



Scotland's
National Nature
Reserves

The Management Plan for Glasdrum Wood National Nature Reserve 2013-2023



Small pearl-bordered fritillary

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Foreword

Glasdrum Wood National Nature Reserve (169ha) is on the west coast of Scotland, 27 km north of Oban. This native woodland, mostly ash and oak, occupies the lower slopes of Beinn Churalain, a mountain rising steeply from the sea at Loch Creran. The wood is exceptionally rich in oceanic lichens and bryophytes. It is one of Scotland's best sites for butterflies, especially noted for the population of chequered skipper and pearl bordered fritillary.

Glasdrum Wood is one of a suite of NNRs in Scotland. Scotland's NNRs are special places for nature, where some of the best examples of Scotland's wildlife are managed. Every NNR is carefully managed both for nature and for people, giving visitors the opportunity to experience our rich natural heritage.

[‘The Story of Glasdrum Wood National Nature Reserve’](#) is a companion publication which has more information about Glasdrum Wood NNR and its history. The Story provides the foundation for managing the site and is recommended reading for those wishing to understand more about the management of this very special place.

In 2013, we carried out a [review](#) of our last Plan for Glasdrum Wood NNR (2005-2011). This, together with management plan workshops and specialist advice, was used to develop our future management proposals and inform the preparation of a draft Management Plan for 2014-2024, which we opened for public consultation. We collated your feedback in a Consultation Report which is available from the Kilmory Office and informed the completion of this Management Plan.

The first section of this Plan gives our vision for Glasdrum Wood, describing how we would like to see the reserve in 2030. It specifies our objectives for management and outlines projects planned to deliver these objectives.

During the final year of the plan, we will review our progress against this plan to determine the future direction of our management on the reserve.

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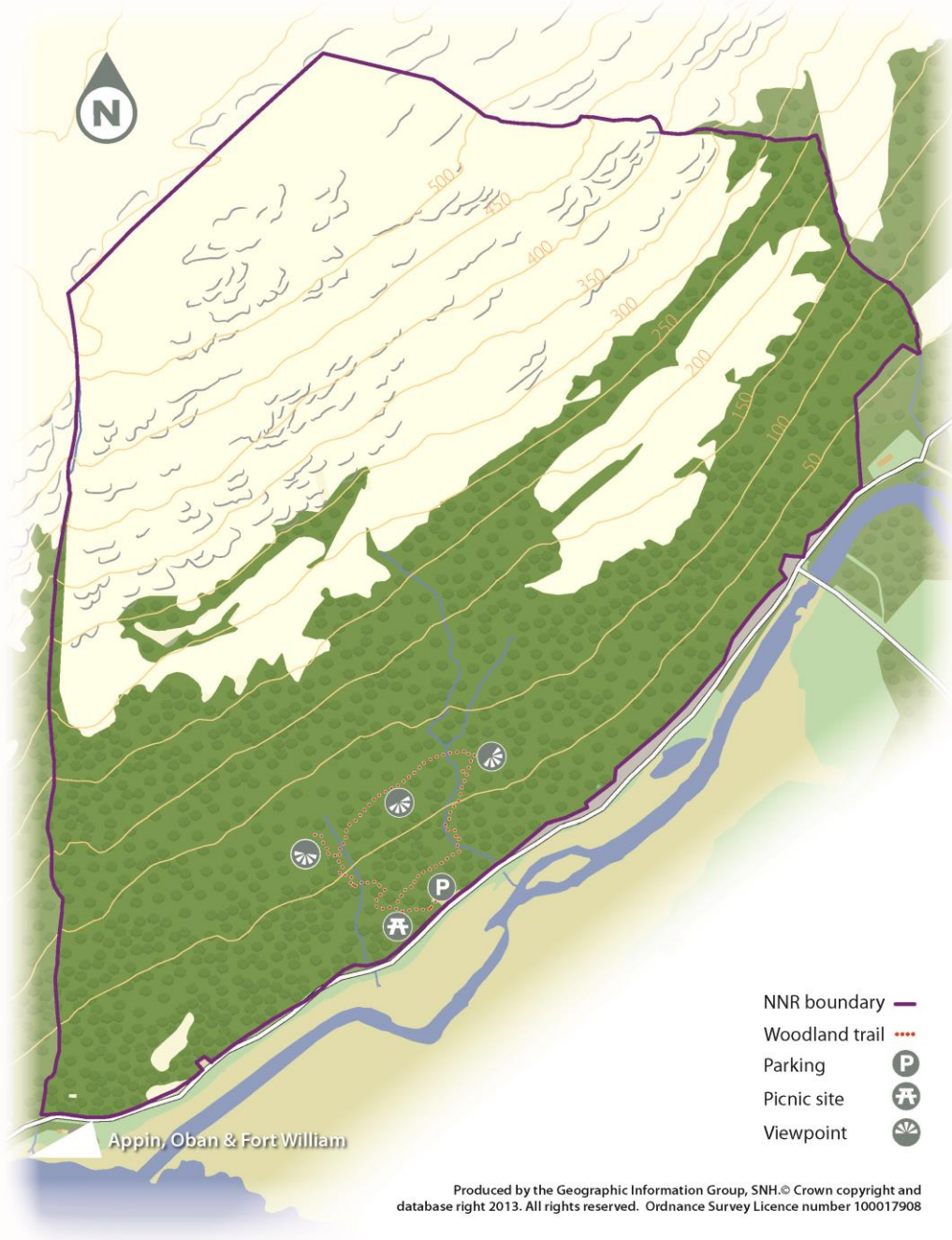
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1 Maps of Glasdrum Wood NNR

