

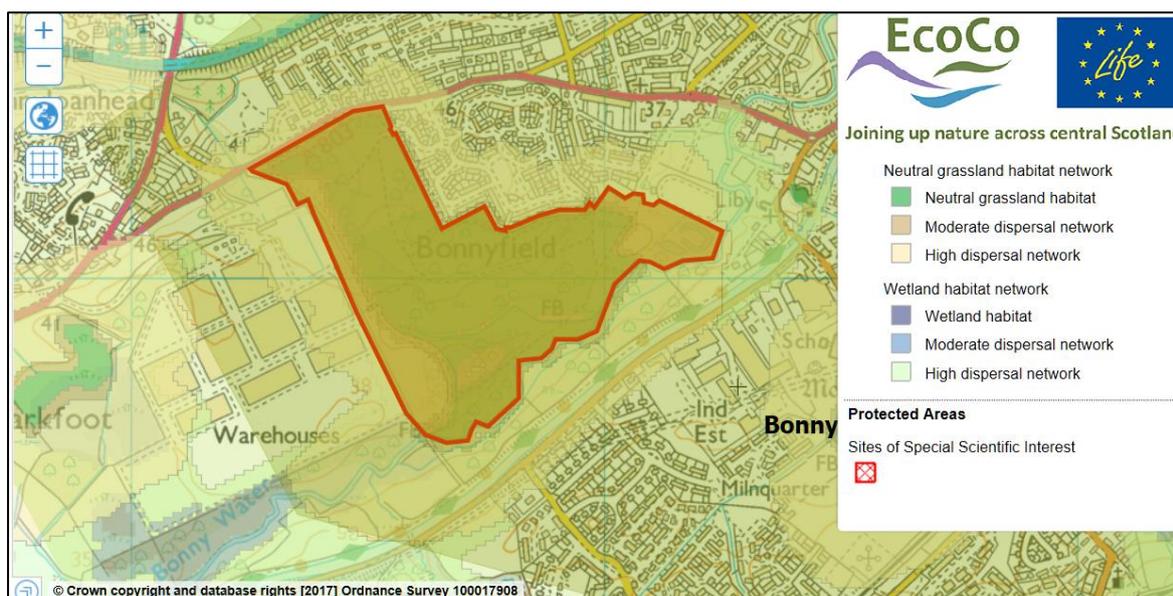
Action C8; Innovative improvements at newly identified sites EcoCo new sites assessment: Bonnyfield Nature Park

Description (How, what, where and when)

This project will manage brownfield habitat at Bonnyfield Nature Park in Bonnybridge in Falkirk. Species-rich grassland will be enhanced through the removal and thinning of scrub (mostly birch, Broom and Gorse) and bare ground will be created through the installation of a bee bank that altogether will provide forage and nesting habitat for solitary bees and other pollinating insects. Bonnyfield Nature Park is a former sand and gravel quarry that has been derelict since the 1990's where it was then transferred to Falkirk Council and made into a wildlife site. The site was given Local Nature Reserve (LNR) status in 2008. This brownfield site has important open mosaic habitat with species-rich grassland, scrub and wetland that is home to a range of wildlife and is particularly important for invertebrates. This project will be delivered by Buglife with the help of The Conservation Volunteers and support from Falkirk Council Ranger Service and other volunteers from January to June in 2018. The site will be a part of the EcoCo "Falkirk Stepping Stones" management zone.



Aerial view of Bonnyfield



Map showing Bonnyfield LNR in existing habitat networks

Reasons why this action is necessary

This Local Nature Reserve is managed by Falkirk Council. The council's ranger service regularly uses the site for outdoor education with three local primary schools. There has been some management at this site through the removal of scrub, planting wildflower seed and managing ponds. The council have hoped to trial bee banks at Bonnyfield LNR for a number of years but have been unable to get funding to achieve this. Additionally the further control of scrub at this site has also not been achieved through a lack of funding.

