



Crinan Wood

Management Plan 2020-2025

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THE WOODLAND TRUST

INTRODUCTION

The Trust's corporate aims and management approach guide the management of all the Trust's properties, and are described on Page 4. These determine basic management policies and methods, which apply to all sites unless specifically stated otherwise. Such policies include free public access; keeping local people informed of major proposed work; the retention of old trees and dead wood; and a desire for management to be as unobtrusive as possible. The Trust also has available Policy Statements covering a variety of woodland management issues.

The Trust's management plans are based on the identification of Key Features for the site and setting objectives for their management. A monitoring programme (not included in this plan) ensures that these objectives are met and any necessary management works are carried out.

Any legally confidential or sensitive species information about this site is not included in this version of the plan.

PLAN REVIEW AND UPDATING

The information presented in this Management plan is held in a database which is continuously being amended and updated on our website. Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.

Please either consult The Woodland Trust website www.woodlandtrust.org.uk or contact the Woodland Trust (wopsmail@woodlandtrust.org.uk) to confirm details of the current management programme.

There is a formal review of this plan every 5 years and a summary of monitoring results can be obtained on request.

WOODLAND MANAGEMENT APPROACH

The management of our woods is based on our charitable purposes, and is therefore focused on improving woodland biodiversity and increasing peoples' understanding and enjoyment of woodland.

Our strategic aims are to:

- Protect native woods, trees and their wildlife for the future
- Work with others to create more native woodlands and places rich in trees
- Inspire everyone to enjoy and value woods and trees

All our sites have a management plan which is freely accessible via our website www.woodlandtrust.org.uk. Our woods are managed to the UK Woodland Assurance Standard (UKWAS) and are certified with the Forest Stewardship Council® (FSC®) under licence FSC-C009406 and through independent audit.

In addition to the guidelines below we have specific guidance and policies on issues of woodland management which we review and update from time to time.

We recognise that all woods are different and that the management of our sites should also reflect their local landscape and where appropriate support local projects and initiatives. Guidelines like these provide a necessary overarching framework to guide the management of our sites but such management also requires decisions based on local circumstances and our Site Manager's intimate knowledge of each site.

The following guidelines help to direct our woodland management:

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene when there is evidence that it is necessary to maintain or improve biodiversity and to further the development of more resilient woods and landscapes.
2. We establish new native woodland using both natural regeneration and tree planting, but largely the latter, particularly when there are opportunities for involving people.
3. We provide free public access to woods for quiet, informal recreation and our woods are managed to make them accessible, welcoming and safe.
4. The long term vision for our non-native plantations on ancient woodland sites is to restore them to predominantly native species composition and semi-natural structure, a vision that equally applies to our secondary woods.
5. Existing semi-natural open-ground and freshwater habitats are restored and maintained wherever their management can be sustained and new open ground habitats created where appropriate.
6. The heritage and cultural value of sites is taken into account in our management and, in particular, our ancient trees are retained for as long as possible.
7. Woods can offer the potential to generate income both from the sustainable harvesting of wood products and the delivery of other services. We will therefore consider the potential to generate income from our estate to help support our aims.
8. We work with neighbours, local people, organisations and other stakeholders in developing the management of our woods. We recognise the benefits of local community woodland ownership and management. Where appropriate we allow our woods to be used to support local woodland, conservation, education and access initiatives.

9. We use and offer the estate where appropriate, for the purpose of demonstration, evidence gathering and research associated with the conservation, recreational and sustainable management of woodlands. In particular we will develop and maintain a network of long-term monitoring sites across the estate.
- 10 Any activities we undertake will conform to sustainable forest management principles, be appropriate for the site and will be balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

SUMMARY

This public management plan briefly describes the site, specifically mentions information on public access, sets out the long term policy and lists the Key Features which drive management actions. The Key Features are specific to this site – their significance is outlined together with their long (50 year+) and short (5 year) term objectives. The short term objectives are complemented by a detailed Work Programme for the period of this management plan. Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. A short glossary of technical terms is at the end. The Key Features and general woodland condition of this site are subject to a formal monitoring programme which is maintained in a central database. A summary of monitoring results is available on request.

1.0 SITE DETAILS

Site name:	Crinan Wood
Location:	Crinan
Grid reference:	NR789938, OS 1:50,000 Sheet No. 55
Area:	35.00 hectares (86.49 acres)
Designations:	Ancient Semi Natural Woodland, Ancient Woodland Site, Conservation Area, National Scenic Area, Scheduled Ancient Monument

2.0 SITE DESCRIPTION

2.1 Summary Description

With sweeping vistas across Loch Crinan to the romantic Duntrune Castle and the Argyll coastline, there can hardly be a wood with a more breathtaking outlook. Here, the moist, mild climate has created a temperate rainforest of ancient Atlantic oakwood, dripping with rare fern, moss and lichen, and brimming with wildlife, including the iconic red squirrel. The woods have a long history of occupation, exploitation and management which has resulted in today's rich and diverse woodland habitat of rocky ridges, sunny glades, damp hollows and ancient trees. Crinan Wood is one of our must-see gems.

2.2 Extended Description

Acquired by the Woodland Trust in 1988, Crinan Wood covers 35 hectares situated at the west end of the Crinan Canal, the picturesque village of Crinan lies 25 miles south of Oban in Argyll. Areas of the site incline to nearly 100m above sea level, affording superb views across the Argyll coastline, west to the Isle of Jura and north to the islands of Scarba, Luing, Seil and Mull.

From this vantage point the 12th century Duntrune Castle, the family seat of the Malcolms of Poltalloch can be seen across Crinan Loch, and the roar of the famous Corrieveckan whirlpool can sometimes be heard, when the right combination of tide and wind prevails. Looking south, the flat expanse of the Moine Mhor (a National Nature Reserve) stretches inland towards Dunadd, where the early kings of Scotland were crowned.

The woods at Crinan are part of a wider landscape complex of important Ancient Semi Natural Woodlands (ASNW), Planted Ancient Woodland Sites (PAWS) across the northwest corner of Knapdale including the extensive ancient oakwoods at Taynish National Nature Reserve (8km to the south). It is typical of its surroundings with clear examples of the characteristic ridged landscape that earned this part of Argyll the Norse name of 'Knapdale' – knaps being the ridges and dales the valleys between. The area is underlain mainly by schists, phillites and slates, which give rise to a number of soil types including brown rankers and peaty soil on the ridge tops, stony brown earths on the slopes, and deep brown earths on the valley bottoms.