Location map



Reserve map



2 Our Vision for Glasdrum Wood NNR

Glasdrum Wood National Nature Reserve is special; the aim is to keep it that way. The Management Plan 2013-2023 sets out our vision for the reserve describing how we would like the reserve to be in 2028. The management we plan to carry out over the next 10 years has been framed with this vision in mind.

Vision

Glasdrum Wood NNR is renowned as a dynamic oak and ash woodland where natural changes in the habitat are allowed to progress as far as possible while allowing us to maintain the NNR's rarest species. The wood is a biodiversity hot spot where management is supporting an internationally important range of lichens and nationally important assemblages of bryophytes and butterflies, as well as several other notable species of plants and insects. This management will be an integrated part of Glen Creran's native woodland, making the NNR an influence on habitat management at the landscape scale.

Pioneering research and our commitment to maintaining long-term datasets has advanced UK wide knowledge on how to meet and balance the habitat requirements of each feature over the long-term. It has also raised awareness and improved our understanding of the effects of climate change on nature. Glasdrum Wood NNR is a key site for demonstrating adaptive management techniques where we have played our part in helping nature to cope with change.

The local community is actively interested in the management of the reserve and values Glasdrum as a beautiful place to visit and enjoy. Visitors to the area will hear about the nature experiences that Glasdrum offers and will enjoy it as a memorable part of their visit to north Argyll.



Glasdrum Wood NNR from Loch Crenan

3 Protected Areas and features

Glasdrum Wood first became an NNR in 1967. The original reserve was small (17ha), it was extended to its present size (168ha) in 1977. The natural heritage interests at Glasdrum Wood have been designated at UK and European level. The reserve forms part of the larger Glen Creran Woods Special Area for Conservation (SAC) that has been designated for its old sessile oakwood and upland ashwood interest. Otters are a qualifying species of the SAC and use the reserve.

At a national level the reserve is part of the Glen Creran Woods Site of Special Scientific Interest (SSSI).

