


John Muir Pollinator Way Report: Stirlingshire

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Saving the small things that run the planet

Summary

The John Muir Way, opened in 2014, stretches 134 miles through nine local authority areas including Stirlingshire.

This B-lines project, the first in Scotland, has identified new opportunities for grassland habitat creation, enhancement and management along the route of the John Muir Way as it passes through the south west of Stirlingshire as well as 1.86 miles either side of this. Through this mapping exercise a number of sites have been identified including 8 schools and nurseries; 1 care home; and 6 places of worship and cemeteries. Additionally, 2 golf courses (270.3 ha), 6 public parks and play spaces (5.8 ha) and one country park (251.74 ha) were identified.

There are a number of sites within this project that have nature conservation designations, including 13 Local Nature Conservation Sites (529.04 ha) and 7 Sites of Special Scientific Interest (998.86 ha). A further 2 sites are managed as Scottish Wildlife Trust reserves totalling 152.45 ha and 1 has previously been identified as having an Open Mosaic of Habitat on Previously Developed Land with a total of 21.74 ha.

By mapping new opportunities this will aid in the future development of projects that will provide real benefits to our declining populations of pollinating insects of bees, wasps, hoverflies and butterflies as well as other wildlife that these habitats support.

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1. Introduction

The route of the John Muir Way stretches 134 miles (215 kilometres (km)) from Helensburgh in the west to Dunbar on the east coast (Figure 1). This walking and cycling route was opened in 2014 to commemorate the 100th anniversary of John Muir's death.

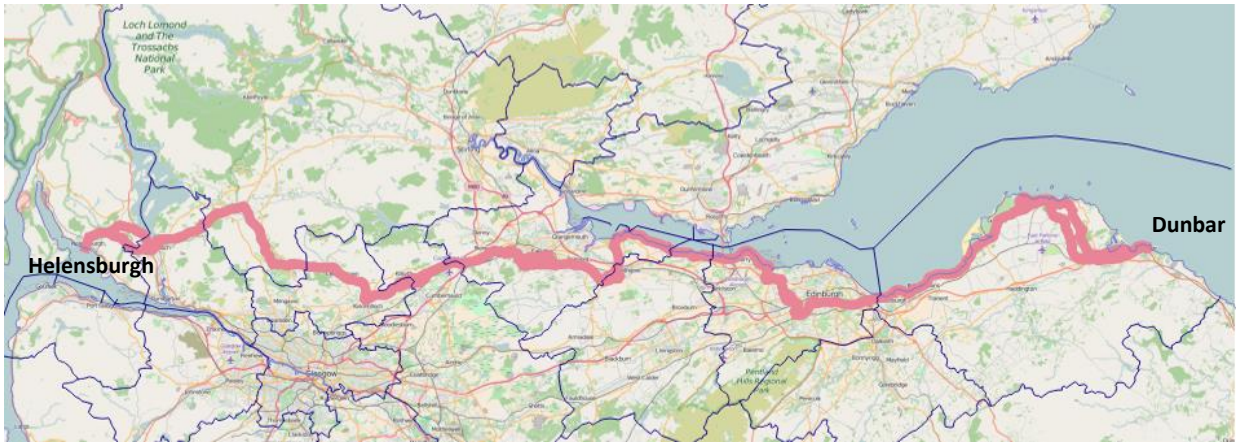


Figure 1. Route of the John Muir Way from Helensburgh in the west to Dunbar on the east coast.

During its 134 miles stretch, the John Muir Way passes through nine different local authority areas and goes through and close to several towns, including Helensburgh, Balloch, Strathblane Lennoxtown, Kirkintilloch, Falkirk, Edinburgh and Dunbar. This walking and cycling route passes through a varied landscape with a wide range of habitats including agriculture, coastland, parkland, housing as well as sites with various conservation designations. Many of these sites are important for a range of wildlife and plant species and allow the movement and mixing of species along and out with the route.

The route of the John Muir Way passes through a very small area of Stirlingshire right at the south western tip and is only a few miles long starting from Carbeth and going through Strathblane before entering into East Dunbartonshire.

1.1 B-lines

Since the 1940's, Britain has lost over 97% of its species-rich grassland to agriculture, housing developments and industry. B-Lines are an imaginative solution to the problem of the loss in wildflower meadows and the subsequent decline of pollinating insects. The B-Lines are a series of 'insect pathways' along which Buglife aims to create and restore at least 150,000 hectares (ha) of wildflower-rich habitat stepping stones across the UK. They link existing wildlife areas together, creating a network that will weave across the British landscape. This will provide large areas of brand new habitat benefiting bees and butterflies as well as a host of other wildlife.

B-Lines bring a range of benefits to wildlife, people and agriculture, including helping to conserve our native pollinators and a range of other wildlife; contributing towards the 2020 Biodiversity targets; helping our wildlife respond to climate change by making it easier for them to move around; increasing the number of insect pollinators and the benefits these bring to our farming sector (pollination being an important 'ecosystem service'); bringing nature to people; and giving opportunities for everyone to play their part and help create the B-Lines network.

Making the B-lines happen will take time and will need farmers, land owners, wildlife organisations, businesses, local authorities and the general public to work together to create flower-rich grassland in the best locations.

'John Muir Pollinator Way' is the first B-lines project in Scotland. Through this study, this project has mapped opportunities for wildflower grassland creation, enhancement and management along the route of the John Muir Way as it passes through Stirlingshire. This B-lines map will include not only areas that are currently used as amenity grassland such as at public parks and in school grounds but also sites that have nature conservation designations and are currently managed for their important grassland habitats. By mapping these opportunities it identifies where current habitat is, how it can be better managed and where projects should focus to further benefit wildlife and communities in the future.

2. Method

Opportunities for the creation, enhancement and management of grassland meadows and other habitats important for pollinating insects and other invertebrates were mapped using an online Geographic Information System (QGIS) along the 4 mile route as it passes through Stirlingshire as well as 1.86 mile (3km) either side of this. This area covers a total 11,150 ha of land.

