

ARNHALL MOSS

Local Nature Reserve

Management Plan 2013 - 2018



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Written by Jill Matthews for Aberdeenshire Council January 2013

1 INTRODUCTION

1.1 Location

Arnhall Moss is located to south east of Westhill, immediately adjacent on the northern side is Denman Park. The busy A944 runs along the southern boundary.

1.2 Designations

Arnhall Moss was declared a Local Nature Reserve in 1992. It is also a Local Nature Conservation Site identified in the review of locally important sites for nature conservation in 2012.

1.3 Ownership and management

Aberdeenshire Council own and manage both Arnhall Moss and Denman Park. The Council produce management plans to guide the management of Arnhall Moss. There have been three management plans to date; the first written in 1993, the second for the period 2001-2005, and the third for 2007-2011. This plan continues work started in earlier management plans. One significant difference is that the premise underlying this plan is that the moss is now predominantly woodland and it can't practically be restored to an actively growing moss.

This management plan has three sections:

- **Managing biodiversity**
- **Management for people**
- **Management of the property**

There are management proposals in each of the sections and these are repeated in a table of projects at the end of each section.

To manage a site efficiently it must be clear what each project is, when it will be carried out, who has the lead and who will deliver, and how much it will cost. So the project plan in Appendix 1 lists the projects and gives timing (when), who leads and delivers the projects and an indication of cost (how much).

Appendix 2a and 2b are two annotated aerial photos, one shows biodiversity projects and the other people projects; these show the location of the projects (where).

2 MANAGING BIODIVERSITY

Aim - Biodiversity

The woodland on Arnhall Moss continues to develop naturally. It is enhanced by planting native shrubs around the edge and removing non-native trees. Heathland glades are kept open by regularly removing trees and shrubs. The water in the burn and ponds is clean and unpolluted, the wetland vegetation alongside the watercourse does not restrict water flow.

2.1 General description

The name Arnhall Moss is a misnomer nowadays because the site is largely covered in woodland, mostly birch woodland, and is no longer a 'moss'. It undoubtedly was a moss in the past, as is clear from maps dated 1869 and 1899 and aerial photos from 1946; Arnhall Moss is shown on these as an open wet area. Birch seems to have colonised the moss in the second half of the last century. Ferreira¹ reported that the site was dominated by birch in 1977. In the 1980s the town of Westhill was being constructed and the building works significantly altered the drainage patterns around Arnhall Moss, this probably accelerated the rate at which the moss was drying out. Arnhall Moss is not an isolated case, many of the lowland bogs in Grampian have suffered a similar fate and have become wooded because of active drainage and/or land use change.

Arnhall Moss LNR and the adjacent Denham Park are now surrounded by houses, shopping centres, a business park and busy roads. There is no active peat formation at the present time and realistically there is no prospect of Arnhall Moss ever becoming an active peat moss in the foreseeable future. Restoration of the moss would be hugely expensive, require constant management effort and there would be no guarantee of success given the changes that have occurred around the Moss. In the immediate future therefore it is likely Arnhall Moss will remain birch woodland, in time other trees will colonise as the birch dies and as it ages the wood will become more diverse. The diversity of the woodland is increased by having an open glade with heathland vegetation, it would enhance the site if this open area was expanded or a new glade created.

This section covers the habitats woodland, heathland, wetland and grassland and then the species. There is a table of projects at the end of the section. See also the annotated photo at Appendix 2a.



¹ Ferreira REC 1977 North East lowland mires and bogs. Unpublished report. Nature Conservancy Council.

2.2 Woodland

Previous management plans show three types of woodland on the site – two types of birch woodland (acid birch woodland and neutral birch woodland) and a block of planted spruce. The willow carr at the eastern end of the site was shown on maps in earlier management plans as marshy grassland. As well as birch there are willows in wetter hollows, and rowan and Scots pine trees scattered through the wood.

2.2.1 Birch woodland

Birch has colonised the moss as the peat has dried out. The oldest trees are probably around 70 years old but most are younger than this. The more mature birch trees are on drier ground over an understory of bramble and broad buckler fern, this is likely to be the longest established woodland. There are multi-stemmed (ie previously-cut) trees growing on the peaty ground with small remnant patches of heathy ground cover of straggly heather and blaeberry. There are dense thickets of 'pole stage' young birch on the most recently colonised areas. There are one or two non-native trees in the wood. At the eastern end of the wood and alongside the A944 there are very wet areas with birch in standing water in winter as well as an area of willow carr where earlier maps show marshy grassland.

Past management – There are indications that the moss was cut over for peat in the past; some of the wet hollows are probably former peat cuttings. Multi-stemmed trees provide evidence that birch was cut in the past too. In recent years work parties have selectively felled some of the pole stage birch and left the cut brash lying on the ground.

If left alone (non-intervention management) this birch woodland will gradually become more diverse because other tree species will colonise as birch trees die naturally and gaps open up in the canopy. This process can be accelerated by active (intervention) management, which could include various combinations of felling, creating glades and planting of shrub species. However, this management is not practicable on Arnhall Moss unless more resources can be found. It is good practice to remove non-native trees from wildlife sites because they set seed and can colonise the wood. It would diversify the wood to create more open areas.

Management proposals – Two projects are proposed for the period of this plan. The first project is not a new one but is carried forward from earlier plans. The maps in these plans show much larger areas of heathland, so the project is to fell more birch and expand the size of the heathland glade/s. The second project is to remove the non native trees that are growing in the wood.

2.2.2 Spruce block

There is a block of spruce at the north-east corner of the site. Local residents value the shelter from the wind provided by these trees. It is not known when the trees were planted, but some are tall and continue to grow and they are quite closely spaced; if these trees blow down in a storm they could cause considerable damage,

Past management – A few spruce trees were felled five or six years ago.

Management proposals – It would be prudent to obtain advice from a forestry expert or tree surgeon about the risks of retaining these trees and the felling options.

2.2.3 Leylandii hedge

There is a high hedge of Leylandii along part of the western boundary of the site adjoining gardens. The hedge is a nuisance to one local resident because it blocks light from his house. The ecological interest of Leylandii hedge is low, so it would benefit wildlife to cut down this hedge and replace it with native shrubs.

Management proposals – The project is to cut down the Leylandii hedge; it will have sucked lots of nutrients from the soil so the ground will need to be fertilised/manured before any trees/shrubs are re-planted on this location.