Whilst managing Glasdrum Wood NNR we have to take account of our legal obligations and Government policy to manage the features that are listed as important in a European or international context. This management plan has been appraised accordingly, and where a project listed in the plan is likely to have a significant effect on one or more of the qualifying features of the SAC, we will carry out an 'appropriate assessment'. This includes all projects, whether they are direct habitat management or providing a new visitor facility on the reserve. We will only proceed if they do not adversely affect the integrity of the SAC. Likewise, we will also take account of obligations to manage features that are valued as important in a British context, as well as features that are locally important.

Protected Area	Feature
Glen Creran Woods SSSI	Chequered skipper
Glen Creran Woods SSSI	Pearl-bordered fritillary
Glen Creran Woods SAC	Otter
Glen Creran Woods SSSI	Bryophyte assemblage
Glen Creran Woods SSSI	Lichen assemblage
Glen Creran Woods SAC	Mixed woodland on base-rich soils associated with rocky slopes
Glen Creran Woods SSSI	Upland oak woodland
Glen Creran Woods SAC	Western acidic oak woodland

4 Natural Heritage Management

The Glasdrum Wood NNR Management Plan for 2013-23 seeks to find a balance in the habitat management for three main natural heritage interests, namely woodland habitat, butterflies and lichens. All of these interests have a high level of statutory protection on the NNR and throughout Glen Creran.

Objective NH1: Maintain at least 91ha of woodland in favourable condition, improving the structure classes and tree species diversity whilst maintaining suitable habitat for important woodland communities.

Woodland habitats

In the past, the requirements of the woodland, butterfly and lichen interests have been met by managing areas prioritised for each interest. Recent monitoring has shown that this spatially fixed approach is preventing the underpinning woodland habitats from evolving. This is because the management for butterflies and lichens involves cutting young trees and scrub, which obviously inhibits natural regeneration in these areas of the reserve. Our monitoring shows that deer browsing is also limiting tree regeneration, especially of the more palatable species, so the regeneration that is occurring at Glasdrum is not diverse enough to sustain the reserve's full range of natural heritage interests in the long term. Ash, an important tree for several lichen species, seems to be particularly under-represented. A key conclusion we have reached therefore, is that we need to allow a more dynamic habitat system, with diverse tree regeneration, to establish itself at Glasdrum.

Tasks planned to achieve and inform Objective NH1:

Task No.	Task description
NH1.1	Prepare a deer management plan in 2013 in conjunction with Glen Creran Woods neighbours.
NH1.2	Implement deer management plan.
NH1.3	Establish baseline herbivore impact monitoring in 2013 and repeat monitoring bi-annually to set any necessary deer cull targets.
NH1.4	Establish woodland structure, species diversity and glade extent baselines using aerial stereo imagery, the Native Woodland Survey Scotland and fixed point photography. Repeat monitoring in 2018/19.
NH1.5	Protect sapling ash trees from browsing in open glades with protective tree tubes and maintain the existing small exclosures and tree guards.
NH1.6	Remove all non-native invasive plants (mainly rhododendron, azalea and Japanese Knotweed).
NH1.7	Record signs of ash dieback and instigate remedial management if presence is detected,
NH1.8	Carry out Site Condition Monitoring (SCM) of the woodland features in 2013/14 and 2018/19.

Objective NH2: Maintain the diversity and distribution of lichen species across the reserve, particularly the known populations of the 15 Red Data Book species.

Lichens

The lichen interests need smaller areas of sheltered open ground, sometimes known as micro-glades, where humidity and sunlight are both at relatively high levels. These micro-glades are often created when trees fall over or die to create a gap, but a range of small glade sizes are important as the diversity of lichens on the site have a range of light and humidity requirements.

Tasks planned to achieve and inform Objective NH2:

Task No.	Task description
NH2.1	Continue to maintain positive habitat conditions for priority lichen glades (red data book - RDB) by cutting scrub regrowth.
NH2.2	Map and monitor scrub encroachment in high priority lichen glades by fixed point photography.
NH2.3	Establish lichen monitoring to detect lichen population and distribution changes over time as a result of changes in the woodland structure. Repeat monitoring every 3 years.
NH2.4	Support national contract to carry out SCM for lichen and bryophyte features in 2014/15
NH2.5	Support PhD study on the management of woodland lichens at the ecosystem scale.