Potential opportunities on sites with no nature conservation designations were identified based on if they held grounds for habitat creation and enhancement, these sites were then marked by a round circle and included primary schools, nurseries, care homes, places of worship and cemeteries.

Scotland's Greenspace Map, available from Scottish Natural Heritage (SNH) provides information about the type and extent of greenspace in urban Scotland in towns and cities with a population of over 3,000. This map was compiled in 2011 from greenspace data provided by the 32 Scottish local authorities and categorises greenspace into 23 different open space types (for example, public parks, private gardens, play areas, semi-natural, community gardens and allotments). Using Scotland's Greenspace Map, public parks, play spaces and golf courses were identified and mapped on the B-lines using polygons to calculate the area of each site; further information on the location and names of public parks and play spaces was obtained from several of the local authority websites. Additional areas of amenity grassland identified on Scotland's Greenspace Map, including residential, business and transport were not mapped due to the number of sites and complexity in mapping them.

Polygons of designated country parks with information on the size of each site were also added to this opportunity map after being downloaded from the SNH website.

Sites designated for nature conservation within this project were downloaded from the SNH website and mapped using polygons so that the size of the area could be calculated for each site; this included Local Nature Reserves (LNR) and Sites of Special Scientific interest (SSSI). Information on Local Nature Conservation Sites (LNCS) was obtained through Stirling Council's biodiversity officer as well as Scottish Wildlife Trust (SWT) and the boundaries for each site were drawn directly onto QGIS so that the area for each could be calculated.

As well as sites designated for nature conservation, all wildlife reserves were looked for within the project area. All sites identified belonged to the Scottish Wildlife Trust (SWT) and polygons of the reserves were added to show the location and size of each reserve within the project area.

In 2013, Buglife identified sites on Scotland's vacant and derelict land register with the UK Biodiversity Action Plan (UKBAP) priority habitat 'Open Mosaic of Habitat of Previously Developed Land' (OMHPDL) and the shapefile which included the polygons for these sites was uploaded onto this B-lines opportunity map (Macadam *et al*. 2013).

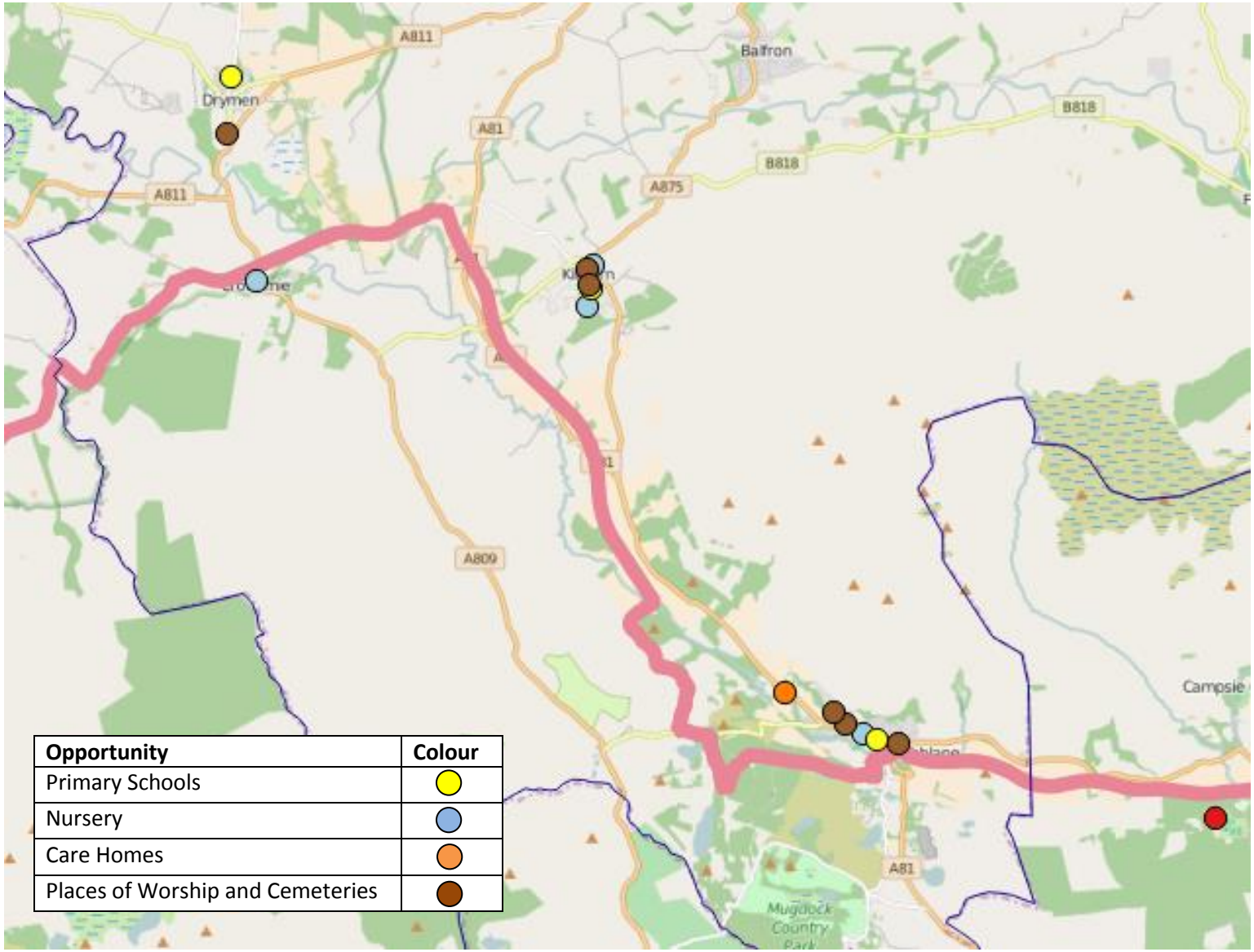
3. Results

A full list of opportunities identified can be found in Appendix 1.