There are multiple examples of these valleys present at Crinan as well as a larger area of heath vegetation in the South-western corner. The smaller glades within the valley bottoms are a relic of the site's history as a cultivated agricultural landscape (see 'History' below). These glades also provide a valuable habitat for a range of plant and invertebrate species. Whilst, open areas tend to be dominated by bracken, there are also areas of heather, blaeberry and grasses.

Shaped by the warm, wet and windy Gulf Stream climate of the West Coast that has created a temperate rainforest habitat. This is perhaps most clearly represented by the rich and diverse lichen populations. Over 40 different species have been recorded on site, typically found on boulders, birch, hazel and oak throughout the woodland. Tree cover to the west of the site is predominantly birch and the east is dominated by mature oak woodland. Other species include scattered individuals and groups of hazel, ash, rowan, elm, willow, holly and alder. In the southern portion of the site there are some more recent plantings dating from the 19th century, mainly of beech and sycamore. Impressive Phoenix trees, which have fallen, then subsequently regrown, also occur throughout the site and contribute the diversity of the woodland structure.

The woodland composition also supports rich botanical diversity with site records including dog's mercury, climbing corydalis, wood anemone, figwort, bluebells, and bird's nest orchid. Of particular interest are also the various ferns and bryophytes (mosses and liverworts) present, including some which are confined to oceanic climates. There are thirteen species of ferns, three of which are only found on the west coast. Species present include golden scale fern, hay-scented fern, Tunbridge filmy fern and Wilson's filmy fern.

Whilst Crinan has been identified as an example of globally important temperate rainforest habitat, the site also reflects significant environmental challenges that these areas are facing. These include; browsing pressure from deer, presence of invasive species such as *Rhododendron ponticum*, fragmentation, tree disease and climate change. In an attempt to protect these important habitats,

Crinan is incorporated within the 'Saving Scotland's Rainforest' project which is the sum of the work of the Alliance for Scotland's Rainforest (ASR), for which Woodland Trust is a lead partner. This focuses on collaborating with other government and non-government organisations to work together on conservation efforts at a landscape scale across the West Coast of Scotland. The key focus is to protect these woodlands and make them more resilient through increasing their connectivity, reducing threats and raising awareness of their presence and importance. Crinan is thus also known as an 'Atlantic oakwood' (another term for temperate rainforest in western Europe) which is an important UK Biodiversity Action Plan (BAP) habitat, with its own Habitat Action Plan (HAP).

The Argyll and Bute LBAP also includes a number of Species Action Plans which apply to the wood, including wych elm, otter, bats, Pearl Bordered Fritillary and Red Squirrel. Locally, Knapdale was also the hub of the beaver reintroduction programme that began in 2008. The Scottish Government granted a license for the beavers to be introduced into Forestry Commission land close to Crinan Woods as part of a six-year trial. Following its completion in 2014, and corresponding report by Scottish Natural Heritage, the Scottish Government confirmed that current Beaver populations could stay in Scotland in November 2016. Having been extinct from Scotland since the 16th century, this decision marked the first official mammal reintroduction to the UK. The Argyll Beaver & Wildlife Visitor Centre resides approximately 2.5 miles from Crinan.

HISTORY

Crinan Wood is an example of a wooded landscape occupied since prehistoric times, and managed by man for a variety of objectives throughout the centuries. Numerous areas of the site hold archaeological evidence of suspected hillforts and settlement remains are present across the site. These types of physical historical features are typical of woodland sites for the region as they are often found throughout Taynish and Knapdale. Interestingly, however, charcoal hearths have not been recorded on site, suggesting Crinan may have been used and managed differently from neighbouring areas.

On an early military map drawn up by General Roy c.1760, a distinct land use pattern is evident, with woods along the parallel ridges or 'knaps', and open areas in the valley bottoms. The Ordnance Survey 1st Edition six inch map of 1860 shows the detailed mosaic of small, thin fields and wooded ridges that makes up the wood today.

Timothy Pont's survey from c.1590 includes descriptions of an active harbor at Crinan suggesting that naval activity was already an important aspect of this area. Some 200 years later, at the turn of the 18th century, began the construction of the Crinan Canal. This became the main route for ships trading up the west coast from Glasgow, including the Clyde Puffers of 'Para Handy' fame. Although the village below the wood is now peaceful spot - best known to pleasure seekers on foot, bicycle and boat - in the 18th century it supported a thriving industrial works producing acetic acid, probably for the lithographic trade.

The remains of several settlements of 18th-19th century origin can be seen within the woodland. A prominent row of cottages in the middle of the site is known as 'New York', and is thought to have been constructed by the York Building Company, perhaps as accommodation for workers on the Crinan Canal. These are shown as already roofless on the Ordnance Survey map of 1860, but substantial remains survive. Mention of house cows, gardens and potato land in documents and rental rolls of the early 19th century indicates a significant level of agricultural activity.

The wood was acquired as part of a much larger tract by the Malcolms of Poltalloch towards the end of the 18th Century. Estate records from 1791 describe the wood as agricultural; grazed extensively with arable crops grown in the valley bottoms. It is probably around this time that new 'policy woodlands'; predominantly of beech, with sycamore, ash and elm were planted. There are also numerous flat open plains within the woodland that are speculated as relic arable 'terraces', historically used for small-scale low-intensity crop production.

A notable feature of the present day woodland is the presence of many previously coppiced, or occasionally pollarded, veteran oak. These trees survive on the steep uncultivable slopes of the ridges. It is not clear whether they are remnants of an earlier wood pasture system or if they are associated with exploitation on an industrial scale during the 18-19th century. However, the coppice originated, small scale agricultural activities were maintained alongside the managed woodland. At the edge of each ridge the footings of a stone dyke can still be seen, separating the woodland from the valley bottom fields.

From the mid-18th century, coppicing of woodlands became widespread in Argyll to provide the raw materials for a range of industries, including charcoal for iron smelting and bark for tannin. At Crinan the manufacture of acetic acid at the pyroligneous works, established around 1824 and known as the 'Vinegar Factory', would have required large quantities of timber. It may also be significant that the tenant of Kilmahumaig in 1802 was a shoemaker; the leather for his trade would have required oak bark for tanning.

The industrial exploitation of coppice woodland in Scotland had largely ceased by the late 19th century. At the same time there was a marked decline in population associated with emigration, famine and the clearance of tenants to make way for sheep farming. It is probable that the majority of the settlements in Crinan Wood were abandoned around this time, and that the site was given over to grazing.

Whilst the influence of historical human activity is visibly imprinted on Crinan wood, there are significant areas of seemingly undisturbed semi-natural oak woodlands. This is due in large part to the topography of the land with areas of steep rocky outcrops and uneven ground. This contrasts with much of the surrounding landscape of Knapdale, which was heavily influenced by forestry planting schemes during the 20th century, and further emphasises the value of Crinan wood at a regional level (Quelch 2020).