2.2.4 Woodland edge

There is an abrupt boundary/edge to the woodland on Arnhall Moss. Trees (*Acer* spp.) have been planted alongside the A944. Planting native shrubs around parts of the boundary would benefit wildlife because 'graded' woodland edges provide a valuable habitat for birds and plants. As well as improving biodiversity, planting shrubs along the A944 edge would also absorb some of the road noise and provide a better barrier for people, dogs and roe deer. The willows around the wildflower meadow could be replaced as part of this project.

Management proposals – A new project is to plant native shrubs around the edge of the woodland at selected locations including the wildflower meadow. Suitable species would be holly, elder, blackthorn, goat willow and hawthorn in suitable locations.

2.3 Heathland

There is one open heathland area within the woodland, this glade adds variety to the woodland and will benefit invertebrates that favour the warmth and shelter in woodland glades. The heathland will continue to be invaded by birch from the surrounding woodland, and this will have to be removed regularly to keep the area open.

Past management – In recent years various work parties have removed trees and shrubs by cutting, pulling and spraying; this effort will have to be maintained to keep the heathland free of trees and shrubs.

Management proposals – There is an existing project to clear trees and shrubs from the heathland glade to keep it open. This project is carried forward but this work needs to be carried out at least once a year because birch is such a fast growing tree. Ideally whole trees/shrubs including the roots should be removed because birch can re-grow from cut stems, so pulling up young trees is preferable to just cutting them, careful spraying is also an option. Previous management plans included proposals to open up larger areas than the one glade that has been kept open, so a project to expand the glade or open up a new glade is included above in the woodland section.

2.4 Grassland

2.4.1 Marshy grassland

Previous management plans show a small area of marshy grassland at the eastern end of the site. This is no longer present and it seems to have evolved into willow carr. The plan to retain the marshy grassland by cutting down trees was not implemented and there is no point in reviving this project. No management required.

2.4.2 Neutral grassland

The previous plan shows an area of neutral grassland by the roundabout. Today this is an area of rough grassland, seemingly on disturbed ground probably associated with the construction of the road and roundabout. In winter it is difficult to fully evaluate but it is unlikely it is of great ecological interest. In order to keep it as grassland the vegetation would need to be cut regularly which does not seem worthwhile. It is more practical to let the area develop naturally; it will probably be colonised by shrubs and trees in the next few years. No management required.

2.4.3 Amenity grassland

The previous plan shows an area of amenity grassland and proposed wildflower meadow between the wood and the burn. The amenity grassland is mown regularly by the Council's landscape services and this will need to continue. The vegetation alongside the burn is a mixture of non-native and native shrubs and grasses. The wildflower meadow was planted by the main entrance instead.

2.4.4 Wildflower meadow

A wildflower meadow was planted in 2011 at the edge of Denman Park. The wildflower meadow was welcomed by some visitors interviewed in the visitor survey. The wildflower meadow will never again be as showy as it was in its first year. Wildflower seed mixes usually contain a mixture of showy cornfield annuals and perennials. Cornfield annuals don't reappear after the first year because they need disturbance (like ploughing) to survive, so from year 2 onwards perennials take hold as the grassland matures. The wildflower meadow will need to be cut at least once a year. The timing and frequency of cutting will influence the species that flower, cutting and removing cuttings in the early part of the year (into May) can reduce the vigour of grasses allowing flowers to do better.

Management proposals – The existing project to mow the wildflower meadow needs to continue. The timing and frequency of cuts may need to be adjusted over time.

2.5 Wetlands

2.5.1 The Burn and ponds

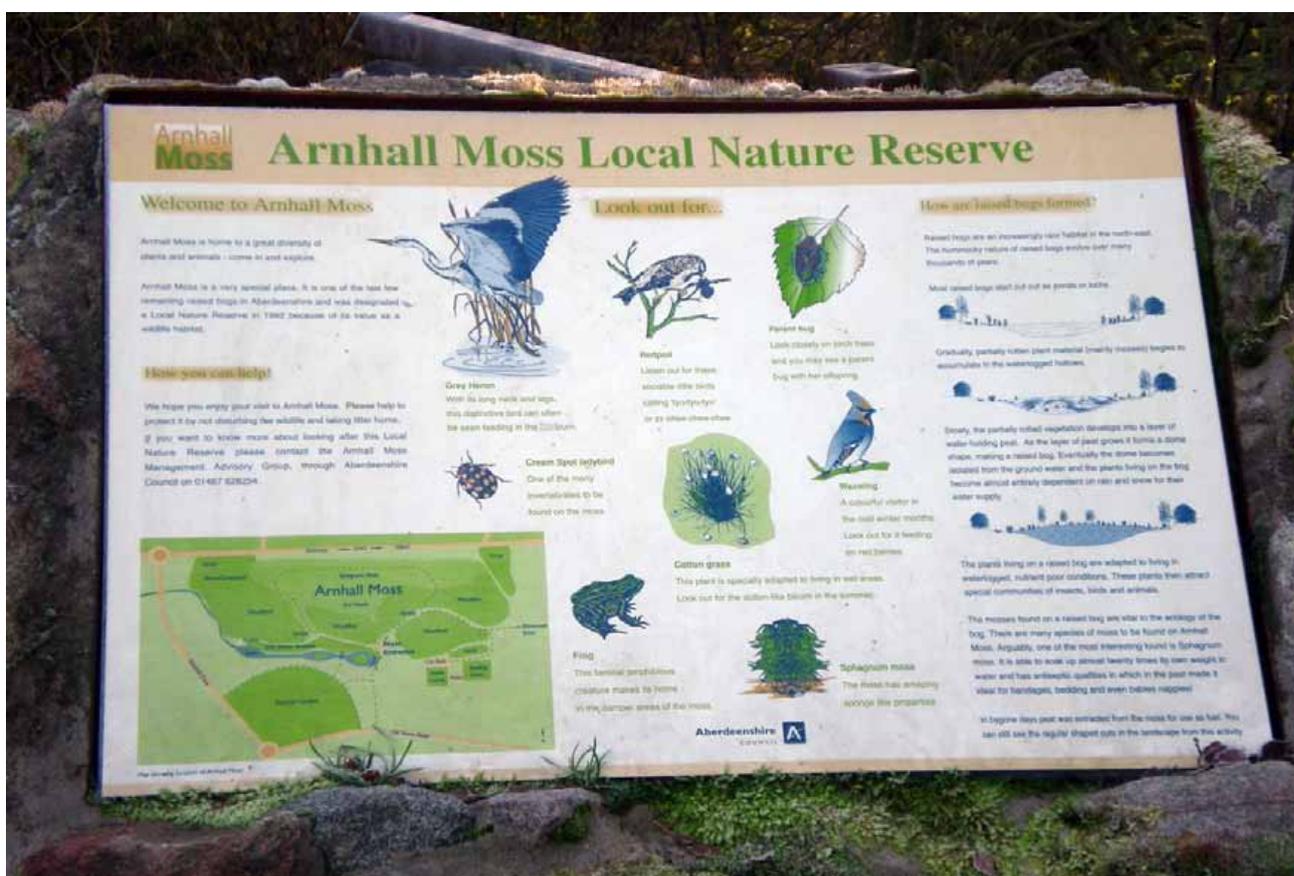
The burn running through the site emerges from under the main bridge and exits close to the roundabout. The watercourse is an attractive feature and adds to the biodiversity on site but does not appear on the old maps.