A total of 8 schools and nurseries were identified and this includes 3 primary schools (1 is registered with the Royal Horticultural Society Gardening Scheme) and 5 nurseries (Table 1; Map 1). A further 1 care home and 6 places of worship and cemeteries were identified (Table 1; Map 1). At least 6 public parks and play space were identified covering a total area of 5.8 ha and include a variety of habitats from woodland, ponds and amenity grassland (Table 1; Map 2). There is a single park recognised as a Country Park that is 251.74 ha along with 4 golf courses that have a combined area of 270.3 ha (Table 1; Map 2). In total there are 7 sites designated as SSSI (998.86 ha) and 13 sites as LNCS (529.04 ha) (Table 1; Map 2). There are two wildlife reserves within the project area that are managed by the conservation charity SWT with a combined area of 152.45 ha (Table 1). A further 1 site has been identified as having OMHPDL and is 21.74 ha (Table 1; Map 2).

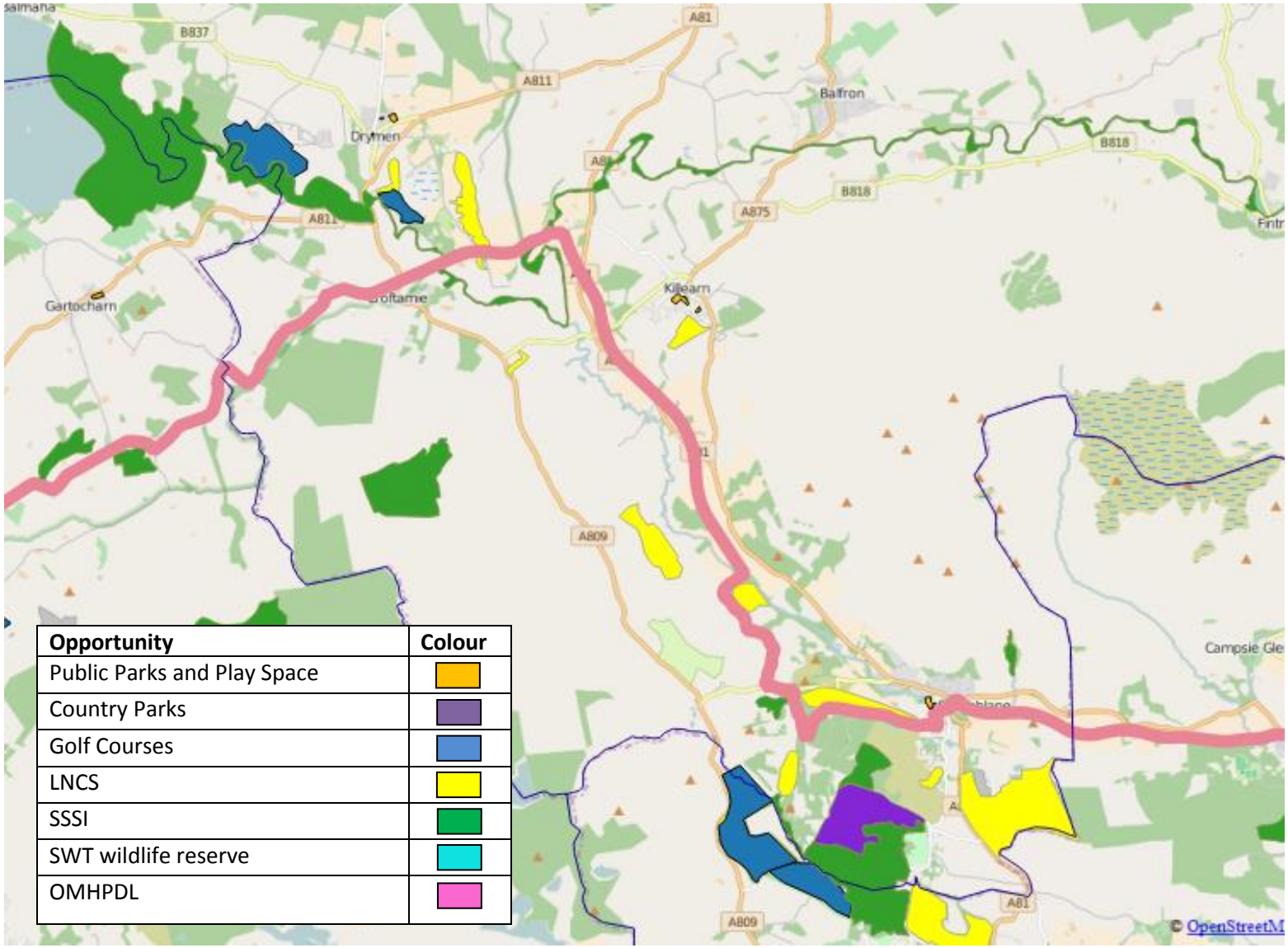
Table 3. Total number of opportunities identified for each category within Stirlingshire including the size of the area for sites designated for conservation along with public parks, country parks and golf courses.

Opportunity	**Total number**	**Total Area (ha)**
Primary Schools	3	-
Nursery	5	-
Care Homes	1	-
Places of Worship and Cemeteries	6	-
Golf Course	4	270.3
Public Park	6	5.8
Country Park	1	251.74
SSSI	7	998.86
LNCS	13	529.04
SWT Reserve	2	152.45
OMHPDL	1	21.74



Opportunity	Colour
Primary Schools	
Nursery	
Care Homes	
Places of Worship and Cemeteries	

Map 1. Opportunities of non-designated sites identified in Stirlingshire.



Opportunity	Colour
Public Parks and Play Space	
Country Parks	
Golf Courses	
LNCS	
SSSI	
SWT wildlife reserve	
OMHPDL	

Map 2. Opportunities of sites designated for conservation along with public parks and golf courses identified in Stirlingshire.