The Forestry Commission purchased the site in 1930, and although much of the surrounding land was afforested, Crinan Wood continued to be grazed until its acquisition by the Woodland Trust in 1988.

The low intensity farming of the past century has maintained the site as a mosaic of open ground and woodland, although natural regeneration and planting activities since 1988 have gradually increased the proportion of woodland cover. A policy of removal of non- native trees (mainly beech) was implemented by the Woodland Trust after acquisition. The exception to this was the mature stand adjacent to the house of Kilmahumaig, which was were retained for its contribution to the cultural landscape and biodiversity value due to being ancient trees.

Looking at the evidence from historical records, as well as the physical evidence from the woodland itself, it seems reasonable to suggest that Crinan Wood is the product of an ancient wood pasture system. Key factors supporting this include the historical records of cultivation and grazing, the presence of many veteran, formerly coppiced or pollarded oaks and the remains of settlements and an extensive field system throughout the site.

Nonetheless, Crinan Wood does not altogether fit the classic picture of a wood pasture, which generally only has a scattering of trees. It might be better described as the product of an intimate mosaic of managed woodland and small scale agriculture. Similar mosaics have been identified at the nearby Taynish National Nature Reserve and further afield at Ardery woods on Loch Sunart and Rassal National Nature Reserve in Wester Ross (Quelch 2008). It is possible that historic land use patterns such as these were once an important component of the cultural landscape of west Scotland. This land use practice is continued today as, small areas of the site continued to the leased for low intensity farming, supporting the local community and maintaining the site's heritage.

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

On foot or by bike: Along the canal towpath from Lochgilphead (10km, including around 1.5km along a minor road, and several road and bridge crossings).

By car: From Oban, follow the A816 towards Lochgilphead for around 30 miles. Turn right onto the B8025 and continue for four miles, then turn right again onto the B841. Follow the road around Crinan Canal to the village of Crinan. There is a car park (capacity of approximately 20 cars) next to the canal basin in Crinan village centre where a meter has recently (2020 been installed and paying charges may apply. Limited parking is available for up to four cars in the British Waterways parking bay at the swing bridge off the B841. Informal parking near the start of the track at Kilmahumaig is reserved for less able visitors. Please avoid blocking access along this track as it is in daily use.

By bus: Crinan village can be reached by bus from Lochgilphead.

By train: The nearest train station is in Oban which connects with Glasgow, although trains are infrequent.

For further information on public transport, contact Traveline on 0871 200 2233 or visit travelinescotland.com.

3.2 Access / Walks

Crinan Wood lies south-east of Crinan village, and is bordered to the north and east by the Crinan canal. There is approximately 2.17km of internal footpath across the site that includes a mixture of gradients and path surfaces and a total of three entrances. This walk can be extended into a 2.5km loop to include the British Waterways tow path that leads to the village. Furthermore, the towpath continues to Lochgilphead 10km to the south and is suitable for all abilities, although it has steep drops from the banks.

The north western entrance can be accessed just east of the Crinan canal basin just past the lock. A waymarker can be found on the right-hand side which travels up the slope towards the Woodland Trust welcome and information board. This path continues through compartment 1a. This section of the path does involve steep sections, including small stone steps and one area with a stone drainage ditch that crosses the path with a gap of less than 1m that must be stepped over. On reaching the higher ground, there are two viewpoints facing west and north.

On the opposite side of the site, the wood can be accessed from the canal towpath to the east, next to a swing bridge off the B841 Cairnbaan-Crinan road (1km south of the village). The initial section of the path here involves some large steep stone steps with the aid of a thick rope handrail. As the path travels through compartment 9a there are three viewpoints with arguably the most specular being on top of the remains of the old hillfort which allows for stunning panoramic views.

Although much of the path is laid with large stone, there are multiple areas that have a soft surface, which may be wet and muddy, and there are steep sections and steps, which may limit access for some visitors. Wear sturdy footwear, such as walking boots.

Due to the steep and rocky terrain, the majority of the site requires good levels of mobility. However, from the south of the site there is a track at Kilmahumaig on the B841 shortly before Crinan village. This tarmac surface offers easier pedestrian and disabled access into the woodland, leading from south to north in the middle of the site which can enable access to some areas avoiding the more strenuous conditions.

4.0 LONG TERM POLICY

Crinan Wood is one of a number of scattered ancient woodland fragments in this area. It will act as a reservoir of ancient woodland species, which can colonise adjacent plantations and PAWS woodlands as site conditions become suitable.

Within the site, it is planned to maintain a mixed habitat mosaic of woodland and open ground, while preserving and extending the rainforest component and the ecological communities it supports, particularly lichens and lower plants. The woodland cover will be encouraged to expand into selected open compartments, particularly the formerly wooded heathland in compartment 3. In the long-term, there is also potential to plant parts of compartment 6 that is currently let for grazing.

Over the whole site it is estimated that approximately 68% is currently wooded and 32% is open ground (including the fields in compartment 6a which are 7% of the site). It is expected that in the medium to long term (+50 years) woodland cover will increase to 75% or more. The matrix of open ground and woodland will be allowed to develop naturally as young trees establish and mature trees senesce and/or blow over.

Bracken levels will be reduced through the use of manual control to allow for natural regeneration, successful enrichment planting and continued visibility of archaeological features. Levels of this species may remain high across the site as there will be no chemical control. This is part of a wider conservation policy to reduce the use of pesticides as well as protecting sensitive fern species in the wood and ancient soils.

The woodland will continue to provide a place of quiet enjoyment, with links to the surrounding path network. Paths and viewpoints within the site will be maintained in their present form as natural beaten earth and stone pitched paths.

5.0 KEY FEATURES

The Key Features of the site are identified and described below. They encapsulate what is important about the site. The short and long-term objectives are stated and any management necessary to maintain and improve the Key Feature.

5.1 Mixed Habitat Mosaic

Description

The habitat mosaic of Crinan wood is made up of several distinct components arranged in an irregular pattern of small and large patches. The topography reflects the wider landscape of Knapdale, consisting of linear ridges and valleys running parallel to each other. The ridges contain oak, birch and hazel with minor amounts of elm, rowan, alder, willow and ash. The valleys are of a more open character with bracken dominant.

The wood is biologically important as the diverse habitat composition supports 112 species of vascular plants. These include; primrose, violet, wood sorrel, foxglove, yellow iris, red campion, dog's mercury, bluebell, tormentil, sheep's sorrel, heather, blaeberry, juncus and wood rush. Crinan is also a significant site for its 40 species of lichen and 13 species of ferns including hay-scented fern, Tunbridge filmy fern and Wilson's filmy fern.

