east coast of Northumberland (Grid ref. NU 23077 22974), nearby settlements include Alnwick which is located 8 miles south west (figure 1). It is set approximately 0.5 miles away from the coast at Embleton Bay and features a view of Dunstanburgh Castle to the south, a popular tourist destination in Northumberland. It is surrounded by mixed open agricultural land to the north and east and lies to the north east of urban settlements including the Greyfield Estate to the west, separated by the B1339 road and Quakers Row to the south.

It is an 8ha site that includes 6 broad habitat types and vegetation communities including dense scrub, tall herb communities and brambles, species poor unimproved neutral grassland, whin grassland, permanent open water, pond marginal vegetation and rubble and soil spoil from development site. It is worth noting that since the production of the 2015 management plan the areas of dense scrub and bramble have expanded and the Steering Committee has planted 120 native trees in both the south west corner and centre of the quarry.

The site has a diverse history, especially reflected in its time as a functioning quarry. Embleton Whinstone Quarry ceased production in 1961, having been a major source of employment in the area for almost 100 years. The products sold from Embleton Quarry comprised of whinstone setts, building stones and whinstone chippings and its history can been seen in the north east of the quarry where a derelict quarry house lies. Following this, the quarry was used as a landfill site by Alnwick District Council from 1970 to 1984 and then left for nature in the 1990's. Currently, the quarry is mostly used by local people as a dog walking site and more recently used for events run by Coast Care. It is also used by the school for botany and natural history education.

2.1 Ownership and PlanningConditions

Transfer of ownership of Embleton Quarry from Northumberland County Council to Embleton Parish Council through formal Community Asset Transfer in March 2017. In June 2017, Northumberland County Council informed Embleton Parish Council that the Council would be responsible for delivering the management plan prepared by Northumberland Wildlife Trust. A one of grant of £25000 was provided by Northumberland County Council to Embleton Parish Council to fund the management programme.

Allowances include:

- £5000 for fencing.
- £5000 for grazing.
- £6500 for removal of invasive species.
- £6000 for removal of scrub from whin grassland areas.
- £2500 for interpretive panels.

Figure 1. The location of Embleton Quarry Local Wildlife Site

3. Site Description

3.1 Physical

The site is approximately 8 hectares (figure 2) and lies 40m above sea level. It is in the North Northumberland Coastal Plain Natural Character Area and within the Northumberland Coast Area of Outstanding Natural Beauty, which are characterised by an open agricultural landscape with whin sill outcrops overlain by glacial till. The site slopes to the east with several rocky outcrops. It is a former whinstone quarry with low quarry faces and a quarry floor that has been partly infilled.

Figure 2: Embleton Quarry Boundary

3.2 Biological

Habitats included on the site include dense scrub, tall ruderal vegetation, scattered broadleaved trees, unimproved neutral grassland, small patches of whin grassland, introduced shrub and recently felled scrub. Whin grassland, lowland meadow, rock outcrop and scree and a pond are all present, which can be considered priority habitats. A 2019 survey indicated that the site was species rich in both flora and fauna with mammals such as brown long eared bat (*Plecotus auritus*), an assemblage of invertebrates that indicate the potential for increased invertebrate diversity including the areas first record of the pine leaf mining moth (*Clavigesta purdeyi*) and bird life including the declining yellowhammer (*Emberiza citrinella*) and tree sparrow (*Passer montanus*). The flora is diverse as the site has areas of rare whin grassland, three species of orchid including bee orchid (*Ophrys apifera*), which is a species of local interest. The site has one of the only Northumberland records of purple ramping fumitory (*Fumaria purpurea*), which is a priority plant and nationally scarce species.

3.2.1 Scrub

Scrub covers roughly 40% of the site and is made up of predominantly bramble (*Rubus fruticosus*), and gorse (*Ulex europaeus*) with occasional hawthorn (*Crataegus monogyna*). Dense stands run along the western boundary, the north east of the site and flank the track from the north western entry to the site. The scrub on site provides habitat for nesting birds, small mammals and invertebrates. It also provides potential foraging habitat for bats. It is important for the tree sparrow (*Passer montanus*) population.