4. Discussion

The John Muir Way is 134 miles long and has a varied landscape, passing through nine different local authority areas, various towns and cities as well as rural habitats. The 11,150 ha of land covered by this project in Stirlingshire has identified various opportunities for grassland habitat creation, enhancement and management within the grounds of schools, golf courses and public parks. Each of these potential opportunities differ in the communities involved from across Stirlingshire and surrounding areas as well as the habitats present, but all have the potential to significantly increase and improve habitat for pollinating insects and other wildlife across the heartland of Scotland.

4.1 Schools

A total of eight schools and nurseries were identified within this projects area and includes three primary schools and five nurseries. Most schools and a majority of the nurseries have outdoor grounds that may include areas of amenity grassland as playing fields that are used by school children during breaks and during physical education (PE) lessons. Alongside these large areas of amenity ground, schools often have other outdoor areas that are may be used as a school garden or are left as areas of additional amenity grassland. It is these areas that can be enhanced for wildlife by creating biodiverse school gardens or changing the management to reduce the cutting of the area. This would not only benefit pollinating insects and other wildlife but also the school children who could help create the habitats and use them for learning and play. Wildflower meadows within the school grounds could be created with the help of the school children and parents and be managed with the help of the local authority if required.

To further benefit pollinating insects such as solitary bees, school children could be encouraged to create homes for them in wood working class. These can be installed in south facing and warm areas around the school and will create homes for wood nesting solitary bees and other invertebrates.

Of the eight schools identified in this survey only one of the primaries is registered with the RHS School Gardening Scheme which aims to inspire and support schools to provide children with gardening opportunities to enhance their skills, outdoor learning and boost their development.

Almost all of the schools and many of the nurseries identified are registered as an Eco-school, many of which have various awards associated with this. Eco-Schools are an international initiative designed to encourage whole-school community action on ‘Learning for Sustainability’. This environmental management tool is a learning resource and a recognised award scheme which empowers children and young people to take action towards an economically, socially and environmentally just world. The Eco-Schools programme is managed in Scotland by Keep Scotland Beautiful.

Other school initiatives that aim to get children out of the classroom and either into their local community or developing their school grounds include Polli:nation a UK wide initiative supporting pupils from 260 schools to turn their school grounds and other areas within their local communities into pollinator friendly habitats. Unfortunately, none of the schools selected in Scotland are within this project’s area although they will still be able to get involved in this initiative.

Priority Project 6 through Scotland’s Biodiversity- a route map to 2020, aims to increase secondary and primary schools access to greenspace and nature for outdoor learning as part of the wider ‘Learning for Sustainability’ agenda. Through this, it aims to work with 100 schools by 2020 that have pupils who live in the 20% most deprived areas. Of the schools identified in this project, none have pupils who live in the 20% most deprived areas.

There is a lot of scope for schools to get involved with enhancing their grounds for wildlife and for the pupils through the RHS School gardening scheme and Keep Scotland's Beautiful Eco-schools as well as other initiatives. It may be that further support is required to encourage more schools to actively get involved for the benefit of the school children and for declining insect pollinator populations.

4.2 Care Homes

Only a single care home was identified in this project area that cares for a number of patients and has visitors every day. It is well documented of the health and well-being benefits for people with local and easy access to wildlife as well as the increase in recovery time of patients in hospitals and care homes.

It is important to provide opportunities for people in care and nursing homes and hospices to get involved in wildlife and gardening projects in their home grounds. Many of these homes often have grounds that residents can walk around either on their own or with visitors. By enhancing these areas for wildlife through the installation of planters and green walls planted with native wildflowers they will provide colour attracting life to the gardens that will make a happier and healthier place for the residents to live and enhance their experiences and quality of life (Figure 2).

Figure 2. Example of a green wall that holds a variety of plants, including wildflowers. This particular green wall also has a variety of homes for insects and other bugs

4.3 Places of Worship and Cemeteries

There are at least six places of worship and cemeteries identified within this project. At least one is described as a cemetery whilst many of the places of worship also include burial grounds.

Many cemeteries and churchyards are well known to be important habitats for a range of wildlife including bats, birds and foxes as they are often less intensively managed as other urban green spaces. A range of habitats are often found at these sites including mature and veteran trees, old walls, wildflowers, bare ground and shrubs. By creating habitat and enhancing areas already present within the grounds this will add colour and life to the churchyards and cemeteries that will not only improve health and well-being of visitors but will provide important stepping stones for wildlife through an area.

Not all the churches identified have grounds that could be enhanced or managed but they can help to inspire local communities to actively get involved with community led projects that could benefit the local area away from the church. It is important to identify which of these churches have access to an outdoor space and what habitats are currently present within these that could be enhanced or better managed for wildlife. This in itself could be a project that engages with communities across Scotland with their local place of worship.

4.4 Golf Courses

Of the four golf courses within this project the total area they cover is 270.3 ha.

Golf courses are well known to act as important areas for wildlife, especially in an urban area due to the various habitats present, such as woodland, hedgerows, rough grassland, ponds, ditches and heathland. Golf courses cover 1% of land in the United Kingdom. Generally between 40 – 60% of a golf course is out of play representing a significant land resource that can potentially be made available for wildlife protection and nature conservation. Many golf clubs are recognising that a naturalistic golf course environment which is attractive for wildlife is also generally more attractive to golfers.

Buglife's current meadow creation project 'Fife's Buzzing', a three year project funded by Heritage Lottery Fund and Fife Environment Trust, has enhanced Dunnikier golf course in Kirkcaldy for biodiversity by planting native and diverse wildflower species into areas that are not in play and around ponds. These have helped create a healthier place for wildlife and for the people using the course as well as getting the local community and schools involved with habitat creation events through volunteer activities.