Overall, approximately 23.65 ha of the site are covered by woodland and approximately 18.8ha of this is considered to be ancient woodland. The remaining areas of woodland are a combination of mature policy woodlands, predominantly non-native broadleaves (approximately 1ha), natural regeneration and mixed broadleaves (mainly seedlings raised from local seed) planted since 1988. The other 11.35ha of the site is currently open ground mostly distributed across compartments 3a, 4a, 5a, 6a, 8a and 9a.

Although gradually becoming wooded on the outskirts, compartment 3a is predominantly a mix of open heathland and wetland, including a small section of open water. Previously this compartment was dominated by large patches of bracken interspersed with frequent areas of coarse and soft grasses. Whilst bracken remains present in this compartment, currently (2020) there is a good mix of heathland species with heather, mosses, blaeberry and tormentil are becoming more established. Other species found here include, bluebells, foxgloves, sheep's sorrel and juncus around the small lochan and in the wetter areas.

Whilst the majority of compartment 4a is also open space, this area has been managed very differently due to variations in ground conditions and land use. The center of this compartment has a tarmac track running through providing access to the residential properties to the north and south. The west of this track is mix of young trees and bracken dominated areas. To the rear of Kilmahumaig cottage there is a section approximately 0.3ha that is maintained as a mown glade.

The original intention for this space and its management was to allow for public enjoyment, wildflowers and butterfly interest. However, as this section is damp throughout the year, reeds rather than wildflowers thrive here at present and it is not suitable for any type of active recreational use.

Compartments 5a and 8a are thought to have been formerly cultivated or grazed areas situated in valley bottoms now predominantly open areas are dominated by soft grasses and bracken. Meanwhile, compartment 6a holds approximately 2.5ha of improved grassland that is currently let for local grazing of sheep. There is no other information regarding ground flora in these compartments.

Due to the high proportion of woodland cover in compartment 9a, ground flora is dominated by woodland specialists. In open glades and on the summit at Dun Mor to the south east of the compartment, however, bracken is the prevailing species. Nevertheless, there is diversity throughout the compartment with bluebells, tormentil, primrose, wood sorrel, dog's mercury, soft grasses, blaeberry and heather. Furthermore, there are important western Atlantic fern species in the north of this area.

Bracken has consistently remained an issue for this site due to the large open spaces providing perfect opportunity for it to spread vigorously. In the past, previous efforts at controlled have included the use of Asulam. However, going forward bracken control will avoid the use of chemicals to prevent damage to non-target species. From 2007-2014, a low-intensity cattle grazing trial was undertaken to reduce bracken dominance and increase habitat diversity through the development of herb rich grassy patches and regeneration of native trees in compartment 3a. The effectiveness of this may have been constrained by a lack of precise information on appropriate stocking regimes and the preference of cattle to forage in more palatable grassland. Further constraints were the availability of cattle for grazing the site in the appropriate numbers and at the right time as well as the damage to growing trees by browsing and the need for adequate fencing. As mentioned above, compartment 3a is currently (2020) inhabited with a mix of heathland species as well as natural regeneration gradually moving into the compartment. Whether this is a result direct result of the trial it is difficult to ascertain. Due to the various practicalities and constraints involved, no further trials are planned. Current bracken control is low-intensity management through annually 'bashing' back of stems as part of the Estate Maintenance Contract (EMC) for the site.

Significance

The mosaic of woodland with different unimproved and semi improved open ground habitats in an intimate mosaic has created a very biodiverse area. A large area of semi-natural woodland in a mosaic with other open ground habitats is likely to be more stable and resilient to climate change than the individual patches of ancient woodland. The maintenance and enhancement of this mixed habitat mosaic supports the Trusts objectives to restore and improve the biodiversity of woods and increase the area of native woodland.

Crinan wood is part of the ASR 'Saving Scotland's Rainforest project' which is a high priority for the

Woodland Trust. The Atlantic oakwood/rainforest component is an important Biodiversity Action Plan (BAP) habitat, with its own Habitat Action Plan (HAP). The Argyll Local Biodiversity Action Plan (LBAP) also includes Species Action Plans (SAP) for a range of species present on the site, including wych elm, otter, bats, Pearl Bordered Fritillary and Red squirrel.

Opportunities & Constraints

Dense bracken hinders the success tree regeneration, spread of woodland specialist flora as well diversity.

Chemicals cannot be used to control the significant and dominant spread of bracken due to sensitive species on site and the need to protect ancient soils.

Opportunity to allow for rushes and reeds to thrive in currently damp mown area of compartment 4a to allow for biodiversity and wetland habitat for the benefit of birds and invertebrates.

Opportunity to conduct a flora assessment in spring/summer to gain better understanding of species present across the site, particularly in areas with limited records such as 5a, 6a and 8a.

Factors Causing Change

Grazing by deer plays a part in maintaining the habitat mosaic. At high levels, however, deer impact limits natural regeneration and causes damage to young, and even well-established trees.

Natural regeneration is occurring in open areas and may successfully establish to increase woodland cover on currently open compartments.

Long term Objective (50 years+)

There will be a diversity of semi-natural woodland and non-woodland habitats across the site, providing a high biodiversity potential, and retaining the cultural interest of the historic wood pasture landscape.

The proportion of woodland cover over open ground will be gradually increasing, however it is expected that at least approximately 20% open ground habitat will remain within the mosaic.

Bracken will remain on site as it is important habitat in itself for species such as the Pearl Bordered Fritillary (an LBAP priority species). However, control methods will be utilised to reduce its density and prevent further spread of this species becoming dominant in more open areas.

Short term management Objectives for the plan period (5 years)

Manage open ground to achieve a balance of habitats by:

- 1) Map and survey ground flora to review the value of the open ground habitat across the site (2021)

- i) record species found particularly in areas with limited records such as 5a, 6a and 8a
 - ii) identify areas where ground is to be left open due to current floristic diversity rather than planted or for natural regen to be encouraged
- 2) Continue to lease compartment 6a for grazing, maintaining this area of open ground and traditional usage of the site (2020-2025)
- 3) Control the spread and dominance of bracken to allow for biodiversity and natural regeneration:
- i) Map the presence and density of bracken across the site and identify suitable areas for removal considering the potential benefit and practicalities regarding ground conditions (2020)
 - ii) Liaise with other conservation organisations and landowners regarding control methods (2020/2021)
 - iii) Trial different control methods in different compartments to monitor effectiveness (2021-2024)
 - iv) Review density prior to next management plan review (2025)
- 4) Reassess management practices of mown area in compartment 4a to allow for rewilding:
- i) Cease mowing and analyse natural composition of the area without intervention (2021)
 - ii) Consider the planting of native water-tolerant species such as willow and alder (2022)
- 5) Assess the condition of open ground at the end of the plan period to ensure tree cover does not establish on more than 10% of the current open ground (2025)

5.2 Ancient Semi Natural Woodland

Description

The site is considered a temperate rainforest which encompasses approximately 18ha of ancient woodland, supporting many old coppiced or pollarded specimens and a rich woodland ground flora and diverse lichen and lower plant communities.