3.2.2 Grassland

Species poor unimproved grassland is present by footpaths and desire lines. There is evidence of rabbit grazing on site on grassy clearings and edges of paths. The main grassland species include common bent (*Agrostis capillaris*) and red fescue (*Festuca rubra*). There are two areas of Whin grassland to the west and north east. Whin grassland is found on whin sill rock, which outcrops across Northumberland from the south west to the north east. Due to the drought prone, base-rich nature of whin soils it supports distinct flora and has the potential to support a number of national and regional rarities. At the quarry, the west whin site is threatened by encroachment of scrub and rosebay willowherb (*Chamerio angustifolium*) and the north east whin site is threatened by invasive species. Current management includes light rabbit grazing, but also the removal of invasive species and a large area of gorse close to the north east whin site.

3.2.3 Ruderal

Areas of tall ruderal can be found throughout the site and are dominated by rosebay willowherb (*Chamerio angustifolium*). Large areas be found to the south west of the site adjacent to the southern entrance.

3.2.4 Pond

There is a large 0.93ha pond to the south-eastern part of the site which supports aquatic vegetation including abundant spiked water-milfoil (*Myriophyllum spicatum*) and small pondweed (*Potamogeton berchtoldii*) and dominant common club rush (*Schoenoplectus lacustris*). In 2019, a survey indicated that the pond was rich in fauna, including toad (*Bufo bufo*), smooth newt (*Triturus vugaris*) and a range of invertebrate life. The pond and its marginal vegetation are important for breeding and overwintering wetland birds, including little grebe (*Tachybaptus ruficollus*) and teal (*Anas crecca*).

3.3 Socio-economic

The site is open to public access along a main track from an access point to the north west adjacent to a layby and to the south west from Quakers Row. There are a series of formal paths across the site which are regularly used by residents and dog walkers. Threats from these activities include dog fouling, trampling and disturbance to wildlife. Recently, a new footpath away from the edge of the lake was cut which has reduced disturbance to nesting wetland birds. Interest of the future use of the site by the primary school has been indicated. In addition, survey events carried out in August and December 2019 have attracted an abundance of visitors. The site currently has no other economic uses.

3.4 Statutory sites within 2km

Statutory sites are protected under both European and national legislation. There are four statutory nature conservation sites located within a 2km radius of Embleton Quarry.

- Northumbrian Coast Special Protection Area (SPA) and Ramsar Site is located 1.6km to the north and south east.
- Berwickshire and North Northumberland Coast Special Area of Conservation (SAC) and European Marine Site is located 1.2km to the east.
- Northumberland Shore Site of Scientific Interest (SSSI) is located 1.2km to the east.
- The site lies within Northumberland Coast Area of Outstanding Natural Beauty (AONB).

3.5 Non-statutory designated wildlife sites

Embleton Quarry is designated as a Local Wildlife Site. Local Wildlife Sites are designated by the local authority for their nature conservation interest.

- Embleton and Beadnell Coast Local Wildlife Site is located 960m to the east.

4. Management requirements

Issue 1: Encroachment of native scrub species

Comparisons between the site today and previous surveys have indicated that scrub area has increased, especially to the north of the site in between the two whin grassland areas. Without direct intervention the scrub will encroach on the valuable grassland habitats. Some stands of scrub must be maintained as they are valuable for breeding birds in the summer and small mammals. The predominant scrub species include bramble (*Rubus fruticosus*) and gorse (*Ulex europaea*) but can also include rosehip (*Rosa mosqueta*) and hawthorn (*Crataegus monogyna*), which threaten the Whin grassland areas of the quarry.

Issue 2: Non-native invasive species

Several species of non-native plant have been recorded (table 1). They are a threat as they block out and reduce diversity of native species.

Species	**Population Size**	**Location**
Entire Leaved Cotoneaster	Few plants on site	Whin outcrops and grassland
Himalayan Cotoneaster	One possible plant	Scrub in western part of site
Montbretia	One patch	SW corner of site where garden waste deposited
Himalayan Balsam	Single plant	Near south end of site
Variegated yellow-archangel	Patches established	Northern and southern ends of the site
Japanese rose	1-2 individual bushes	South of whinstone outcrop
Pirri-Pirri-Bur	2 Small patches	Bottom of gorse hill, along footpath from entrance track

Issue 3: Encroachment of rank grassland/competitive grass species and tall ruderals

Due to the nutrient rich nature of the site, rank and competitive grasses are encouraged to grow and overtake, reducing grassland diversity.