Past management – The records indicate that Council sculpted the ponds sometime in the mid 90s. There are two management issues to be addressed on this burn. The first is to resolve the pollution problem in the burn. The second is to clear emergent vegetation (including bulrush) which is now very dense and if left unchecked will eventually choke the watercourse. This vegetation will have to be cut back and removed periodically in future years too.

Management proposals – The project to resolve the pollution issue with Scottish Water is carried forward from the previous plan. Also carried forward is the project to clear the emergent vegetation from the ponds once the pollution problem is solved; it is recommended the vegetation is cleared by machine not by hand. There is lots of litter trapped in the vegetation alongside the burn, so a project to remove litter is included in the following section.

2.5.2 Central drainage ditch

The central drainage ditch is a historical feature visible on old maps from the 19th century. Previous management plans have suggested filling in the ditch to re-wet the moss; this is extremely unlikely to work so this project is not carried forward. No management required.



2.6 Species

Arnhall Moss now stands as an isolated 'green' island in a sea of urban development. It would benefit wildlife if the site was connected to other semi-natural habitats, either along green corridors or stepping stones. This would allow wildlife to travel more easily and avoid becoming trapped on the site.

2.6.1 Mammals

The mammals known to use Arnhall Moss are roe deer, foxes, red squirrel and pipistrelle bats.

A Mammal Atlas is being developed for the North East, and visitors could be encouraged to send records of their mammal sightings to the North East Biological Records Centre (NESBReC).

Management proposals – Encourage visitors to submit mammal records to NESBReC.

2.6.2 Birds

Many of the trees on Arnhall are relatively young so don't have holes suitable for hole-nesting species. To provide more 'holes' the rangers have placed a number of bird boxes around the wood for nesting birds.

Management proposals – Continue the existing project to maintain and repair the bird boxes.

2.6.3 Reptiles, amphibians, fish, invertebrates

No information.

2.6.4 Plants

Previous plans suggested clearing brambles and raspberry from the undergrowth but without explaining why. These plants are browsed by roe deer and will only grow excessively rampant if there aren't any browsers feeding in the wood.

A few non-native garden escapes were observed growing in the ground vegetation, notably garden yellow archangel (*Lamniastrum galeobdolon*). These species are not a problem at present but if they start to spread aggressively then control should be considered because this is a local nature reserve.



Projects to manage biodiversity on Arnhall Moss

Woodland Management

Project No	Habitat	Project Title	Existing or new project
1	Birch woodland	Fell birch to expand area of heathland	Existing, carry forward
2	Birch woodland	Remove non native trees	New
3	Block of spruce	Seek expert advice on risk of not felling the trees and options for felling	New
4	Leylandii hedge	Cut down Leylandii hedge and replant with native shrubs.	New
5	Woodland edge	Plant groups of shrubs in selected locations around woodland edge including replanting around wildflower meadow	New

Heathland Management

6	Heathland	Remove trees and shrubs to keep the heathland glade open.	Existing
Grassland management			
7	Wildflower meadow	Mow at least once a year. (Adjust timing and frequency of cuts as necessary.)	Existing

Wetland Management

8	Burn and ponds	Resolve pollution problem in burn.	Existing/carry forward
9	Burn and ponds	Clear vegetation from watercourse mechanically	Existing/carry forward

Species Management

10	Mammals	Examine ways to link Arnhall Moss to other sites by creating green corridors or green stepping stones. Useful for wildlife and people.	New
11	Mammals	Encourage visitors to submit for records for NE Mammal Atlas. Encourage visitors to submit records for other species seen on the site.	New
12	Birds	Maintain and repair bird boxes	Existing

3 MANAGING ARNHALL MOSS FOR PEOPLE

Aim - Managing for People

Visitors enjoy visiting Arnhall Moss because it is safe, clean and well maintained. Visitors know about and appreciate the wildlife living on the site. Local schools make good use of the site for learning activities.

3.1 General description

Aberdeenshire Council have constructed footpaths to enable visitors to enjoy Arnhall Moss since the Local Nature Reserve was declared in 1992. There are two main access points; the site can be reached either through Denman Park or from the houses at the western end of the Moss.

The site is well known and well used by local residents. The Ranger Service has run many events over the years for the public and school groups to increase awareness of the site.

This section is divided into two parts. The first part is about managing the infrastructure on the site such as paths, bridges, bins and the second part is concerned with promotion and raising awareness of the site. See annotated aerial photo Appendix 2b.

3.2 Managing the visitor facilities

3.2.1 Paths

The Council has steadily increased and improved the paths during the last twenty years. The recent improvements were funded by a grant from the Forestry Commission Scotland. Visitors, mainly local residents, (most wearing shoes not walking boots!) regularly walk the paths. Visitors, who were interviewed in December 2012, were generally happy with the site and wanted it kept as a wild place but suggested further improvements to the paths - at the time there were some very wet, muddy and icy sections after a prolonged spell of cold wet weather.

Management Proposals – There are four projects. Repair and maintenance of existing paths is an ongoing project; there are a couple of sections of path which flood and these need be raised above the water table to stay dry and it would be worthwhile to install a people counter at the main entrance. The new project is to construct a path through the wood to the crossing at the Tesco roundabout. This path is mainly for the school children who currently walk to Tesco through the Moss, they follow a path for part of the way then take a short cut leaping over ditches and paddling through waterlogged areas. The path may well be used by others, including office workers, too. The third project is to place sand bins at selected locations so that sand can be spread on paths when icy.