Each compartment has an area of designated ASNW to varying extents, with the majority covering compartments 1a and 9a, which supports ecologically diverse lower plant communities characteristic of rainforest compositions.

Compartment 1a has approximately 3.9ha of ASNW with the majority in the north of the compartment and a smaller area in the south. Birch and hazel are dominant species here with oak, rowan and the occasional holly is also present. Woodland specialists are dominant in the ground flora of this compartment with soft grasses, ferns, blaeberry, woodrush and bluebells with occasional bracken becoming frequent in open areas. There is also important western Atlantic fern found here.

Although compartment 2a is smaller the majority of the compartment is woodland considered to be ASNW predominantly formed of birch, rowan and oak as well as hazel with occasional beech regeneration coming through. Woodland specialists are dominant in the ground flora of in this compartment with woodrush, bluebells and tormentil as well as soft grasses and blaeberry in the upper areas.

Whilst the majority of compartment 3a is open, heath/wetland habitat, approximately 0.9ha of ASNW located on the western boundary of the compartment. Furthermore, natural regeneration is gradually beginning to establish throughout the area due, at least in part, to good population of birch, rowan and willow on the outskirts acting as a seed source. Previous management practices in this area may have also contributed to seed dispersal through the introduction of cattle during the grazing trail and the attempts at a number of small scarification plots 2001 to create a suitable seedbed conditions.

Likewise, compartments 4a, 5a, 6a and 8a have approximately 2ha of ASNW distributed between them amongst their open ground structures. Oak, birch and hazel are found across these compartments with willow and hawthorn also being found in compartment 4a. Previous planting in compartments 4a and 5a have resulted in some oaks and hazels becoming established but the ash have not developed. This may be in part due to Ash Die Back (ADB) disease and for this reason this species will not be planted anywhere on site for the foreseeable future. Whilst there is some potential for regeneration and enrichment planting in areas the majority of the land in these compartments is likely to be retained as open ground.

Whilst compartment 7a has more woodland cover only approximately 0.5ha is thought to be ASNW

compromising of the south eastern side of this compartment. This area is considered to be mature policy planting dominated by beech and the occasional sycamore rather than native species found across the site. Despite the significant shading by these mature beech and high levels of bracken, there is some native species present including ash, birch rowan and hazel. Furthermore, woodland specialist flora is present such as soft grasses, foxgloves, bluebells and ferns. Although beech is not native to this site, these mature individuals provide an important habitat for nesting birds and will continue to support biodiversity as they decline, providing essential large diameter standing and deadwood habitat.

The site as a whole is possibly ancient wood pasture with significant numbers of veteran and sub-veteran coppiced or pollarded trees. The majority of these features are found within compartment 9a which holds approximately 10.73ha of ASNW covering the vast majority of this compartment. Oak is the dominant species here with multiple specular specimens of veteran trees beside the path. Most notable perhaps is the phoenix tree in the north west of the compartment near the 'New York' ruins. Cherry and alder are also established in some areas of 9a and other native species appear to be regenerating well here including oak, birch, hazel, ash and occasional elm. The open space on the remains of the hillfort in 9a has resulted in trees being highly exposed to strong winds and salt damage from the surrounding coastal air as well as being dominated by bracken. Despite this, regeneration of birch, hawthorn, willow and hazel are developing and managing to get well established on the outskirts of this area. However, beech regeneration is also present across this compartment potentially threatening the native species here due to its dense shade.

Due in large part to the Ancient Semi-Natural Woodland combined with the significant amount of open ground, Crinan wood supports a rich variety of species including, but are not limited to, Red squirrels and badgers. A bird census in 1990 also confirmed 24 species of breeding bird inhabit the wood, including, buzzard, tree pipit, redstart, tree creeper, wood warbler, willow warbler, siskin and blue, great, long tailed and coal tit. Barn owls are also known to nest on the site and osprey may also be seen fishing nearby.

One of the main characteristics that sets rainforest apart from other woodlands in Scotland is the rich, and diverse lichen and bryophyte flora communities. Crinan is a perfect example of this which numerous species covering trees trunks and boulders throughout the woodland. This includes many western oceanic species such as *Lepidozia cupressina* and the 'ancient woodland indicator' liverwort *Adelanthus decipiens*. Furthermore, several *Lobarion* lichens and the uncommon oceanic liverworts *Plagiochila exigua* and *Cololejeunea minutissima* can also be found here. The majority of records present species associated with base rich bark trees in old woodland landscapes as well as a few specialists of acid barked trees in oceanic locations. However, there are only minimal records for the oceanic smooth barked communities which are characteristic of rainforest habitats and those associated with veteran trees. This suggests that further surveying is required as these distinctive groups may be present on site but are yet to be formally recorded.

There is also evidence of invasive species on site, particularly within the eastern area of compartment

9a. multiple small patches of *Rhododendron ponticum* were found in 2020 near the swing bridge entrance and a small area of yellow archangel is present in a gully next to the road at the South East corner. The presence of these species here is thought to be the result of garden tipping. There is also a small isolated of *Rhododendron* within compartment 3a near a few individual mature conifers which are beginning to regenerate.

Significance

The ASNW at Crinan is part of an important complex of ASNW, PAWS and plantation forest in northwest Knapdale. It has the potential to contribute to the restoration of a functional woodland ecosystem in this area by acting as a reservoir of ASNW components.

Crinan Wood is regionally important as a semi-natural woodland site that was not subject to forestry planting during the 20th Century.

The presence of veteran coppiced oaks provides a reservoir of ancient woodland species to pass on to future veterans within the wood.

The association of veteran trees with archaeological remains is of significant historical interest, and has a cultural value as a record of land use patterns.

Temperate rainforest is an important habitat which supports internationally important assemblages of lichen, bryophytes and lower plant ecological communities.

Opportunities & Constraints

Opportunities

There are multiple suitable areas for enrichment planting efforts across the site.

With a significant number of mature native species there is a natural abundant seed source on site that can be harness for enrichment planting efforts.