Issue 4: Access and engagement

Currently, the site is easily accessed through a series of footpaths – this access needs to be maintained and enhanced as it has been expressed as a requirement of the village. One main problem with access is dog fouling and this may be due to the lack of understanding of the importance of the site. Another issue is the use of desire lines which leads to an increased network of informal paths that segments blocks of habitats. In addition, the formation of these desire lines can lead to trampling of valuable species, which has been seen with the loss of some stands of bee orchid (*Ophrys apifera*).

5. Proposed site management and monitoring

5.1 Overall Aims

The overall aim of this management plan is to create diverse habitats to maintain and enhance the flora and fauna of the site. In addition, maintaining and improving access to the site for recreation and use of information and interpretation about the special qualities and history of the site for visitor education will be important. The use of the site for educational purposes through working with the local school and for monitoring and surveying will also be considered. This work will be carried out by volunteers and local people which can aid to reduce damaging activities on the site and increase local engagement.

5.2 Objectives

5.2.1 Habitat

- Remove intrusive species present on whin grassland sites and maintain or expand whin grassland habitat.
- Increase area of species rich grassland and hay meadow, replacing areas of rank grassland and tall ruderal.
- Reduce area of scrub and maintain at a manageable level.
- Remove and monitor non-native invasive species.
- Create purple ramping fumitory (*Fumaria purpurea*) habitat.

5.2.2 Access and Education

- Maintain footpaths throughout the site and reduce the use of desire lines. Redirect footpaths away from more sensitive areas.
- Develop a 'woodland walk' on the south west corner of the site which can include benches.
- Provide a bird screen on the south west corner of the lake to enhance visitor engagement and education value of the site.
- Create an 'outdoor classroom' on site.
- Maintain Embleton Primary School's wildflower garden - liaise with the school to set up regular visits and signage.
- Encourage volunteers to help with practical habitat maintenance through purchase of tools, development of site risk assessment and purchase of insurance, as well as a structured volunteer program.
- Create interpretation to engage visitors and allow them to understand the value of the site and the management activities being undertaken.

5.2.3 Monitoring and Survey

- Maintain a yearly biological survey and liaise with Coast Care to run targeted survey events (e.g. Wetland Bird Survey, grassland and whin grassland survey).

5.3 Habitat Management Prescriptions

Refer to the habitat management map (figure 4), numbers on the map relate to area-specific management, as described below:

5.3.1 Whin grassland

The areas of whin grassland will be monitored for encroachment of tall ruderal and scrub, particularly knapweed (*Centaurea nigra*) on the western site and gorse (*Ulex europaeus*) and invasive species such as species of cotoneaster on the north eastern site. Stumps will be removed where possible and action taken when appropriate to avoid reestablishment of these species.

Arisings will be taken to the burn site in area 2 and burnt. These areas are shown on the management map as SM2. The north east site will be regularly monitored and stands of hawthorn (*Crataegus oxycantha*), bramble (*Rubus fruticosus*), gorse (*Ulex europaeus*) and invasive non-native species and if present these species should be removed as soon as possible.

In addition, the footpath will be diverted to avoid trampling on the north east whin site (figure 3).

5.3.2 Grassland cutting and management

Diverse, species-rich grassland relies on areas of low nutrients. The presence of these species-rich areas benefits a wide range of invertebrate species and subsequently, bird and mammal species. These areas also have the potential to increase the presence of protected species or species of botanical interest on site. The areas can be cut and raked, and cuttings removed on a regular basis to reduce nutrients, this will also decrease encroachment of dominating grassland species.

Monitoring for undesirable species and hand weeding in both grassland management areas (GM1 and GM2) will take place throughout the year. This can include species such as stinging nettle (*Urtica dioica*), dock (*Rumex obtusifolius*), thistle (*Cirsium vulgare*), rosebay willowherb (*Chamerion angustifolium*) and bramble (*Rubus fruticosus*). In both these areas a regular annual cutting regime will be followed. For the first two years, spring and late summer (late august) cuts will take place.