The removal of scrub and the creation of a bee bank through this project will ensure that habitats at this site are restored and enhanced, protecting a key element of the brownfield networks within this urban part of central Scotland and comprise a component of the Ecoco Falkirk Stepping Stones" management zone.

Beneficiary responsible for implementation

Buglife

Responsibilities in case several beneficiaries are implicated

Buglife

Expected results (quantitative information when possible)

- Creation of a bee bank
- Removal of scrub
- Removal of waste debris

How was the cost of the action estimated?

The cost of the action was estimated through an email exchange negotiation between Falkirk Council Ranger Service and Buglife in March 2017. These emails decided on the best course of action to take to enhance the site and the number of activity days required to complete the action. The final costs were developed by Buglife and approved by Falkirk Council Ranger Service before being submitted.

Permissions/licences required

Falkirk Council (landowner) permission may be required although we have verbally agreed that they are happy with the work to go ahead. Buglife already have a longstanding relationship and track record working with Falkirk Council.

Ecological Coherence Assessment

1. EcoCo Partner(s)
Buglife
2. Vision
<p>The vision for this “Falkirk Stepping Stones” management zone is for a better managed area of brownfield land, in good ecological condition, contributing to networks and providing significant biodiversity that will both educate and engage the wider public including schoolchildren and volunteers.</p> <p>This management zone is located in the urbanised area of Bonnybridge in Falkirk. The core area of Bonnyfield LNR is 28.7 hectares in size. This brownfield site contains a valuable open mosaic habitat (OMH) with areas of wetland, ponds, scrub, woodland, and species-rich grassland. Through the previous use of the site as a sand and gravel quarry, there is a varied structure across the site with some slopes that were sculpted previously by Falkirk Council when they took over ownership in the late 1990s.</p> <p>The site is currently managed by Falkirk Council through the ranger service and volunteers from the local community council. The ranger service regularly use the site for outdoor education visits with three local primary schools (St. Josephs Primary, Antonine Primary and Bonnybridge Primary) and over events are held here by the local community each year. The site is well used by the local community for dog walking, cycling and people passing through. The route of the John Muir Way passes along the Forth and Clyde canal which is used by a number of tourists every year.</p> <p>The council have this year removed birch and Gorse scrub from across the site and cleared willow from around the ponds. Due to the size of the site there is still plenty of scrub that needs thinned and cleared and this will reduce shading of the species-rich grassland enhancing this at the site. Scrub clearance will be undertaken with the help of local volunteers and TCV through this project. The council have wanted to create a bee bank to provide sandy bare ground for nesting solitary bees, ground beetles and other invertebrates although this has never happened due to a lack of funding. A large bee bank will be created through this project that will cover an area approximately 450m² in size that will provide very important bare ground habitat that has recently been lost at the site through natural succession. The bee bank will be created with the help of TCV, contractors and local volunteers.</p> <p>The value of the brownfield habitat at this site and its urban location all contributes to the overall network of brownfield and open mosaic habitat across Falkirk make this a priority management zone for EcoCo.</p>



Map showing area where scrub will be cleared and where the bee bank is due to be created at Bonnyfield LNR.

3. Ecological coherence assessment

The following section follows the ecological coherence protocol, assessing each of the elements in turn to give a qualitative assessment of the likelihood of significantly improving ecological coherence in the management zone. The ECP GIS tool has been used, along with detailed reports and surveys, partner organisation local knowledge, open data sources and SNH advice.

a) Ecological functionality

Bonnyfield Local Nature Reserve is owned by Falkirk Council. The site was previously agricultural until the 1960s when it was quarried for sands and gravels. Following completion of extraction in the 1980s regrading and remediation works were undertaken over much of the area and ownership of part of the quarry was transferred to Falkirk Council in 1996. Bonnyfield Nature Park was listed as a local wildlife site in 1998 following assessment by the Scottish Wildlife Trust's Central Wildlife Sites Team. It was given Local Nature Reserve status in 2008.

The site is open to the public and is well used by local residents with dogs, family groups and individuals passing through. There are a number of formal paths, as well as informal paths present throughout the site.