3.2.2 Bridges

There are three bridges across the burn, one stone bridge in Denham Park where the burn emerges from underground, and two wooden bridges. The wooden bridges become slippery in wet weather, the western bridge already has holes allowing water to drain away easily, and similar holes need to be drilled in the eastern bridge.

Management Proposals – The wooden bridges should be inspected regularly and maintained. Broken chicken wire should be removed and holes drilled to allow water to drain more freely from the eastern bridge. It would be worth applying an anti-slip coating or anti-slip treads to the bridges because Arnhall Moss lies in a frost hollow. The steps down to the bridges and path linking these to the Moss should be repaired and maintained.

3.2.3 Signs

There are a number of signs on Arnhall Moss. These include the main sign at the entrance, the wooden sign, utilitarian signs about clearing up after dogs and warning signs about potholes and a redundant waymarker. There is no sign at the western entrance.

It would be nice, but is not essential, to unify these signs by applying an Arnhall Moss brand – this would enhance the sense of place. The signs should be cleaned from time to time to remove the mould which gives an uncared for look

Management Proposals – Clean all signs once a year. Put up new sign at western entrance. Consider replacing all signs with a unified 'Arnhall Moss' brand if money can be found.

3.2.4 Interpretation trail

The sign at the entrance gives some information about the wildlife, but as visitors pointed out during the survey, there is nothing to actively engage young children visiting the site. It is therefore suggested that half a dozen 'hidden' signs with key wildlife messages are added at suitable locations close to the paths.

Management Proposals – A new project is to add some interesting wildlife messages for young children in discreet locations alongside the paths.

3.2.5 Litter and litter bins

There are litter bins in Denham Park but none in Arnhall Moss. Litter is scattered throughout the wood and is concentrated along the route to Tesco taken by the school pupils who are blamed for most of the litter. There aren't any litter bins on the route the pupils take through the Park and the wood. There is also lots of litter along the watercourse, with litter trapped in bushes and lying in the burn. Fortunately there are several community-spirited local residents who regularly pick up litter. 'Clean up the litter' was the improvement most commonly suggested by visitors during the visitor survey in December 2012.

Management Proposals – Rangers should continue work parties to clean up the litter and encourage volunteers to continue litter picking; this could include exploring options for working with children from the academy on a litter initiative. A new project is to locate a litter bin by the wooden welcome sign to Arnhall Moss, because this lies on the route to Tesco. The school children also suggested locating a bin near the exercise machines in Denman Park because they eat their lunch sitting on these machines in fine weather.

3.2.6 Dogs and dog waste bins

Arnhall Moss is very well used by people walking their dogs. Dog owners report that since the developments around Carnie woods there were fewer places where they could exercise their dogs in Westhill. Many dog owners use the site to exercise their dogs off the lead; a few visitors don't like this and would prefer to see dogs kept under more control. It will be difficult to resolve conflict between different user groups. The Scottish Outdoor Access Code (s3.55) says 'in places where other people are around, particularly children, keeping your dog under close control or on a short lead will help avoid causing them concern.'

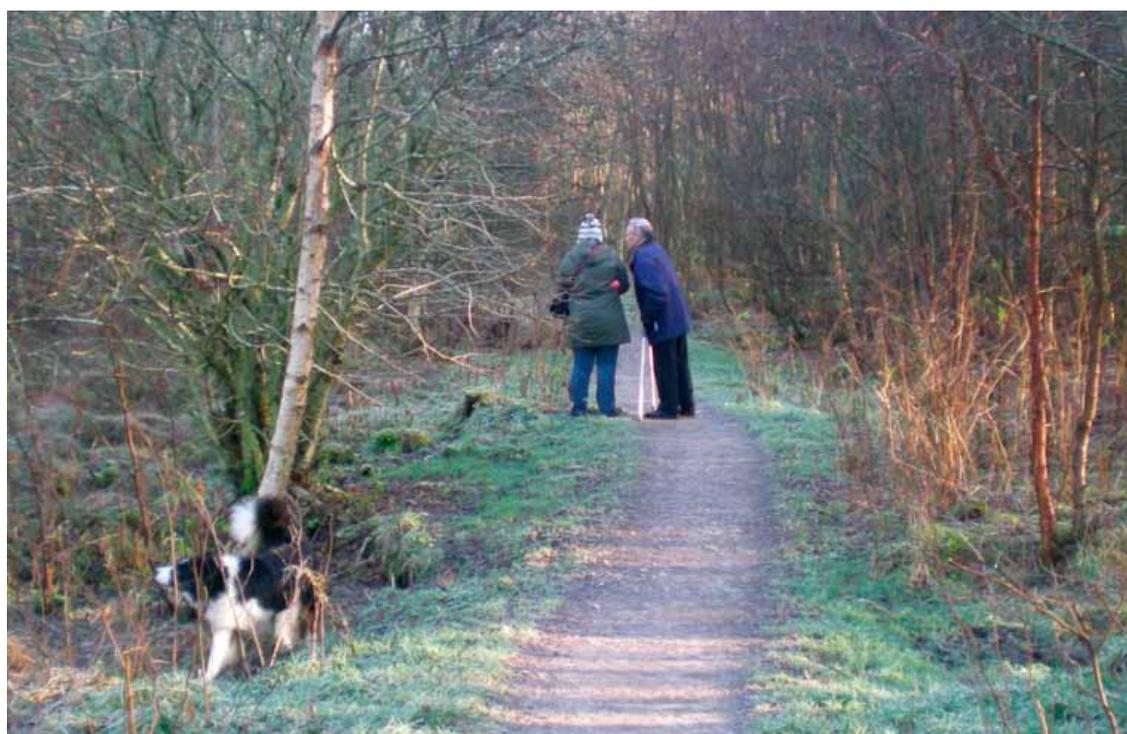
Dog waste – Some people clean up after their dogs, others don't and leave a lot of dog waste lying in the wood. Visitors reported it was a particular nuisance when left on the paths because it fouled shoes and wheels on buggies, others complained about bags of dog waste left hanging in trees. The Dog Fouling (Scotland) Act 2003 makes it an offence not to clean up after dogs in any public open space. Two dog waste bins are located in the wood, one of which is bent and the ground around it gets muddy in winter so straightening the pole and making the ground firmer might encourage greater use.