The Golf Environment (GEO) was founded to support the golfing industry, helping it to deliver and be recognized for a positive impact for the people and nature that it touches, now and in the future. They are currently developing an awards system that encourages golf courses around the world to create areas within their grounds to further benefit wildlife. Through their system, individual golf courses will be able to identify what they are currently doing that is benefitting local wildlife but also other activities that would provide further benefits. This could positively benefit not only pollinating insects with the planting of native species of wildflower within meadow areas that are local to the golf course, but also aquatic invertebrates through the enhancement of ponds and wildlife such as Longhorn beetles that require dead wood for their lifecycle with the enhancement and creation of areas of dead wood.

4.5 Public Parks and Play Spaces

Scotland's Greenspace Map, available from SNH, was used to identify and map the location of public parks and play spaces across the project area. Scotland's Greenspace Map was compiled in 2011 from greenspace data provided by the 32 Scottish local authorities and categorises greenspace into 23 different open space types (for example, public parks, private gardens, play areas, semi-natural, community gardens and allotments). As some of this information is incomplete, such as the names of the parks, information was also obtained using local authority websites and other sources.

A total of six public parks and play spaces were identified covering a total of 5.8 ha. Many of these parks are well used by local communities and visitors every day for walking, cycling, running or playing.

Most parks have large areas of amenity grassland that is cut several times over a year and has very little benefits to biodiversity because of this. Through Buglife's Get Britain Buzzing campaign, we have been transforming mown grassland in parks into colourful wildflower areas for both people and

wildlife to use and enjoy. In Scotland these projects have so far occurred out with the project area of the John Muir Pollinator Way in Glasgow, Perth and currently in Fife and North Lanarkshire. For example, just over half way through the three year 'Fife's Buzzing' project, Buglife has engaged with 1,057 people in the creation and enhancement of over 5 ha of wildflower meadow at 13 parks across Fife.

Through these projects we have recognised that it is important that if changing the management at parks and/or creating wildflower areas for wildlife that local communities are consulted before hand so they can decide on the best areas within their local park and the size of the area to be created and managed. It may be that all of a park is well used over the year by dog walkers and picnickers so only small edge areas could be enhanced. It is these small areas that could encourage the creation of larger areas once the public understand the change being undertaken in their local area.

Local authorities across Scotland and the rest of the UK are facing major cutbacks and are looking at ways to reduce spending. Several are known to be looking at reducing their grass cutting regime within certain areas of amenity grassland. This is great news for pollinating insects that will be able to find forage and nesting habitat within areas that are cut less regularly but not if these aren't properly managed by being cut and lift once a year. It is important that wildflower meadow areas are managed appropriately to prevent grasses becoming dominant and turning into rank grassland. Management of grasslands is site dependent and could involve grazing or cutting once a year and removing the cuttings. With a reduction in grass cutting, councils are realising that they don't have equipment to cut and lift once a year and so hire a contractor to do this, which can be an expense they can't afford within the current climate.

Several parks identified in this project, have designated Friends of Groups that may be able to help get involved with habitat creation and management projects so as to enhance their area. Friends of groups could apply for funding to enhance their local park for biodiversity through the creation and management of grassland.

4.6 Country Parks

Of the 36 country parks across Scotland, only Mugdock Park is located within this project and is 251.74 ha in size. This Country Park has a range of walking and cycling trails as well as varied landscape with woodland and wildflower meadows. Additionally, this park has its own dedicated Countryside Ranger service that helps to manage the park as well as engaging with the local community and school children through events run all year round. Due to the location of this country park being only 10 minutes north of Glasgow and the services and events available it attracts huge numbers of visitors every year.

It is important that country parks follow management plans to ensure that they remain viable for wildlife and that the habitat is managed appropriately so that both people and animals can continue to use and visit the parks in the future.

4.7 Local Nature Conservation Sites

There are 13 LNCS in the project area and cover a total of 529.04 ha. Information about LNCS in Stirlingshire was obtained from the local biodiversity officer and SWT.

LNCS are sites that have been designated as being important for nature conservation due to the habitats and wildlife that are present. For sites identified through this project a range of habitats are present, including woodland, heathland, reservoirs, ponds, ditches and grassland meadows. It is important that management plans are written for each site and that the correct regime is in place to ensure long-term survival of the site and its habitats for the future protection of wildlife. As it was

very difficult to find information about individual sites it is assumed that management plans, if there are any are not accessible to the public or have yet to be completed.

4.8 Site of Special Scientific Interest

SSSI are those areas of land and water (to the seaward limits of local authority areas) that are considered to best represent our natural heritage, due to their species diversity and habitats, rocks and landforms present as well as a combinations of these features. SSSIs are protected by law and it is an offence for any person to intentionally or recklessly damage them. SSSI are designated by SNH under the Nature Conservation (Scotland) Act 2004.

There are over 1,425 SSSIs across Scotland, of which only seven are within this project and this covers 998.86 ha; this includes the SSSI Endrick Mouth and Islands and Endrick Water that are shared with West Dunbartonshire council and cover a total combined area of 690.32 ha.

Most SSSIs are in private ownership and SNH works closely with their owners and managers to ensure appropriate management of the sites natural features and to ensure that decision-makers, land managers, their agents and advisors, as well as local authorities and other public bodies, are aware of SSSIs when considering changes in land-use or other activities which might affect them.

Any Scottish public body proposing to carry out an operation that may affect an SSSI must notify SNH before starting. SNH provides each SSSI owner and occupier with a site management statement that describes the interest of the site and explains the management needed to conserve its protected natural features. For those sites which are known for their grasslands it is important that these management plans are stuck to and that the meadows are appropriately managed to ensure long-term survival of the site for their biological features.

4.9 SWT Wildlife Reserves

SWT have over 120 reserves in Scotland which is more than any other conservation organisation in Scotland. There are two reserves within this project that total 152.45 ha of land. The largest of these reserves which is within this project is Loch Ardinning, south of Strathblane, and is 147.66 ha; this site is also designated as a LNCS. The other site, Ballagan Glen which is just south of Strathblane is 4.85 ha in size and is also designated as a SSSI and a LNCS.