Arisings from the spring cut will be raked and removed to be burnt, whereas arisings from the late summer cut must be left for two weeks to drop seed before being removed and burnt. Use of an Allen Scythe for this activity is recommended as it leaves organised lines of cuttings, which are easier to rake and remove.

GM1 has had a small section previously cut, raked and removed. Due to the scale of this area it can been divided into three manageable sections. These sections will be cut, raked and removed on a regular basis as outlined above. A closer burn site can be set up for the cuttings, alternatively they can be taken to the established burn site at area 2. wildflower seed mixes will be introduced, including yellow-rattle (*Rhinanthus minor*) and red bartsia (*Odontites vernaverna*).

GM2 has been managed for a longer period and features the quarry 'burn site' and small wildflower patch, planted by the local school. This area will continue to be cut and raked as described above, and the cuttings will be burnt at this burn site. A large area of the site has also had bramble removed, this area will be raked in year 1 and the remaining stumps will be removed where possible. Encroachment of scrub, with a focus on bramble (*Rubus fruticosus*) onto this site will be monitored.

After two years of regular spring/summer cutting the areas should only require one late summer cut, the areas will become easier to manage in time with regular intervention.

Wildflower seeds collected from desirable plants in the quarry or from Boulmer wildflower meadow will be planted. The Botany Society of Britain and Ireland or Kevin Whorfe can be contacted about the best species or available mixes for the area, but it is recommended that mixes (Northumberland mix) should include yellow-rattle (*Rhinanthus minor*) and annual grasses. These seeds should be planted in spring to avoid being foraged by birds in both areas. Seeds requiring frost for germination can be kept for a short period of time in a freezer before being planted.

Area GM2 lies next to a cliff face, which can be prone to landslips. To deter visitors from the base of the cliff a 'dead hedge' could be created from bramble cuttings and wooden stakes. This would run along the bottom of the cliff to deter visitors provide a habitat for invertebrates.

These areas will be monitored at least yearly to note changes in species diversity and abundance of desirable species. It should be noted that the process of developing a species rich hay meadow can take up to 10 years of management.

5.3.2.1 Grazing

Grazing of the site can stop dominating grass species reducing overall diversity and aid removal of scrub species and tall ruderal species such as rosebay willowherb (*Chamerion angustifolium*). In addition, it is also far less labour intensive. Winter grazing with Exmoor ponies is recommended as the site has higher visitor numbers in the summer and it will allow the ponies to create very short grass sward, creating the ideal conditions across the site for spring wildflower seed planting.

The site was assessed and a suggestion for fencing to make the site stock proof has been included in the management map with a quote for this fencing being provided by Johnathon J Robson Company Limited

at £2812.80. This doesn't include self-closing kissing gates, which have been recommended by Flexi-Graze of which the quarry would need two.

After consulting Flexi-Graze it was concluded that the quarry would require 2 Exmoor ponies for a total of 3-4 months over winter. The cost for this would be between £300-£400 per annum. In addition, Flexi-Graze are happy with the quality of the water in the quarry pond for overwinter grazing, so no additional water source will have to be found. The Environment Agency and the Animal Plant Health Agency was consulted.

As the site is regularly used by dogwalkers, interpretation at kissing gates should be provided.

5.3.3 Scrub management

One of the main threats to species rich grassland is succession from grassland to dense, species poor scrub. Currently large areas of the site are dominated by scrub which decreases biodiversity and conservation value. Although some scrub should be removed, especially from grassland areas and potential whin grassland areas, some should be maintained for nesting bird species. The site is most valuable as a grassland site with patches of scrub, with different species and ages.

SM1 is the main area for scrub removal. This area was previously scrub free and species-rich, but scrub has been allowed to overtake. It was noted that some areas of shallow, nutrient poor soils with potential for becoming whin grassland has been lost. This area can be split into four manageable areas, of which one area will be removed during winter (outside of the nesting bird season) yearly and once removed, maintained at that level. The cuttings should be burnt at the GM2 burn site or used for the GM2 cliff base dead hedge. An area of bramble can be left on either side of the main path to deter trampling and this area can be managed through trimming during the summer.