Potential to remove beech and other non-native regeneration by hand allowing for areas to be opened up gradually allow for natural regeneration over quick colonisation from bracken.

Being part of the Alliance for Scotland's Rainforest includes partnership working with organisations such as Plantlife, the British Lichen Society and the British Bryological society which can provide well informed advice regarding lower plant life communities on site.

Constraints

Dominant mature Beech is currently preventing natural regeneration of native trees and woodland specialist flora, particularly in compartment 7a.

Deer browsing and dense bracken may limit successful tree regeneration and planted trees however it may benefit lichen species that thrive in more open areas- any management will have to balance these opposing factors.

Geological and archaeological features result in very rocky ground that is difficult to plant into or have steep slopes/ cliffs which are too dangerous to work on restricting the ability for enrichment planting in some areas.

Presence of Yellow arch angel is a concern as removal of this invasive species is difficult especially without the use of chemical as in this case.

Factors Causing Change

Deer browsing, bracken establishment and beech dominance in some areas all contribute to potentially suppressing natural regeneration

Current footpath is damaging the root-plate of at least one phoenix tree causing damage from compaction.

Ash die back (Chalara) is present on site- the current minimal density of this species across the woodland on this site it is unlikely to result in a noticeable impact in the short-term, some veteran ash remain which may be negatively affected by the disease.

Senescence of the mature beech in compartment 7a will eventually lead to a gradual, natural opening to the canopy allowing space and resources for regeneration.

Rhododendron ponticum has been identified on site for the first time in 2020. If this is not removed this invasive species could spread at the detriment to natural regeneration, woodland specialist flora and overall biodiversity across the site.

The small patch of yellow archangel found in the South East corner of compartment 9a and to the east of Rhuaglach cottage could potentially spread further into the woodland and compete with ancient woodland flora species.

Himalayan Balsam was noted to be present nearby bordering the carpark of the Crinan canal basin which could result in this invasive species also spreading into the site in the long-term.

Japanese Knotweed has also been recorded along the canal outside of the Woodland Trust boundary which could result in this invasive species also spreading into the site in the long-term.

At a regional level, Forestry and Land Scotland are conducting long-term significant restoration

works within Knapdale. This will contribute to connectivity of semi-natural woodlands to neighbouring areas of Crinan and in-turn improve biodiversity on a landscape scale (Quelch 2020).

Long term Objective (50 years+)

Ancient Woodland flora will be secure within the woodland compartments of the site and expanding into areas where tree cover is increasing.

Veteran and mature trees will be protected via the use of halo thinning and path diversions where necessary, practical and appropriate.

Whilst allowing for at least 20% of the site to remain as open ground, woodland cover will gradually expand through predominantly natural regeneration and through use of enrichment planting where required.

The woodland composition will be dominated by native species across all compartments and invasive species will be removed without the use of chemicals.

Ensure rainforest communities of lichens and lower plants are maintained and enhanced.

Short term management Objectives for the plan period (5 years)

Overall the woodland is currently (2020) in a secure condition thus no other silvicultural intervention is required to maintain woodland cover for the duration of this management plan.

Rather the focus of the STOs for the ASNW will be to improve biodiversity and connectivity on the site through the following objectives:

- 1) Allow for woodland expansion, up to a total of 75% for the whole site, to create greater connectivity of existing ancient woodland and allow more naturalized woodland edges:
 - a) Identify and map suitable areas for natural regeneration to be encouraged in open ground and for future planting efforts (2020)
 - i) Natural succession will be left undisturbed in compartment 8a other than for safety and access works (ongoing)
 - ii) Rewilding will be encouraged in compartment 4a in areas previously maintained (2021 onwards)
 - b) Identify areas to control the bracken, identifying and protecting existing natural regeneration through manual techniques (ongoing)
 - c) Consider enrichment planting with native species where natural regeneration is unlikely to develop in areas such as:
 - i) Compartment 3a where colonising species such as birch are establishing on the open ground but areas could also benefit from Oak or Aspen planting (2022/2023)

- ii) Compartment 7a where beech is dominant and other species are unlikely to compete (2023/2024)
- 2) Safeguard rainforest associative species and native ancient ground flora:
- (a) Conduct an ecological assessment on lichens, moss, bryophytes and lower plant communities to identify current species present and potential for variety to inform decisions regarding suitable planting species and locations and grazing management (2021)
 - (b) Identify areas where gradual regeneration will be encouraged to support lichen's requirement for open areas as well as other trees within reach to spread (2021)
 - i) Allow hazel to mature as an important lichen habitat rather than coppiced (ongoing)
 - (c) work towards the eradication of invasive species:
 - i) Map and photo monitor current known areas of Yellow archangel and Rhododendron Ponticum present on site (2020)
 - i) Remove as part of EMC if practical and realistic (2021)
 - ii) Inspect this area annually for any signs of regrowth and remove as required (2022-2025)
- 3) Monitor impact of deer population considering both tree regeneration and lichen communities:
- a) Liaise with Forestry and Land Scotland regarding neighboring deer control approach (2020-2025)
 - b) Conduct thermal imagery survey to provide information on species, density and distribution across the site (2021)
 - c) Annual Herbivore Impact Assessment (HIA) to assess overall browsing impact (2021-2025)
 - d) Formulate a Deer Management Plan for the site to run in conjunction with the site management plan, informed by the information gathered through the surveys (2021)
 - e) Organise for deer numbers to be managed if excessive damage is recorded and control is considered practical and achievable (as required)

5.3 Connecting people with woods and trees

Description

Crinan Wood lies south-east of Crinan village, and is bordered to the north and east by the Crinan canal. It is a part of the Knapdale national scenic area (NSA) and is highly visible from long distances, especially from the north and west (Crinan and the sound of Jura) and the north and east (Dunadd and the Moine Mhor).

The site is used regularly by the small local population (less than 100 people) is experiencing increasing levels of use over time and is particularly busy during the summer months as a destination for tourists to the area.

The footpath was originally created in 1993 by Woodland Trust, in partnership with NatureScot (formerly known as SNH) and British Waterways, to allow a circular walk from the basin, through the wood and back along the canal tow path. This has been maintained as the main woodland path interlinks with surrounding walks as it forms 2.5km loop starting from Crinan village. There is also the option to continue towards Lochgilphead, 10km to the south, linking the wood with other popular walking/biking routes.

There is approximately 2.17km of internal footpath across the site that includes a mixture of gradients and path surfaces. There are three entrances to the site located at the north west, east and south of the woodland. Each entrance has a welcome board and nearby information panel about the woodland and the paths include waymarkers throughout. The north western and eastern entrances involve traversing through steep sections of path including stone steps and one area with stone drainage ditches that crosses the path, some with a gap of less than 1m that must be stepped over.