Management Proposals – The dog waste bins must be maintained and the ground around the base firmed up with chukkies or similar. In the past there was a proposal to hold an event to encourage dog owners to behave responsibly, this should be resurrected to enforce the 'clean up after your dog' message. Removing mess from paths and a short distance on either side should be obligatory, but it will be impractical to remove all dog mess away from paths.

3.2.7 Health and safety

Landowners are obliged to maintain visitor facilities in a safe condition, so all the visitor infrastructure must be inspected regularly and maintained properly. The Council must have a system to record problems and ensure that any reported hazards are dealt with promptly.

Management Proposals – Introduce a H&S inspection reporting and recording system.



3.3 Awareness and promotion

3.3.1 The Public

The population of Westhill is over 11,000. Every year the ranger service organises events for the public at Arnhall Moss; in 2012 they held a mini beast safari and moth survey.

Management Proposals – The rangers organise a few events for the public every year. In 2013 they plan to hold 4 events, a bird box event in February, a community litter pick in March, a mini-beast event in September and a hibernation event for children in October. 2013 is the ‘year of natural Scotland’ it is also the 21st anniversary of Arnhall Moss being made a Local Nature Reserve, this would be a worthwhile thing to celebrate at some events.

3.3.2 Education

There is one academy - Westhill Academy - and four primary schools in Westhill - Crombie Primary, Elrick Primary, Skene Primary and Westhill Primary. The first management plan (1992) had three main objectives, one of which was to provide an educational resource for (local) schools. To this end Grampian Regional Council published a Teachers’ Handbook for Arnhall Moss LNR in the early 1990s linked to the curriculum. The two subsequent management plans also proposed using Arnhall Moss as an educational resource.

The rangers continue work with local schools annually. The Curriculum for Excellence offers scope for further work.

Students from Scotland’s Rural College (formerly the Scottish Agricultural College) have carried out projects on the site in the past. Aberdeen University and Robert Gordon University are also within easy reach.

Management Proposals – The rangers work plan has one weekday event for children in 2013. The Council could encourage other educational groups and organisations to make more use of the site by providing an information sheet.

3.3.3 Leaflet

Aberdeenshire Council produced a leaflet describing Arnhall Moss in 2008. The leaflet has a description of how raised bogs are formed and an out of date map. Many people using Arnhall Moss live locally so a leaflet is not essential.

3.3.3 Digital - websites and social media



Arnhall Moss had its own website <http://arnhallmoss.wix.com/arnhall-moss#> but the latest blog entry was in April 2010. Websites become ‘stale’ unless they are updated regularly, and this website is no longer supported so ideally should be removed from the internet.

There is a web page for Arnhall Moss on the websites of organisations like Westhill and Elrick Community Council, Aberdeenshire Council and Scottish Natural Heritage. There is a facebook page too.

Management Proposals – Remove the existing website and replace with either a new website or add updated webpage to other websites. A good option would be to update or add pages to the Westhill & Elrick community council website www.westhill.org.uk/ – adding a page of ‘description’ to ‘About Westhill’ and adding ‘events’ to the ‘What’s On’ page.

Projects to manage Arnhall Moss for people

Managing the visitor facilities

Project No		Project Title	existing or new
1	Paths	Maintain and repair paths. Raise sections of paths to prevent flooding. Install a people counter close to entrance.	existing new new
2	Paths	Construct new path to Tesco.	new
3	Paths	Locate sand bins near stretches of paths prone to icing.	new
4	Bridges	Inspect and maintain bridges. Remove chicken wire, drill holes, apply non-slip paint or non-slip treads. Repair and maintain steps and paths down to bridges.	existing new
5	Signs	Maintain and clean signs. Install new sign at western entrance. Remove redundant waymarker . Consider branding to unify signs.	new new new
6	Interpretive trail	Install 'hidden' discrete interpretation for children by footpaths.	new
7	Litter	Support volunteer litter pickers. Organise sessions to clean up litter especially along watercourse. Explore options for working with the Academy on a litter initiative.	existing existing new
8	Litter Bins	Locate new litter bin by wooden entrance sign. Consider locating new bin by exercise machines in Denman Park.	new
9	Dogs	Organise event for dog walkers.	existing/carried forward
10	Dog waste bins	Repair and maintain dog bins and harden ground around bins using chukkiies.	existing
11	Health and safety	Inspect visitor facilities regularly to ensure they are safe and repair faults promptly.	new

Projects to manage Arnhall Moss for people

Awareness and education projects

12	Public	Rangers to hold at least 3 events every year for the public. In 2013 make use of the 'year of natural Scotland' and the 21st anniversary of the LNR.	existing
13	Education	Rangers to hold at least one event for schools every year.	existing
14		Rangers to produce an information sheet to encourage other organisations to use Arnhall Moss.	new
15	Publications	Update leaflet when resources allow.	new
16	Website and facebook pages (social media)	Consider new website/web pages and keep information up to date on web pages and facebook pages.	new



4 MANAGING THE PROPERTY OF ARNHALL MOSS

Aim - Managing the property

To manage Arnhall Moss efficiently and effectively with regular reports on progress with projects in the management plan and expenditure.

4.1 Introduction

Aberdeenshire Council own and manage both Arnhall Moss and Denman Park. Both money and manpower is needed to manage the land. The purpose of the management plan is to guide the way manpower and money are used in the next 5 years. However plans and projects are not set in stone and it is normal for new projects to appear and other projects to be dropped; the management plan should remain flexible but a recording system is useful to track progress.

This section looks at the management structure, the manpower and the money needed to deliver the management plan and report on progress.

4.2 Management structure

The Council owns Arnhall Moss Local Nature Reserve. Environment planners take lead responsibility for managing the site. The Council works with the Management Advisory Committee, which is composed of local residents, who keep an eye on the site, input to management plans and advise the council about any problems.

Management proposals – The Council and the Management Advisory Group should continue to meet twice a year and at other times as needed.

4.3 Manpower

The Council make use of a variety of manpower to manage the site.

- Rangers work with schools and other educational groups to undertake some practical management projects like clearing trees.
- Landscape services (who also manage the adjacent Denman Park) undertake some projects such as mowing the wildflower meadow.
- Volunteers from the local community play a vital role in clearing up discarded litter.
- Contractors are employed by the Council to work on larger or more specialist projects like path construction.
- Community payback teams have worked on some projects and this is likely to continue.