Both SM2 sites are close to whin grassland areas and will be monitored for scrub encroachment. Any encroachment of bramble (*Rubus fruticosus*), hawthorn (*Crataegus oxycantha*), tall ruderal or invasive non-native species will be removed and burnt. There is a possibility that with removal of scrub on these areas that areas of whin grassland can extend.

5.3.4 Removal of non-native invasive species

Removal of these species should be throughout the year, when possible. When a species is spotted it will be recorded and mapped.

- Pirri-pirri-bur (*Acaena novae-zelandiae*) will be removed by hand throughout the year
- Himalayan balsam (*Impatiens glandulifera*) will be hand pulled from June to early August, before the plant has set seed
- Japanese rose (*Rosa rugosa*) and monbretia (*Crocosmia crocosmiiflora*) will be cut, corms dug up and burnt on site. Herbicide can be used on stumps.
- Removal of scrubby invasive species such as cotoneaster species is preferable in winter, as they can be used for nesting and as a food source in summer and autumn respectively.

5.3.5 Purple Ramping Fumitory (*Fumaria purpurea)*

Purple ramping fumitory thrives on nutrient poor, skeletal soils. The areas near the quarry house and patch of rubble by the housing development is suitable. Collected seeds of purple ramping fumitory (*Fumaria purpurea*) will be planted in these areas and allowed to establish. Monitoring the areas for invasion of dominating species of grasses, tall and scrub should be considered. If these areas have been invaded by dominating species or scrub, removal of the scrub and rotovating of the area can be considered.

5.3.6 Woodland Areas

Woodland areas can provide valuable habitat but also require careful management as saplings can threaten grassland habitats without management.

WM1 and WM2 are areas of planted saplings and will act as a deterrent to visitors getting too close to the base of cliffs. They will provide habitat corridors for species from woodland areas outside of the boundary to within the quarry.

WM3: must be managed as below, but also provides the potential for an educational woodland walk (figure 3) with signage and information. A footpath can be established through the woodland with the regular removal of vegetation.

For all areas, for the first 5 years, grassland surrounding planted saplings will be kept short to allow saplings to establish and thrive. After 5 or so years, once saplings have established and gone to seed, monitoring will be carried out for additional saplings and they must be removed to stop invasion of trees onto grassland areas.

Saplings from individual trees already established on site, such as sycamore (*Acer pseudoplatanus*) will also be monitored and removed.

5.4 Access and Education

5.4.1 Footpaths

A signposted circular walk has been designed (figure 3) to reduce trampling and disturbance to wildlife by visitors. This route could be indicated by wooden signposts and shown on a map at the quarry entrance. In addition, many of the already existing footpaths can continue to be maintained, however the main footpath should be diverted as shown on map to protect the whin grassland area and orchids present on site. Footpaths should be maintained regularly through removal of vegetation, and the hardcore footpath that leads to the lake will be managed through weeding.

Cuttings from footpath maintenance can be collected at sacrificial sites throughout the quarry. These sites must be in areas of remaining scrub or woodland. Having 5 regular sites is recommended.