Through the SWT website, there is information on each of its reserve that includes site maps as well as details on how to get there. As SWT is a membership charity, people who join help to conserve their reserves for wildlife. Management plans will be available for each of their reserves that they will follow in order to conserve the important habitats and features present.

As most of their reserves are appropriately fenced, when managing grasslands at their reserves, SWT realised that the best method was to use grazing livestock. Grazing, if not too heavy, produces structural mosaics in the vegetation associated with the palatability of individual species. Trampling, dunging and defoliation all contribute to the small scale pattern of variation. Plants and animals benefit from the variety of structural features present in lightly or moderately grazed pastures but heavy grazing eliminates structural diversity.

Through funding from Heritage Lottery Fund, SWT were able to buy some sheep that they use to help manage their reserves and other sites including several SSSI across Scotland; they are known as the ‘flying flock’. Sites which use the flying flock are known to be improving each year through this management.

4.10 Open Mosaic Habitat on Previously Developed Land

OMHPDL is a UKBAP priority habitat as its mosaic of habitats provides homes for a number of wildlife species and allows a natural process of succession to occur which is often limited in the over-managed countryside. Derelict sites often have areas of bare ground, early successional communities, grasslands, wetland, scrub depending on how long the site has been abandoned, soil conditions and local climate.

In 2013, a report by Macadam *et al*. remotely assessed sites on Scotland's vacant and derelict land register for OMHPDL using Google Earth maps. Of the 4,118 sites on the 2011 register, 586 were selected as potentially having OMHPDL and should be ground truthed and this amounted to over 5,600 ha of land. Of this total, only the derelict remains of Killearn Hospital is within this project area and is 21.74 ha. This site appears to have areas of bare ground and grassland on the site. Ground truthing these sites would help to identify if the site has the UKBAP priority habitat OMHPDL and whether management is required to ensure long-term viability of the site.

Brownfields with OMHPDL are known to be important for wildlife due to a lack of management and low nutrients in the soil that often creates a mosaic of habitats. Many rare and scare species have been recorded at brownfield sites, often as many that are associated with ancient woodlands. Due to natural succession, many of these sites have a limited lifespan but as sites are lost to development, new sites are added that allow succession to start again.

4.11 Other Opportunities

During the mapping of opportunities for this B-lines project, other areas were recognised as being possibilities but were not mapped due to a lack of information, the number of these sites as well as the complexity of mapping them. This includes areas of amenity grassland identified on Scotland's Greenspace Map, including amenity sites recognised as residential, business and for transport. These areas of amenity grassland include road verges through our urban areas as well as regularly mown areas of amenity that are not classified as parks or play spaces but can often be large in size. All of these areas of amenity are opportunities for creating habitat for pollinators across an urban area that will allow the moving and mixing of individuals and species across these areas with more natural areas of habitat.

As well as passing through urban areas, the John Muir Way also passes through agricultural areas which were not mapped due to a lack of information on the location and use of fields. By creating wildflower strips and planting hedges along field edges this will create habitat corridors for pollinating insects and other wildlife allowing them to pass through agricultural areas safely to other areas and this will also help with the mixing of individuals and species. Wildflower strips provides additional benefits by increasing free pollination services of crops and attracting insects such as hoverflies, soldier beetles and lacewings who's larvae feed on pests such as aphids.

5. Conclusion

The 134 mile route of the John Muir Way passes through villages and towns in nine different local authority areas. Various organisations are currently involved with a variety of different projects along and around the route of the John Muir Way. For example, this includes Sustrans who are heavily involved with the cycle path network, Inner Forth Landscape Initiative which has a range of projects for biodiversity and people in Grangemouth and Bo'ness, Edinburgh Living Landscapes that are creating and managing grassland habitats within the City of Edinburgh as well as a number of community groups within the villages and towns will manage local community gardens for both people and wildlife.

This project has identified a number of opportunities for creating important grassland habitat within parks, golf courses, school grounds within Stirlingshire for pollinating insects that will allow the movement and mixing of individuals and species across Scotland. This will also benefit other wildlife, particularly other invertebrates, and plants.

In Strathblane and the surrounding area there are a number of opportunities for creating strips of native wildflower and grassland areas for example alongside road verges and within the public parks and play spaces. Not only will these new habitats benefit wildlife but also local communities by getting people actively involved in projects and through the addition of colour and life to their areas that will benefit people's health and well-being.

This project has additionally highlighted a number of sites that have been designated for nature conservation that should be managed for the habitats present at their site. By being appropriately managed this will ensure long-term survival of these sites and habitats for wildlife and people to use and enjoy.

By mapping the opportunities at new identified sites and within currently managed sites through this project, this will aid in the future development of projects that will provide real benefits to our declining populations of pollinating insects of bees, wasps, hoverflies and butterflies as well as other wildlife that these habitats support.

References

Macadam, C., Bairner, S. and Cathrine, C. 2013. Open mosaic habitats on previously developed land: survey and recommendations for habitat planning and management in Scotland. Scottish Natural Heritage Commissioned Report No. 606.

Scottish Natural Heritage Greenspace Scotland Map, available at: http://www.snh.gov.uk/planning-and-development/advice-for-planners-and-developers/greenspace-and-outdoor-access/scotlands-greenspace/dataset/ last accessed 29th March 2016.

Scottish Natural Heritage Information Service, available at http://www.snh.gov.uk/publications-data-and-research/snhi-information-service/ last accessed 29th March 2016.