There has recently been some work on this large site to maintain the OMH through scrub clearance, planting of native wildflowers and management of the grasslands. This project will remove further scrub to help create bare ground and a bee bank on a south facing bank. Additionally there will be management of areas of scrub, with a focus on Gorse and Broom that are encroaching across the site.

Falkirk Council contracted Buglife to survey Bonnyfield LNR for invertebrates in the summer of 2012. During this survey a total of 223 species of invertebrate were recorded and it was identified that the site was particularly important for flies, butterflies, moth and bees. The UK Biodiversity Action Plan priority species Small heath (*Coenonympha pamphilus*) butterfly, Latticed heath (*Chiasmia clathrata*) (research only) and Shaded broadbar (*Scotopteryx chenopodiata*) (research only) were also recorded. Previously the Narrow-bordered five spot

burnet moth (*Zygaena lonicerae*) has been recorded at the site and this species is on the Scottish Biodiversity list; this species has not been recorded at this site for several years.

Many of the habitats present at this site are priority habitats in Scotland highlighting this sites importance for wildlife. The varied habitats present allow many species to complete their life cycle at the same site. Additionally the site acts as a 'stepping stone' functional connection with other similar sites allowing the moving and mixing of individuals and species across the area.

b) Diversity

There is significant potential to enhance and increase both the biological and structural diversity at Bonnyfield LNR through the removal and thinning of scrub and the creation of bare ground with the bee bank. The threat of succession, with scrub encroaching and forming dense stands will, if left unchecked, lead to a lower diversity and a more uniform habitat. Birch, Broom and Gorse are known to be highly invasive if left unmanaged and are known to decrease overall species and structural diversity. Intervention to remove and control these species will lead to better control in the future and this will significantly increase diversity in the area and ensure that this site remains in good quality. The creation of a bee bank will add a varied structure to the site and increase the available habitat for ground nesting invertebrates as well as a site for species to bask from.

c) Connectivity

Buglife have identified a chain of brownfield sites ("Falkirk Stepping Stones") throughout the Falkirk area that allow species and individuals to move and mix across the area. The EcoCo project is working on some of these including Avonglen quarry and Forge Dam. Bonnyfield LNR makes up one of these sites and allows species to move through and across Falkirk. Acting as a stepping stone these brownfield sites provide a series of vital refugia for invertebrates, especially rare, threatened and declining species. Losing any one site within this chain would reduce the functionality of the whole. This project will help secure the future of this wider landscape biodiversity.

d) Patch size

At 28.7ha, this brownfield site is well over the 0.25ha minimum identified by Buglife as being the lower threshold for restoration for invertebrates.

e) Habitats/species of conservation interest

Bonnyfield LNR is recognised by Falkirk Council as being a key site for supporting wildlife and delivering urban OMH conservation. The site is home to a number of Local Area Biodiversity Action Plan priority species for Falkirk including Common blue butterflies (*Polyommatus icarus*).

The Invertebrate survey carried out by Buglife in March 2013, provides a sound baseline from which to measure invertebrate incidence and population trends.

4. Ecosystem services assessment

Service	Provided in management zone?
Accessible nature	√
Education	√
Green travel	√
Carbon	√
Local climate regulation	√
Air purification	√
Noise regulation	√
Water purification	√
Pollination	√

All nine ecosystem services assessed through the EcoCo project are delivered to some extent at this site with the range of habitats in this mosaic each playing a part. The site's urban location means that it provides significant benefits for accessible nature, education and green travel.

There are several access routes to the site that are well used by the local community for dog walking, cycling, running and for passing through. The Forth and Clyde canal passes along the south of the site which is part of the John Muir Way and used by a number of people every day. The council have run various activities at the site for volunteers as well as for pupils from three primary schools that are nearby (St. Josephs Primary, Antonine Primary and Bonnybridge Primary). This has allowed them to show people the importance of the site for wildlife and how it can be managed and appreciated better. The site is important in helping to store local carbon, purifying air and water and is incredibly important for pollination providing both forage and nesting habitat.