Proposed management – Continuing to utilise appropriate manpower for projects and also investigate if any companies in the nearby business park can provide additional labour for selected projects.

4.4 Money and budget

It does not take much money to simply maintain Arnhall Moss, but extra money is needed for large projects like the new path to Tesco and the clearing up the burn.

The project plan in Appendix 1 includes an indicative budget for each project.

Management proposals – The Council will provide base level of funding but will need to look for other sources, such as grants, to fund large projects. Ideally the Council should find a corporate sponsor from one of the many companies in Westhill close to the Moss. At the end of the year the budget and work plan should be refreshed, updated and rolled forward for the year ahead; projects suitable for external funding should be identified and followed through.

4.5 Reports and plans

Planning and reporting are integral parts of efficient site management.

Management proposals – It would be useful to keep records of the work completed and money spent on Arnhall Moss. Appendix 3 is a proforma which could be used to keep track of progress and expenditure. Ideally the progress report should be a standing item at meetings with the Management Advisory Committee. At the end of every year the management plan should be re-visited, and if necessary refreshed, for the following year.

A review of this management plan should be undertaken in year 5 (2018) before the new management plan is prepared.

4.6 Did the management plan succeed? Measures of success.

There is a trend these days for management plans either to include quantified targets in projects (eg clear 10 ha of woodland) or to add measures of success to ensure that whole site is being managed effectively.

The following table proposes success measures which could be used in 2018 to evaluate whether the management plan delivered effective management at Arnhall Moss. The suggestions in this table are open to discussion.

Proposed Measures of Success

Whole Site	The 9ha site remains intact. There has been no adverse development (houses etc)
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Biodiversity

Woodland	The woodland has a full age range of trees – young to old. The trees in the wood are native species, there are no non-native species of tree growing in the wood.
Heathland	The area of heathland glades in the woodland has been extended to 1ha. The heathland areas are free of trees and shrubs.
Wetland	The burn is not polluted. There is no litter in the burn or its banks. There is marginal/emergent vegetation but it does not choke the burn.

Management for People

Visitors	Visitors are content that the site is well-managed. Visitors behave responsibly.
Paths	The paths are in good condition and can be used by people of all abilities.
Litter	There is no litter on site. Visitors do not complain about the litter on the site,
Dogs	Visitors do not complain about dogs or dog waste on the site.
Promotional material	All promotional material is accurate and up to date.

Property Management

Management structure	The local community are actively involved in managing the site, helping Aberdeenshire Council deliver projects.
Project and budget management	The records show what projects were completed when, by whom and how much they cost.

Projects to manage the property of Arnhall Moss

Project No		Project Title	Existing or new project
1	Management structure	Council and Management Advisory Group to meet 2x/year.	existing
2	Manpower	Continue to organise work using different sources of manpower, update work plan annually.	existing
3	Manpower	Explore if companies in business park can supply volunteers/labour for selected projects. Update work plan at the end/beginning of every year.	new
4	Budget	Keep track of expenditure. Refresh budget at the end/beginning of each year. Identify potential sources of funding for selected projects. Find a Westhill company willing to become a corporate sponsor.	existing existing new new
5	Plans and reports	Write progress report every six months for Council and Management Advisory Group.	new
6	Plans and reports	Check projects in management plan at end of every year and refresh/update for following year.	new
7	Plans and reports	Write 5 year review of management in 2018. Prepare new management plan in 2018.	Existing/carry forward



APPENDICES

Appendix 1

Arnhall Moss LNR Project Plan 2013/4 – 2017/8

Project No	Habitat	Project Title	Lead	Delivery	2013/14	2014/15	2015/16	2016/17	2017/18	When / season	Cost & Funding
Projects to manage Arnhall Moss for biodiversity											
Woodland Management											
1	Birch woodland	Fell birch to expand area of heathland .	Environment Planner	Community payback	X	X	X	X	X	Autumn/ Winter	-
2	Birch woodland	Remove non native trees.	Environment Planner	Community payback / ranger-led work party.	X			X		Autumn/ winter	-
3	Spruce	Seek expert advice on risk of not felling the trees and options for felling.	Environment Planner	FCS	X					Any time	-
4	Leylandii hedge	Cut down Leylandii hedge and replant with native shrubs.	Environment Planner	Contractor	X					Autumn/ winter	£10,000
5	Woodland edge	Plant groups of shrubs in selected locations around woodland edge including re-planting around wild-flower meadow.	Environment Planner	Rangers or ranger-led work party.		X	X	X	X	Autumn	£1,000
Heathland management											
6	Heathland	Remove trees and shrubs from heathland glade.	Environment Planner	Community payback or work party from nearby business.	X	X	X	X	X	Autumn/ winter/ early spring 2x /pa	-
Grassland management											
7	Wildflower meadow	Mow at least once a year. (Adjust timing and frequency of cuts as necessary to maintain floristic richness.)	Environment Planner	Landscape services	X	X	X	X	X	Autumn. May need spring cut too.	annual maintenance budget

Appendix 1

Arnhall Moss LNR Project Plan 2013/4 – 2017/8

Project No	Habitat	Project Title	Lead	Delivery	2013/14	2014/15	2015/16	2016/17	2017/18	When / season	Cost & Funding
Wetland management											
8	Burn and ponds	Resolve pollution issues in the burn.	Environment Planner	SEPA/ Scottish Water	X						-
9	Burn and ponds	Clear vegetation from ponds mechanically.	Environment Planner	Contractor/ Froglife		X	X			Autumn/ winter	*1 £10,000
Species management											
10	Mammals	Examine ways to link Arnhall Moss to other sites by creating green corridors or green stepping stones. Useful for wildlife and people.	Environment Planner	Environment Planner	X	X	X	X	X		-
11	Mammals	Encourage visitors to submit for records for NE Mammal Atlas. Encourage visitors to submit records for other species.	Rangers / NESBReC	Rangers, management advisory group	X	X	X	X	X		-
12	Birds	Maintain and repair bird boxes annually.	Rangers	Rangers	X	X	X	X	X	Late winter	£30
Projects to manage Arnhall Moss for People											
Managing the visitor facilities											
1	Paths	Maintain and repair paths. Raise sections of paths to prevent flooding. Install a people counter close to entrance.	Environment Planner	Contractors and Landscape services	X	X	X	X	X	Any time	-
2	Paths	Construct new path to Tesco.	Environment Planner	Contractors	X	X				Any time	*2 £10,000
3	Paths	Locate sand bins near stretches of paths prone to icing.	Environment Planner	Landscape services	X					Winter	£500

*1 This could be a suitable project to ask a company in the business park to fund. Froglife could be asked to become a partner.