The paths from these two entrances lead to the five viewpoints across the site providing stunning views to the north and the south from the higher ground. On a clear day, Duntrune Castle can be seen across the water to the north, the islands of Jura and Scarba to the west as well as the sand flats to the east. Previously, there were metal/wood sculptures in compartment 1a, a wooden 'solstice'/stone circle sculpture in compartment 4a and a 'boat' sculpture at one of the viewpoints above the canal in compartment 9a. These installations had to be removed due to general dilapidation. Currently (2020), there are dedication posts and benches at the viewpoints allowing opportunities for peaceful reflection.

Although much of the path is laid with large stone, there are multiple areas that have a soft surface, which may be wet and muddy, and there are steep sections and steps, which may limit access for some visitors. Nevertheless, the southern entrance leads to a tarmac track that provides access to residential properties on either side of the site. This surfaced path offers easier access for pedestrians and those of lower-mobility into the woodland, leading up towards the 'New York ruins' whilst avoiding the more strenuous conditions.

There is no Woodland Trust-owned car park for this site. However, close by there is the Crinan Sea Lock car park, with spaces for approximately 20 cars, only a few minutes' walk from the north western entrance to the woodland. A parking meter has recently (2020) been installed and paying charges may apply. There are also public facilities and businesses including a coffee shop and hotel in this area.

Year-round visitors can see an impressive array of beautifully unusual lichen and bryophytes that hang from the spectacularly contorted veteran trees. They may also be lucky enough to catch a glimpse of the resident red squirrels that inhabit the woodland, especially in autumn when they are foraging for hazelnuts and berries on the surrounding trees.

There is a volunteer Woodland Warden that covers this site providing reports on any issues as well as collecting local seeds for replanting on specific areas of the site as specified by the Site Manager.

Significance

The path network is well-used by local people and visitors. The current level of public usage is defined as WT access category A (High: Regularly used at all times of year, more than 15-20 people per day using main entrances). The provision of access supports the Trust's objective of 'Increasing people's awareness and enjoyment of woods'. Although the resident population is not large, Crinan receives a significant number of visitors, many of whom arrive by boat on their way through the Crinan canal.

Crinan wood provides welcoming access for visitors who may not feel comfortable crossing rugged countryside without paths or signposting.

Links with the external path & waterway network allow the wood to be accessed from some distance without a car.

Opportunities & Constraints

There are opportunities for working with other organisations such as British Waterways, Forestry and Land Scotland, Visit Scotland and local community groups to develop joined up access provision, interpretation and management. This includes keeping open the circular walk from Crinan through the wood and back to Crinan along the canal towpath that requires crossing the canal swing bridge. There is the opportunity to develop this further to help direct visitors from the canal basin car park to the north western entrance of the woodland.

Re-routing paths to protect the base of veteran trees will enable a diversion that naturally takes visitors past the New York ruins and could provide a more logical route through the site.

The steep and rugged terrain makes the site difficult to access for some people and although there are many spectacular viewpoints on the Argyll coast, few have established access provision.

The topography of the area complicates the ability to work on the footpaths and get materials on to site.

The remote location of the site restricts ability for regular group volunteering sessions and events on site

Factors Causing Change

Compaction is placing excessive pressure on the root systems of veteran trees causing damage and requires the path to be rerouted in some areas.

Long term Objective (50 years+)

The site will provide an extensive area of quiet informal recreation to a wide range of users both from the local community and from further afield.

There will be a network of unsurfaced paths suited to active, able users and the network will continue to link into the surrounding path network.

Short term management Objectives for the plan period (5 years)

During this plan period, the short term objective is to continue to provide access provision in keeping with WT access guidelines and site access coding (A) for Crinan wood achieved by:

- (i) Provide a friendly and informative welcome for visitors through:
 - 1) Ongoing provision of a site leaflet, available at local businesses and local tourist offices (2020-2025).
 - 2) installation of new weather-resistant metal leaflet holders at entrances (2021)
 - 3) Installation of new welcome plaques at entrances (2022)
 - 4) Installation of new welcome signage directing from canal basin car park to north western entrance (2023-2024)

- (ii) Path and infrastructure maintenance including:
 - 1) Ensuring that all managed paths are kept well-drained and free from encroaching vegetation as part of the EMC including two path cuts a year where required (2021-2025)
 - 2) ensuring that both key viewpoints are maintained free of encroaching vegetation by annual cutting by EMC contract (2021-2025)
 - 3) Renewal of two benches on site by key viewpoints (2021)
 - 4) carry out regular safety inspections (as per site risk assessment)

- 5) cut pedestrian gap into fallen ash tree in compartment 8a to reinstate access on original path route (2021)
- 6) Re-direct path leading from western side of compartment 9a into compartment 5a towards the New York ruins to allow for a more direct route and avoid compaction on veteran trees and root plates (2021-2022)
- 7) Upgrade way-markers with new arrows and relocate these as well as finger posts to provide more appropriate directions for visitors across the site consider any need for diversions such as above (2024-2025)

(iii) Develop community and volunteering opportunities by:

- 1) Recruiting an Engagement volunteer to interacting with the local groups to inform visitors and the community of the site's significance and work of the Woodland Trust across Scotland and the rest of the UK (2021)
- 2) Develop communications with local groups and organization to share knowledge and open up opportunities for collaboration such as the Argyll and the Isles Coast and Countryside Trust (2021)
- 3) Hold a community activity day including citizen science surveying, bracken control and measuring the New York Ruins (2022)

5.4 Historic Features

Description

Despite the fact that this is an ancient woodland site, large areas have been traditionally left open throughout history. This was particularly true of the shallow valleys on the site which are illustrated as unwooded on the Roy map of 1747-55. The evidence suggests that the site as a whole is a relic of ancient wood pasture with significant numbers of veteran and sub-veteran coppiced or pollarded trees, areas of open ground which have been formerly grazed or cultivated, and associated archaeological features including dykes and former settlements.

In the south eastern corner of the site, in compartment 9a, there is an area of open ground marked 'Dun' on the map referring to a hillfort believed to be of possible iron age origin. Due to its oval-shape it is thought to be a roundhouse type structure under 10m in diameter.

Elsewhere in compartment 9a, towards the center of the site, a circular stone feature is embedded at the highest point on site known as 'Dun Mor'. This area remains open providing excellent panoramic views but examination of remains are hindered by extensive bracken. The deliberate features and prime visibility provided by its location, suggest this area was at one time also a hillfort. However, the origin and archaeological value are yet to be officially determined.