Objective NH3: Maintain populations of chequered skipper (>25) and pearl-bordered fritillary (>12) in favourable condition by maintaining high and moderate quality butterfly habitats over at least 13ha (15% of woodland area) of woodland ensuring good distribution throughout the reserve.

Butterflies

The butterfly interests, which include a number of notable species in addition to chequered skippers and pearl-bordered fritillaries, require areas of open ground sheltered by woodland. This provides the butterflies with warm areas for basking and access to food plants for larvae and nectaring sources for adults. Well used butterfly glades tend to be the larger open areas within the woodland.

Tasks planned to achieve and inform Objective NH3:

Task No.	Task description
NH3.1	Map and monitor the extent and condition of high and moderate quality butterfly habitats, including assessment of scrub and bracken cover, abundance of larval food plants and nectar sources.
NH3.2	Extend butterfly monitoring coverage on the reserve with input from volunteers.
NH3.3	Control bracken and scrub encroachment to maintain corridors of open habitat linking core breeding and nectaring areas. Monitor the important areas for pearl-bordered fritillary just above the treeline and undertake scrub cutting if required to maintain habitat condition.
NH3.4	Carry out bracken bruising and quadrat monitoring to inform management.
NH3.5	Undertake SCM for chequered skipper and pearl-bordered fritillary in 2013/14
NH3.6	Continue long-term butterfly and moth population monitoring of chequered skipper, pearl-bordered fritillary, small pearl-bordered fritillary, mountain ringlet, barred tooth-stripe, narrow-bordered bee hawk-moth and <i>Anania funebris</i> annually, providing results to the national Butterfly Monitoring Scheme

Objective NH4: Maintain the biodiversity interest of the reserve and our commitment to long-term monitoring, using this and other monitoring information to carry out adaptive management particularly in relation to climate change.

Adaptive management within the Glen Creran landscape

Glasdrum’s 168ha is contiguous with a further 535ha of woodland and related habitat in the Glen Creran Woods SAC. This adjacent habitat has much of the same woodland composition, geology and aspect as Glasdrum. A number of the same and similar RDB lichen species, as well as chequered skipper, pearl-bordered fritillary, mountain ringlet and other notable butterflies are found in other parts of the Glen Creran woods; so much of what is special about Glasdrum is found across the Glen.

We will therefore seek to inform our management through an ecosystem approach to understanding how the habitat across the rest of Glen Creran is changing over time, so that there are good conditions for each of the woodland, butterfly and lichen interests at any one time. Thus if the glades in another part of the Glen are infilling with regenerating trees, we might consider cutting scrub within the NNR more frequently to maintain an overall proportion of open ground within the Glen. We will also talk to our neighbours about the scope for maintaining glades on their land, using our knowledge of the status of the key habitats and species across the Glen. Monitoring is therefore a fundamental element of our management plan. If we can establish a more closely collaborative approach to habitat management with our neighbours, we will move a long way towards integrated management at a landscape scale.

Tasks planned to achieve and inform Objective NH4:

Task No.	Task description
NH4.1	Use long-term monitoring data to increase our understanding of the impacts of climate change on species.
NH4.2	Use aerial stereo imagery and the PhD study to inform long-term management at a landscape scale across Glen Creran.
NH4.3	Coordinate management in partnership with neighbours to enhance opportunities for species to disperse by reducing fragmentation and ensuring sufficient habitat across the entire Glen Creran Woods.
NH4.4	Ensure SCM report for otter is completed in 2013

5 Management for People (VM)

Objective VM1: Provide a high quality visitor experience for at least 2,800 visitors ensuring that & >85% of visitors asked rate their experience as good or above.