Appendix 1

Opportunities within local communities and landscapes

Primary School
Drymen Primary School, Old Gartmore Road, Drymen, G63 0DY
Killearn Primary School and Nursery, Crosshead Road, Killearn, G63 9RN
Strathblane Primary School, Southview Road, Strathblane, G63 9JQ; RHS School Gardening registered

Nursery
Beech Drive Nursery and Kindergarten, Beech Drive, Killearn, G63 9SD
Croftamie Nursery, Croftamie Road, Croftamie, G63 0EU
Gartocharn Early Education and Childcare Centre, Ross Loan, Gartocharn, G83 8NE
Killearn Mulberry BushPpre-school, 12 Balfron Road, Killearn, G63 9NJ
Kilmardinny Nursery, Glasgow Road, Strathblane, G62 6HX

Care Homes
Blanefield Care Home, 105 Glasgow Road, Blanefield, G63 9AL

Places of Worship and Cemeteries
Drymen Parish Church, 74 Main Street, Drymen, G63 0BQ
Killearn Kirk, 8 Balfron Road, Killearn, G63 9NJ
Killearn Old Cemetery, 1 Crosshead Road, Killearn, G63 9RN
Saint Kessogs, 58 Glasgow Road, Blanefield, G63 9JD
St. Kessogs, 34 Campsie Dene Road, Blanefield, G63 9BN
Strathblane Parish Church, Strathblane Road, Campsie Glen, Strathblane, G63 9AA

Golf course
Buchanan Castle Golf Club, Buchannan Castle Estate, Drymen, G63 0HY
Hilton Park Golf Club, Auldmarroch Estate, Stockiemuir Road, Milngavie, G62 7HB
Milngavie Golf Club, Laighpark, Milngavie, G62 8EP
Strathendrick Golf Club, Glasgow Road, Drymen, G63 0AA

Public Parks and Play Spaces
Drymen Play Park, 45 Charles Crescent, Drymen, G63 0BU, grid reference NS 47541 88832
Drymen Playing Fields, 40 Charles Crescent, Drymen, G63 0BT, grid reference NS 47726 88833
Drymen Square, Drymen, G63 0BL, grid reference NS 47399 88595
Killearn Play Park with playing fields, 10 Endrick Road, Killearn, G63 9QD, grid reference NS 52169 85886
Play Space with amenity grassland, 1 Alder Crescent, Killearn, G63 9SH, grid reference NS 52476 85631
King George V Park, 10 Dumbrock Drive, Strathblane, G63 9DN, grid reference NS 55908 79308

Country Park
Mugdock Country Park, Craigallian Road, near Milngavie, G62 8EL
This large country park is over 250 hectares in size and offers a range of activities from walking trails to cycling. The park is on the boundary of Stirling and East Dunbartonshire Council and is only 10 minutes north of Glasgow. A wide range of habitat is present for people and wildlife including woodland, grassland and ponds.

Sites with conservation designations

Local Nature Conservation Site

Altquhur Burn, Drymen, site size c. 40 ha, grid reference NS 48845 87608
The site is just over 50 hectares in area and runs through the river valley of the Altquhur Burn. Habitats within the site incluide c.21 hectares of mature semi-natural woodland dominated by ash and hazel, with stretches of gorge and associated flora. There is also at least 18 hectares of marshy grassland with good floral diversity.

Ballagan Glen, Strathblane road, Strathblane, site size 6.81 ha, grid reference NS573798; this reserve is also a SSSI
Ballagan Glen is a small but beautiful reserve carved by the Ballagan Burn, which cascades down a series of waterfalls, including the Spout of Ballagan. It is notable for its spectacular geological Carboniferous rock exposures and ancient ash gorge woodland. This site is designated as a SSSI and is also a SWT wildlife reserve.

Craigallion Loch, Strathblane, site size 16.2 ha, grid reference NS 53586 78254
This large dam is just south west of Strathblane and is known to be important for fen habitat, freshwater plants and birds.

Cuilt Brae Wood, Strathblane, site size 40.8 ha, grid reference NS 54412 79451
This large area of deciduous woodland is important for breeding birds.

Deil's Craig Dam, Strathblane, site size 6.1 ha, grid reference NS 55929 78097
This large dam is just south of Strathblane and is known to be important for freshwater plants and birds.

Dumgoyach Hill, Blanefield, site size 21.1ha, grid reference NS 53072 81087
A fairly small hill covered in mixed woodland with little understory flora in places.

Finnich Glen, Craighat, Killearn, site size 3.9 ha, grid reference NS 49532 84872
Mixed woodland within a gorde with good floral species diversity.

Hilton Park Golf Club, Auldmarroch Estate, Stockiemuir Road, Milngavie, site size 103.2 ha, grid reference NS 52744 77756
A large golf club with a range of habitats including scrub and woodland. Milngavie Golf Club is just to the south of this course.

Killearn Glen, Killearn, site size 13.9 ha, grid reference NS 52284 85368
Mixed woodland with some areas thought to be over 250 years old. This woodland is important for breeding birds and is well used by local people for walking.

Loch Ardinning and Craigmaddie, Aberfoyle Road, Starthblane, site size 147.66 ha, grid reference NS564777
This site is important for nesting birds and has a variety of habitat with areas of wetland, woodland, grassland and moorland. The reserve is south of Strathblane. Loch Ardining is a SWT wildlife reserve.

Mugdock Reservoir, Milngavie, site size 81.8 ha, grid reference NS 55591 76008
Two large areas of open water owned by Scottish Water with mown amenity grass and some scrub around edges. A footpath goes around the entire bounadary of the reservoir.

Quinloch Wood, Strathblane, site size 41 ha, grid reference NS 51786 81706
Ancient semi-natural oak woodland situated on slopes between Quinloch Muir and the Blane Water. The site is several miles north-west of Strathblane.

School Glen, Strathendrick Golf Club, Drymen, site size 9.4 ha, grid reference NS 47706 87747
A stream passes through this glen with steep sided sides. The deciduous woodland is made up of Alder and has a good floral diversity and important for nesting birds.