5. Opportunity assessment

Buglife have a good working relationship with Falkirk Council and their ranger service. This allows us to start work on the ground quickly without any need for lengthy discussions with landowners. This will maximise the EcoCo contribution to the project, and deliver the greatest benefits for ecological coherence.

a) Feasibility

Falkirk Council, the landowner, is fully engaged with and supportive of the main aims to remove and thin scrub from this site and to create a bee bank. The target to run five days with The Conservation Volunteers to create the bee bank (alongside volunteers and a contractor) as well as to help with scrub clearance is realistic and achievable. There are an additional 5 days to be planned to run activities such as scrub clearance, bee bank creation and litter picks with volunteers from the local area.

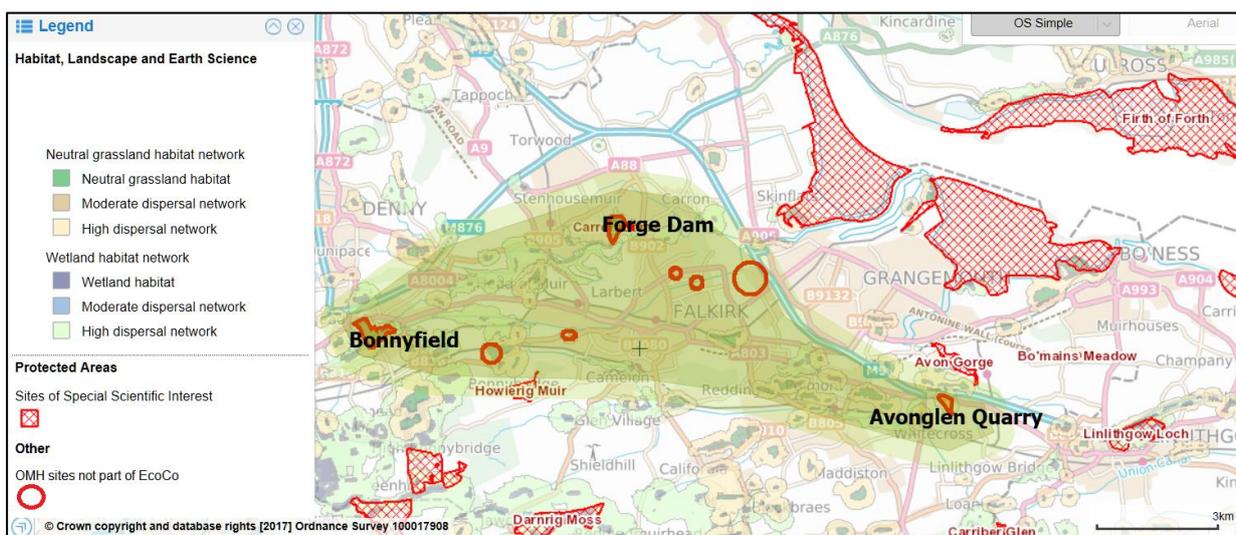
b) Achievability for EcoCo LIFE+

The target to run five days with TCV to remove scrub and create a bee bank as well as the five days with local volunteers is achievable within the time constraints of EcoCo.

c) Sustainability

Falkirk Council Ranger Service regularly visit the site and do ensure that the site is well managed. By removing and thinning scrub from across the site this will help the council keep on top of managing the species-rich grassland that is present. As the council have wanted to add a bee bank to this site for a number of years this project is a secure and worthwhile investment of LIFE+ funds. The continuity of the Falkirk rangers and this site's status as an LNR will help to ensure the longevity and impact of this investment.

Map showing Bonnyfield LNR in the context of the Falkirk Stepping Stones MZ



Outputs (for costings see financial annex)

- Removal and thinning of scrub (mostly birch, Broom and Gorse) by The Conservation Volunteers over five days at Bonnyfield LNR
- Creation of a bee bank that will cover approximately 450m² in size
- Running five habitat creation and management days open to volunteers in the local community that will remove scrub, pick up litter and help with bee bank construction