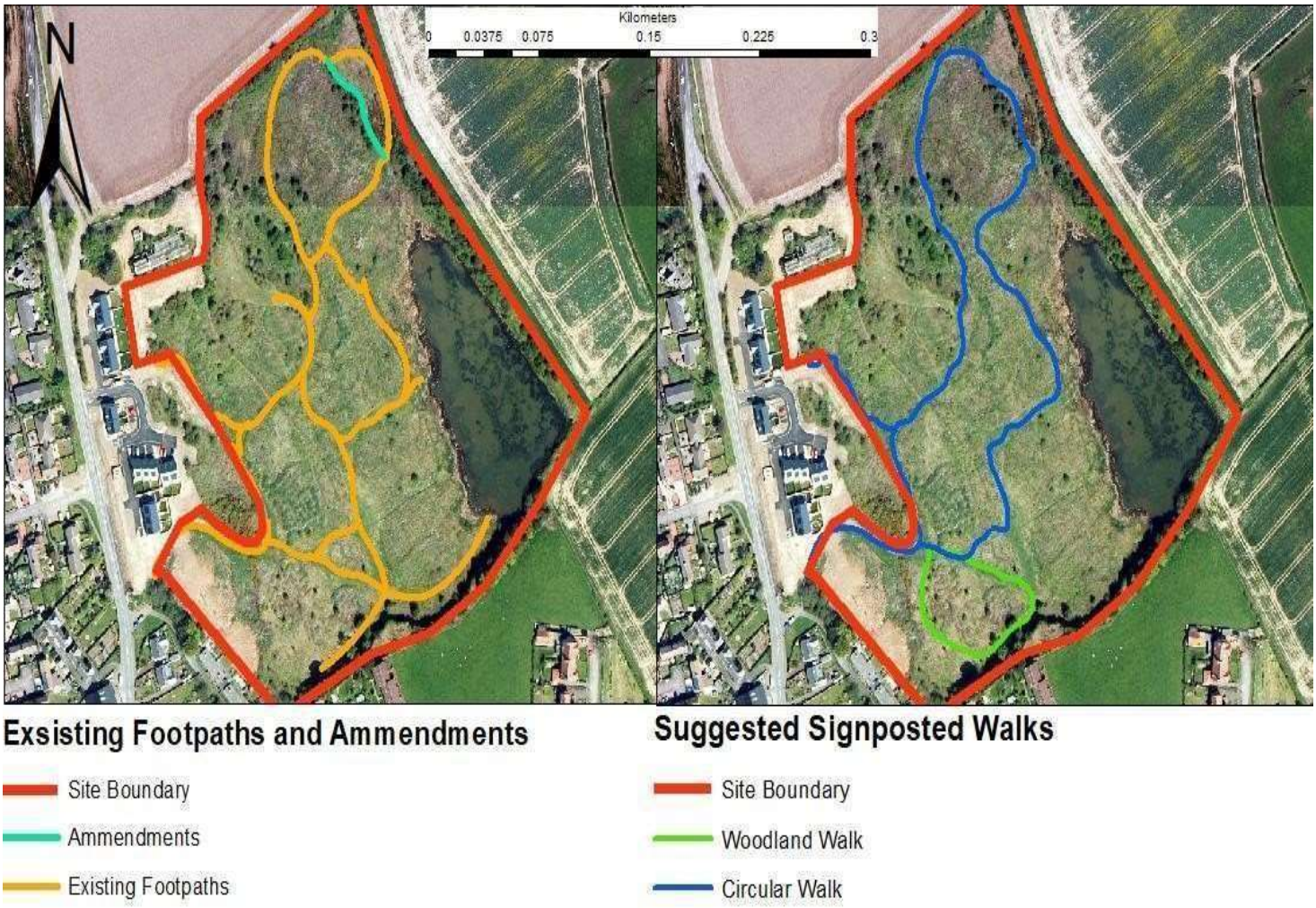

Figure 3. Current footpaths and suggested amendments and suggestions for signposted circular walks.

5.4.2 Bird screen

A bird screen will be installed to the south west pond area at the end of the gravel footpath. This bird screen will also feature interpretation about the species of birds present to increase engagement with quarry wildlife. Funding from RSPB, local bird clubs or the Natural History Society of Northumbria could be enquired about. The screen will also reduce disturbance to birds that nest in the marginal vegetation of the pond.

5.4.3 Interpretation

A. Site entrance – 'external notice board'. This can be updated with all quarry information such as events, volunteering days, photos and quarry information and the circular walk map. This could also include a dog poo bag dispenser, to encourage people to clean up after their dogs.
B. Woodland walk signage – can contain information about key species and a map of the woodland walk.
C. Grazing interpretation – information about grazing with why we are grazing the site and safety when walking during winter when the ponies are grazing.
D. Bird screen interpretation – pictures and information about birds present, potential sponsorship information.
E. Outdoor classroom signage – liaise with the school to create information about the outdoor school area and what it is used for.
F. Whin grassland interpretation – about the importance of whin grasslands and species present including information and photos about the orchids.

Advice is available from the Area of Outstanding Natural Beauty Partnership staff for interpretation and signage guidance.

5.4.4 Outdoor classroom

A circular seating area will be created with the large whinstone rocks located by the container and signage for an outdoor classroom for Embleton Primary School will be installed. The school have indicated that they would like to use the site but cannot use it if dog fouling continues. Information about this can be included on site information boards.