Visitor experience

We want to at least maintain the current level of visitor interest at Glasdrum Wood NNR by ensuring that the facilities are maintained to a high standard and that information about the reserve is fresh and available in a wide variety of formats. We also want to make the most of Glasdrum's unique and special qualities by offering themed guided walks and demonstration events on our habitat management.

Tasks planned to achieve and inform Objective VM1:

Task No.	Task description
VM1.1	Review and upgrade signage and trail markers in 2016.
VM1.2	Provide new Brown tourism sign at Creagan roundabout on the A828 in 2013.
VM1.3	Distribute reserve leaflets to local outlets including Creagan Inn, Sea Life Centre, Castle Stalker Visitor Centre and Tourist Information Centre in Oban.
VM1.4	Use a variety of media to inform people about Glasdrum and provide up to date information.
VM1.5	Review and update information about the reserve on the Scotland's NNRs website every 6 months. Provide downloadable material on butterflies and lichens.
VM1.6	Review and replace NNR leaflet in 2015.
VM1.7	Provide at least one guided walk for targeted groups e.g. "chequered skipper and lichen experience days" annually.
VM1.8	Provide at least 5 demonstration events during the lifetime of the plan showing best practice adaptive management for woodland, lichens and butterflies.
VM1.9	Collate data from people/car counters and update quarterly reporting.
VM1.10	Carry out Visitor survey in 2018 to provide qualitative information on visitor experiences.

Objective VM2: To engage the local communities in Appin and Barcaldine and support volunteering.

Engaging with the community

We aim to invest more time in proactively engaging with the local community and providing opportunities for them to become involved with Glasdrum Wood NNR.

Tasks planned to achieve and inform Objective VM2:

Task No.	Task description
VM2.1	Engage with the local community to identify ways for people to become more involved with the reserve.
VM2.2	Engage 2 local volunteers annually and provide training and financial support.
VM2.3	Provide volunteer opportunities for at least 1 work party per year.
VM2.4	Engage with and utilise local contractors.
VM2.5	Contact Appin and Barcaldine school and support 1 school visit from each per year.
VM2.6	Provide one familiarisation to Glasdrum in April for local accommodation providers. Establish a dialogue that will help us understand what the NNR can offer to local tourism service providers.

6 Property Management

Objective PM1: To manage the reserve property responsibly following best practice.

Tasks planned to achieve and inform Objective PM1:

Task No.	Task description
PM1.1	Maintain the car park, picnic area and trail in good condition for visitors.
PM1.2	Carry out quarterly safety and condition assessments of all visitor infrastructure and keep accurate records.
PM1.3	Replace boundary fence in partnership with Creagan Estate in 2013.
PM1.4	Check boundary and top enclosure fences at least annually and repair as necessary.
PM1.5	Ensure the management of the property conforms with Health & Safety Regulations including risk assessment and fire plan reviews.

7 Summary

The emphasis for management at Glasdrum Wood NNR during the course of this management plan will be addressing the balance required at a landscape scale to keep Glasdrum Wood an international and nationally important woodland and habitat for nationally important lichens and butterfly.

We want to share our monitoring results and our management techniques with land managers, visitors and specialist groups by providing on site information, web based information and delivering site based events.

We would like to achieve all of this with the support and involvement of the local community.

8 Document properties

Photography: Alan Martin, Reserve Manager, Dr David Genney and Heidi Streitberger.

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Links

For information about NNRs and further information about Glasdrum Wood NNR please go visit the [Scotland's National Nature Reserves website](#).

For information on the protected areas associated with Glasdrum Wood NNR please go to the [SNHi website](#).

Other useful links:

Scottish Natural Heritage www.snh.org.uk

Butterfly Conservation Trust www.butterfly-conservation.org.uk

Joint Nature Conservation Committee www.jncc.gov.uk