*2 This could be a suitable project to apply to the Tesco Charity Trust Community Awards Scheme. <http://www.tescopl.com/index.asp?pageid=121>

Appendix 1

Arnhall Moss LNR Project Plan 2013/4 – 2017/8

Project No	Habitat	Project Title	Lead	Delivery	2013/14	2014/15	2015/16	2016/17	2017/18	When / season	Cost & Funding
4	Bridges	Inspect and maintain bridges. Remove chicken wire, drill holes, apply non-slip paint or treads. Repair and maintain steps and paths down to bridges.	Environment Planner	Landscape Services	X	X	X	X	X	Any time	£1,000
5	Signs	Maintain and clean signs. Install new sign at western entrance. Remove redundant way marker. Consider branding to unify signs.	Environment Planner	Rangers / community payback team / John Muir Award volunteers	X	X	X	X	X	Anytime	£200 (for new sign)
6	Interpretive trail	Install 'hidden' discrete interpretation for children by footpaths.	Environment Planner	Contractor		X				Anytime	£5,000
7	Litter	Support volunteer litter pickers. Organise sessions to clean up litter especially along watercourse. Explore options for working with the Academy on a litter initiative.	Environment Planner	Rangers, management advisory group	X	X	X	X	X	Any time	-
8	Litter Bins	Locate new litter bin by wooden entrance sign. Consider locating new bin by exercise machines in Denman Park.	Environment Planner	Landscape services	X					Anytime	£50
9	Dogs	Organise event for dog walkers.	Environment Planner	Rangers		X			X	Spring/summer	-
10	Dog waste bins	Repair and maintain dog bins and harden ground around bins using chukkiees.	Environment Planner	Landscape services						Anytime	£50

Appendix 1

Arnhall Moss LNR Project Plan 2013/4 – 2017/8

Project No	Habitat	Project Title	Lead	Delivery	2013/14	2014/15	2015/16	2016/17	2017/18	When / season	Cost & Funding
11	Health and safety	Inspect visitor facilities regularly to ensure they are safe and repair faults promptly.	Environment Planner	Rangers and management advisory group	X	X	X	X	X	Anytime	-
Awareness and education projects											
12	Public	Rangers to hold at least 3 events every year for the public. In 2013 make use of the 'year of natural Scotland' and the 21st anniversary of the LNR.	Rangers	Rangers	X	X	X	X	X	Spread through the year	-
13	Education	Rangers to hold at least one event for children every year. Rangers to offer their services to local schools.	Rangers	Rangers	X	X	X	X	X	Anytime	-
14	Education	Rangers to produce an information sheet to encourage other organisations to use Arnhall Moss.	Rangers	Rangers / Environment Planner		X				Anytime	-
15	Publications	Update leaflet when resources allow.	Environment Planner	Contractor				X		Anytime	£500
16	Website and facebook pages	Consider new website/web pages. Keep information up to date on web pages and facebook.	Environment Planner	Council web services and management advisory group	X	X	X	X	X	Anytime	-
Projects to manage the property of Arnhall Moss											
1	Management structure	Council and Management Advisory Group to meet 2x/year.	Environment Planner	Environment Planner	X	X	X	X	X	Spring and autumn	£50

Appendix 1

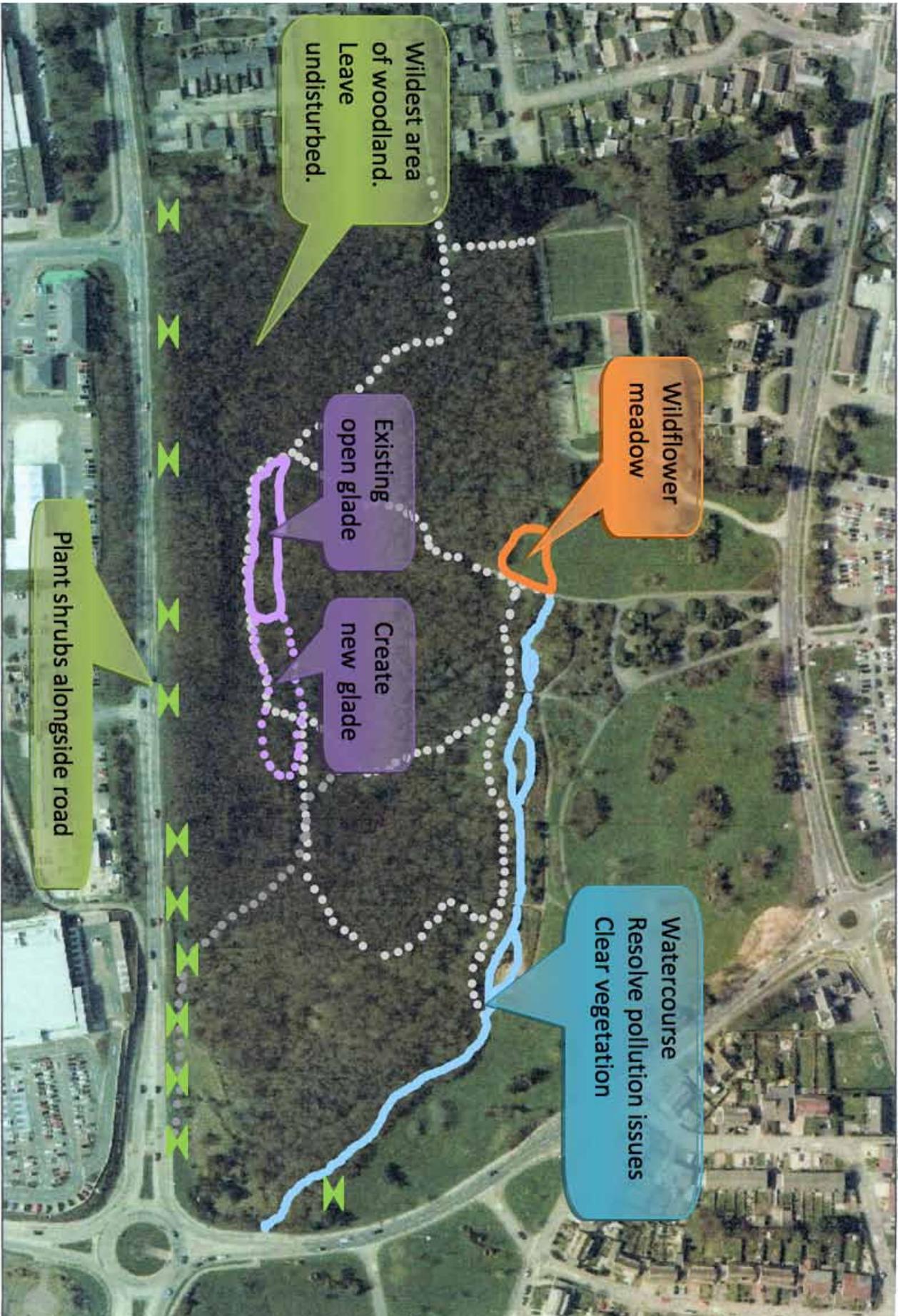
Arnhall Moss LNR Project Plan 2013/4 – 2017/8