5.4.5 School Wildflower Garden

Monitoring Embleton Primary School wildflower meadow in GM2 will be carried out. Liaise with the school for yearly visits in spring, as part of their environmental education program. Collect and store wildflower seeds in autumn or use seed mixes to make wildflower seed bombs with the school to plant in both grassland areas in spring.

5.4.6 Volunteering

In the next year, the quarry committee can set up a quarry social media to engage with and recruit volunteers from Embleton and the surrounding areas to help assist with this management plan. It is recommended that insurance prices should be investigated for both volunteers and tools. Volunteer sessions can be run based on the program of work below and information about these events can be circulated in the whinstone times, Embleton Next Door, social media and on information point A.

Coast Care are currently providing volunteers and supporting the Quarry Committee on an at least monthly basis. Liaising with Coast Care to be included in their regular volunteer program is recommended.

5.5 Monitoring and Survey

Monitoring can be used to determine whether management is achieving aims and can identify modification of plan if necessary.

5.5.1 Biological Survey and Monitoring

A yearly BioBlitz with use of volunteers from 2019 information and continuation of a monthly Wetland Bird Survey will be established. Monitoring for presence of invasive species will also need to be carried out, as well as a species counts on the whin sill sites. Pictures from fixed point cameras in the quarry can

also be used to monitor scrub encroachment, however this would need to be set up. In addition, monthly events can be run such as botany sessions, which not only increase site information but also site engagement. Records can then be shared with ERIC North East to maintain a site database and look at changes over time.