Site of Special Scientific Interest

Aucheneck, SNH site code 99, size 105.68 ha, grid reference NS 478830
Aucheneck SSSI is located 5 km south-west of the village of Killearn, in central Scotland. The site is important because it provides excellent examples of glacial landforms formed during the Quaternary, the period of cyclical 'ice ages' spanning the last 2.6 million years.
Notified Natural Features:
Geological: Quaternary geology and geomorphology: quaternary of Scotland

Ballagan Glen, SNH site code 125, size 6.81 ha, grid reference NS 572800; this SSSI is also a SWT wildlife reserve
Ballagan Glen is a steep-sided glen on the south face of the Campsie Fells and less than a mile east of the village of Strathblane, to the north of Glasgow. The upper limit of the glen is a waterfall above a feature known as the Spout of Ballagan. This siet is also designated as a LNCS and is a SWT wildlife reserve.
Notified Natural Features:
Geological: Stratigraphy: Lower Carboniferous Dinantian – Namurian (part)
Biological: Woodland: upland mixed ash woodland

Carbeth Loch, SNH site code 313, size 9.94 ha, grid reference NS 535794
Carbeth Loch SSSI is a small mesotrophic loch located 3.4 km north of Milngavie, Glasgow on the south side of the Campsie Fells. This scenic small loch (5.6 ha) is notified for the mesotrophic loch and the surrounding open water transition fen. This loch is man-made and is impounded by a vertical concrete wall with an overflow on the downstream side, and a sluice for regulating the water drainage.
Notified Natural Features:
Biological: Freshwater habitats: mesotrophic loch
Fens: open water transition fen

Dumbrock Loch Meadows, SNH site code 552, size 27.58 ha, grid reference NS 549783
Dumbrock Loch Meadows SSSI surrounds Loch Dumbrock and is located at the extreme south west of the Stirling Council area, a mile from Strathblane. The SSSI comprises one of the largest areas of unimproved, herb-rich, lowland grassland in the Stirling Council area. Habitats of this type are nationally rare and declining.
Notified Natural Features:
Biological: Grassland: lowland neutral grassland

Endrick Mouth and Islands, SNH site code 610, size 471.13 ha, grid reference: Creinch NS 394887, Torrinch NS 401893, Inchcailloch NS 409902, Clairinsh NS 413899, Aber Isle NS 419888, Endrick Mouth NS 440885; site is shared with Stirlingshire
The Endrick Mouth and Islands SSSI is located at the south-eastern corner of Loch Lomond. The seven compartments that make up the site include the mainland on both north and south of the Endrick Water and the following five islands; Aber Isle, Clairinsh, Inchcailloch, Torrinch and Creinch.

The natural features of the site include river geomorphology and the habitats of upland oak woodlands, flood-plain fen, hydromorphological mire range and open water.

Notified Natural Features:

Geological: Geomorphology: fluvial geomorphology of Scotland

Biological: Woodland: upland oak woodland
Fens: hydromorphological mire range
Birds: breeding bird assemblage
Birds: non-breeding: Greenland white-fronted goose (*Anser albifrons flavirostris*), Greylag goose (*Anser anser*).
Vascular plants: vascular plant assemblage
Non-vascular plants: bryophyte assemblage
Invertebrates: beetle assemblage

Endrick Water, SNH site code 1693, size 219.19 ha, grid reference NS 661862 to NS 447884; site is shared with Stirlingshire

The Endrick Water SSSI originates 4 km east of Fintry in the Gargunnock Hills. From here the SSSI extends west for 36 km to meet the Endrick Mouth and Islands SSSI around 1.5 km east of Loch Lomond. The lower reaches of the Endrick Water provide an exceptional example of the fluvial geomorphology of Scotland. The river is the largest flowing into Loch Lomond and it is both nationally and internationally-important for its population of lamprey.

Notified Natural Features:

Geological: Geomorphology: fluvial geomorphology of Scotland

Biological: Freshwater and estuarine fish: Brook lamprey (*Lampetra planeri*), River lamprey (*Lampetra fluviatilis*)
Vascular plants: Scottish dock (*Rumex aquaticus*)

Mugdock Wood, SNH site code 1210, size 168.47 ha, grid reference NS 549767

Mugdock Wood SSSI is located 3 miles north of Milngavie, Glasgow and to the south of the Campsie Fells. Within the SSSI are Mugdock Country Park, Mugdock Wood, Mugdock Loch and Drumclog Moor. This site has an unusual association of diverse semi-natural habitats of wooded and non-wooded features. The soil and geology as well as disturbance by man through agriculture and foot traffic have contributed to the variability of the habitats. The features of the site include extensive areas of ancient upland oak woodland and wet woodland, smaller areas of dry and wet heathland, open water, and a large population of locally rare beetles.

Notified Natural Features:

Biological: Woodland: upland oak woodland, wet woodland
Lowland heathland: lowland dry heath, lowland wet heath
Freshwater habitats: mesotrophic loch
Invertebrates: beetle assemblage

Scottish Wildlife Trust reserve

Ballagan Glen, Strathblane road, Strathblane, site size 4.85 ha, grid reference NS573798; this reserve is also a SSSI

Ballagan Glen is a small but beautiful reserve carved by the Ballagan Burn, which cascades down a series of waterfalls, including the Spout of Ballagan. It is notable for its spectacular geological Carboniferous rock exposures and ancient ash gorge woodland. This site is also designated as a SSSI and a LNCS within Stirling.

Loch Ardinning, Aberfoyle Road, Strathblane, site size 147.66 ha, grid reference NS564777

The SWT wildlife reserve Loch Ardinning is a picturesque and visitor-friendly wildlife haven with areas of wetland, woodland, grassland and moorland. The reserve is south of Strathblane. This site is also identified as a LNCS within Stirling.

Sites with Open Mosaic Habitat on Previously Developed Land

Killearn Hospital, Blane Wood, Killearn, SVDL site code VD0044, grid reference NS 50992 84831
This derelict site with buildings is 21.74 ha in size. Although there are large areas with late successional vegetation there are also areas of bare ground and open grassland.

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