Project No	Habitat	Project Title	Lead	Delivery	2013/14	2014/15	2015/16	2016/17	2017/18	When / season	Cost & Funding
2	Manpower	Continue to organise work using different sources of manpower, update work plan annually.	Environment Planner	Environment Planner and rangers	X	X	X	X	X	Anytime	-
3	Manpower	Explore if companies in business park can supply volunteers/labour for selected projects. Update work plan at the end/beginning of every year.	Environment Planner	Environment Planner	X	X	X	X	X	Anytime	-
4	Budget	Keep track of expenditure. Refresh budget at the end/beginning of each year. Identify potential sources funding for selected projects. Find a Westhill company willing to become a corporate sponsor.	Environment Planner	Environment Planner, rangers and management advisory group	X	X	X	X	X	Anytime	-
5	Plans and reports	Write progress report every six months for Council and Management Advisory Group.	Environment Planner	Environment Planner and rangers	X	X	X	X	X	Spring and autumn	-
6	Plans and reports	Check projects in management plan at end of every year and refresh/update for following year.	Environment Planner	Environment Planner and rangers	X	X	X	X	X	Spring and autumn	-
7	Plans and reports	Write 5 year review of management in 2018. Prepare new management plan in 2018.	Environment Planner	In house or contractor					X	Summer/ autumn	£1,500

Appendix 2a Managing Biodiversity

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Arnhall Moss

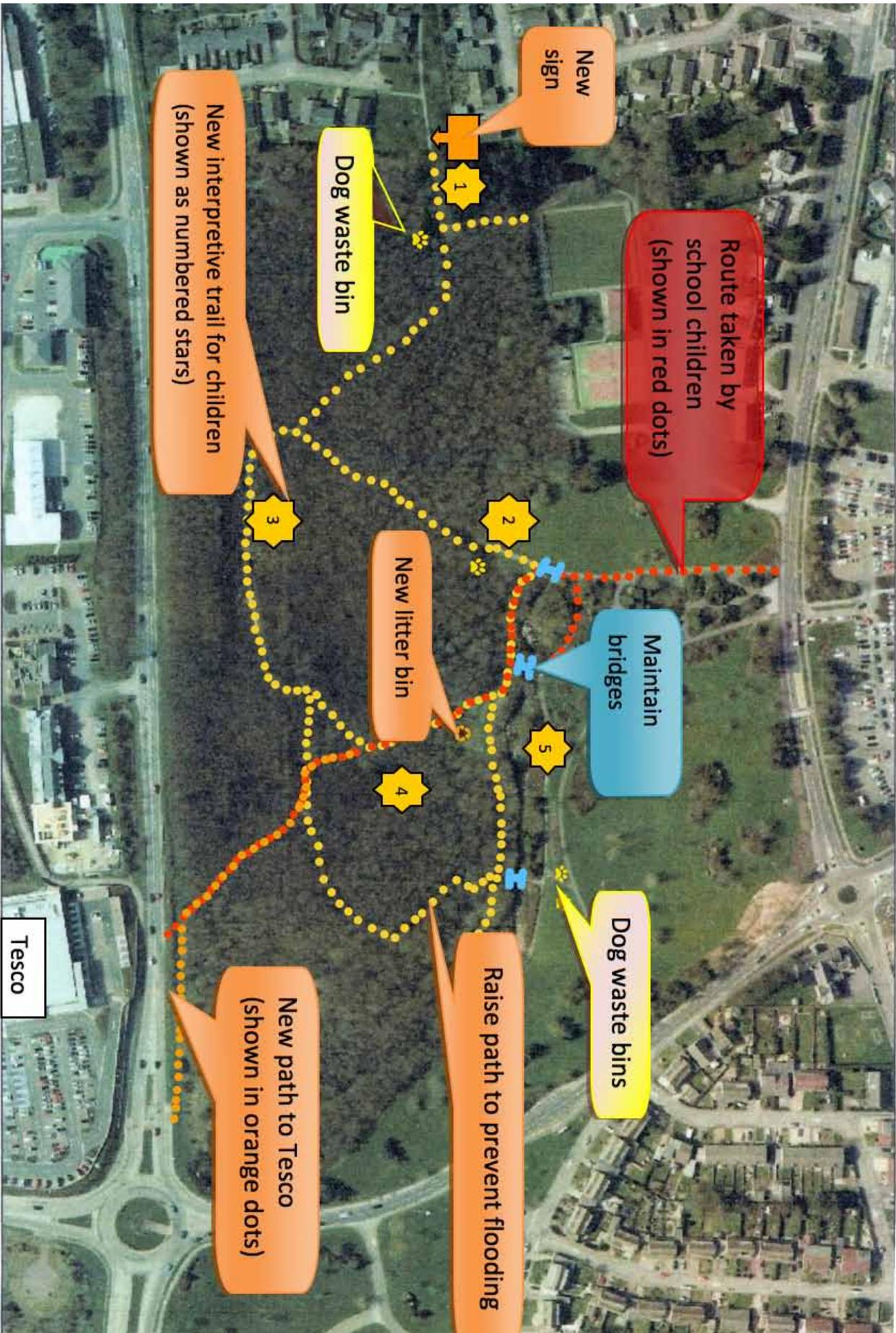
Local Nature Reserve

Management Plan 2013 - 2018

Appendix 2b Managing for People

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