6. Management Map

Management Map Key

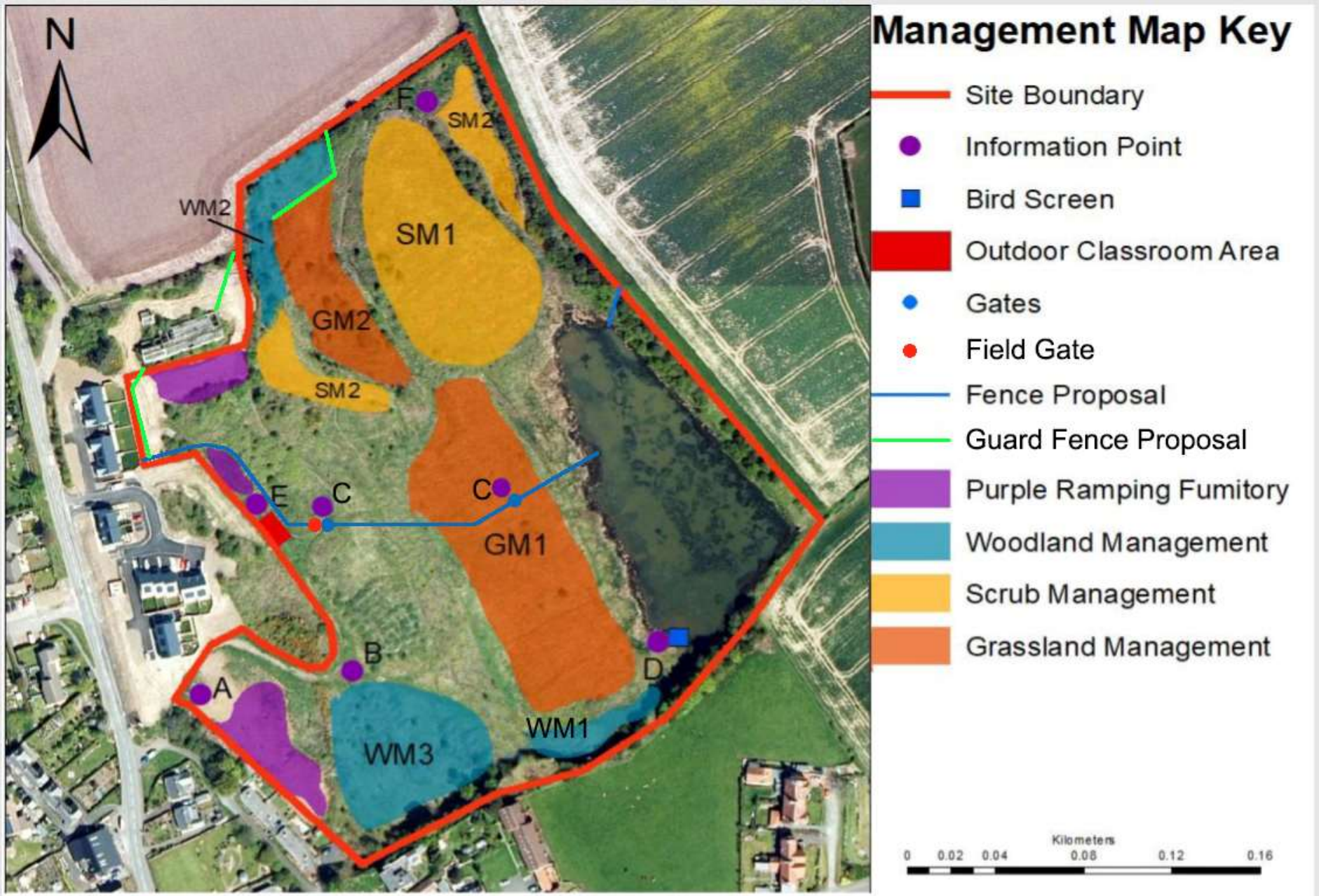

Figure 4. Embleton Quarry Management Map

7. Program of Work

	Time of Year					
Activity	Jan-Feb	Mar-Apr	May-June	July-August	Sept-Oct	Nov-Dec
Scrub removal						
Grassland Management						
Grassland weeding						
Grazing						
Pirri-pirri-bur removal						
Japanese rose and montbretia removal						
Himalayan balsam removal						
Cotoneaster removal						
Woodland Management (new sapling removal)						
Woodland management (grass cutting)						
Seed Collection						
Seed Planting						
Footpath Maintenance						
Fencing installation						
'BioBlitz'						
Annual School visit*						

Note that interpretation and outdoor classroom installation can be carried out at any time when funding becomes available. Surveys and events such as Wetland Bird Surveys can be carried out monthly.

*Could be visited more often than annually, spring, and early summer is the best time to review their wildflower garden.

8. Work and Maintenance Plan

	Year									
Activity	1	2	3	4	5	6	7	8	9	10
Scrub removal (SM1)										
Scrub Monitoring and control where necessary (SM1, SM2, GM2)										
Grassland spring management										
Grassland Summer Management										
Fencing installation										
Grazing										
Seed planting										
Grassland species monitoring										
Invasive species removal and Monitoring										
Woodland grass cutting										
Moving WM1 saplings										
Woodland sapling monitoring and removal										
Interpretation and signage/bird screen and outdoor classroom installation										
Development of a regular volunteer program										

9. References

Honour (2014) Phase 2 Vegetation Survey. Land at Embleton Village Northumberland. AJT Environmental Consultants Ltd.

Simkin (2012) Embleton Quarry Local Wildlife Site citation. Document held by Northumberland Wildlife Trust

Turner (2014) Extended Phase 1 Habitat Survey. Land at Embleton Village Northumberland. AJT Environmental Consultants Ltd.

Waite (2015) Embleton Quarry Local Wildlife Site Management Plan 2016 – 2025. Northumberland Wildlife Trust.

10. Useful Information

10.1 Contact Us

Quarry email: embletonquarry@gmail.com

10.2 Social Media

Quarry Facebook:

Quarry Twitter: Embleton Quarry Local Wildlife site. @quarrysite

10.3 Instructions

Dead hedge instructions: https://www.woodlands.co.uk/blog/woodland-activities/dead-hedging-wildlife-friendly-and-people-guiding/

Seed bomb instructions: https://hub.suttons.co.uk/childrens-corner/how-to-make-seed-bombs

10.4 Useful Contacts

Flexi-Graze

E-mail: Stephen.comber@northwt.org.uk

Fencing

J Robson Fencing 07885208244

E-mail: Northumbria.cm@hotmail.co.uk

Website: www.Northumberlandfencingservices.co.uk

Botanist

Chris Metherell
E-mail: chris@metherell.org.uk