A small section of the Banks of the Crinan Canal sits within the northern boundary of compartment 9a. This area is protected as part of the 'Crinan Canal, Crinan to Cairnbaan' Scheduled Monument. Described as a 'feat of Georgian Engineering', the Crinan canal was carved through rough terrain to provide as a link between the Crinan and Glip lochs, avoiding harsh sea conditions around the Mull of Kintyre. Despite being built over 210 years ago, it continues to be used regularly and has undergone only minimal changes typically limited to minor required upgrades.

In compartment 5a there is a substantial row of ruined dwellings in the North of the compartment which lies close to Rhuaglach cottage. The extended design of these buildings (measuring 6m x 58m in overall length) is considered 'unusual' for the region and believed that the buildings may have been added upon overtime possibly to include animal holdings. This settlement is known as 'New York', possibly named after the York Building company for the workers that may have lived there, and perhaps associated with the building of the Crinan Canal. The buildings have degraded over time with maps from the 1860s already showing this settlement as open ruins. Currently the remains stand approximately 1m to 1.5m high and provide a rough idea of the linear layout of the buildings. The stone itself is home to numerous lichen species which would also be worth surveying.

Similarly, in compartment 1a, away from the path, there is a small deserted settlement with two ruined buildings north west of Rhuaglach Cottage. Taking up an area of over 200m squared, once again, the structure seems atypical in its complexity and is thought to have been altered over time. It is likely there was an agricultural element to the use of this dwelling as what is thought to be a

lambing pen is found towards the western side.

In compartment 8a, East of Dun Mor, hidden in the bracken and surrounded by steep ground, more unusual remains have been discovered. Covering approximately 40m across, over various levels, this circular cluster of remains is composed of several steep-floored structures and remnants of a 'courtyard' lined by a drystone wall to the west. Features such as a possible chimney breast, solid square-shaped mounds and drainage also appear to be present in this area, possibly indicative of 'a strongly defended single-storey house' with surrounding 'lower level annexes' potentially representing 'a medieval re-use of a circular homestead'.

Drystone dykes can be found throughout the site, perhaps the most notable being located in compartment 7a which dates back to the 1800s as it once lined the former entrance way to Kilmahumaig house and is still largely intact.

Beyond the built structures, the landforms and species present also reflect historical land-use. It is believed that the mosaic of the landscape itself is of 'great antiquity' potentially of prehistoric origin (Quelch 2008). For example, there is a clear dominance of birch woodland to the west and oak woodland to the east of the sites suggesting the historical management practices varied from either side of the site. Furthermore, presence of numerous flat open plains within the woodland, particularly in compartments 1a, 5a and 9a, seem to represent relic arable 'terraces', historically used for small-scale low-intensity crop production.

Significance

The site has significant historic and prehistoric interest with archaeological evidence from the Iron Age, and relict features of earlier agricultural and industrial land uses.

The historic landscape is of significant local and regional value as a record of human occupation and land use.

The physical remains of settlements and structures have biodiversity value of their own and this should be left undisturbed where possible/appropriate.

Opportunities & Constraints

Constraints:

The proximity of the canal restrictions tree regeneration. As a scheduled monument, conscious effort should be made to avoid damage to this area through tree rooting and/failure.

The New York ruins are almost at ground level for the most part and are easily obscured by vegetation.

Some of the other recorded archeological features are overgrown or located in steep areas and not

visible to the public.

Any removal of mature trees of regeneration on the historical features could result in damage to the structures.

Opportunities:

There is an opportunity to make them more of an interesting feature by strimming around them to make them more visible and interpreting them through the information board within this compartment.

There is opportunity to include the stone of historic features within any ecological surveying to establish which species are present on these formations and how they can be protected.

Whilst bracken obscures the visibility of some of the historic structures and colonises the open ground, it also ensures they are left open and discourages regeneration in these areas. This will need to be taken into account when considering bracken control measures.

Factors Causing Change

Trees and bracken may obscure the evidence of the historic landscape and damage archaeological remains.

Long term Objective (50 years+)

Evidence of previous human settlement and occupation will contribute to the attractiveness and interest of the site.

Archaeological remains at New York, Dun Mor and the iron age fort site in the South East corner of the wood will not be adversely affected by woody growth.

The historic use of the site will remain discernable with open ground around the former New York settlement.

The mosaic of historic arable land and woodland pasture is an intrinsic part of the historic cultural landscape of Crinan and should be protected to the same extent as the woodland itself.

Short term management Objectives for the plan period (5 years)

- 1) Keep structures visible and secure:
 - a) Liaise with Scottish Canals regarding monitoring the regeneration of woodland on the southern embankment of the Crinan Canal to ensure any impacts on the monuments stability are minimized (2021 onwards)

- b) Bracken and other vegetation on top and around the New York settlement will be strimmed annually as part of the EMC (2021-2025)
 - c) These archaeological areas will be deliberately avoided when conducting enrichment planting on the site to preserve the integrity of the structures as well as the view points
- 2) Retain the historical landscape features:
- a) Suspend any further planting in compartment 5a and preserved as open space as this is the clearest example of the historic cultural landscape (2021 onwards)
 - b) Identify and map 'terraced' areas on site that should be left unwooded (2021)
- 3) Develop better understanding of the structures and the site's history:
- a) communications with local historical and archaeological societies in order to generate better and foster further interest in the site and its history (2020-2021)



APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	4.81	Birch (downy/silver)	1940	High forest	Archaeological features, No/poor vehicular access to the site	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, Conservation Area, National Scenic Area
<p>A knap of mature and semi-mature downy birch, hazel and oak with occasional rowan and rare holly. The steep ridge sides support a number of old coppiced oaks. There is a wet area in the center with frequent willow. Woodland specialists are dominant in the ground flora with soft grasses, ferns, blaeberry, woodrush and bluebells with occasional bracken becoming frequent in open areas. There are important western Atlantic fern species in the north of this compartment. The entrance from Crinan is in the north west corner of the compartment. There is a deserted settlement with two ruined buildings close to Rhuaglach Cottage. The majority of this compartment is ASNW at approximately 3.9 hectares.</p>							
2a	0.88	Birch (downy/silver)	1900	High forest	No/poor vehicular access to the site, Services & wayleaves, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, National Scenic Area
<p>Mixed broadleaves on steep slopes; dominant downy birch, with frequent rowan and oak and occasional hazel. Occasional mature and regenerating beech is present towards the south of this compartment. Woodland specialists are dominant in the ground flora of in this compartment with woodrush, bluebells and tormentil. Soft grasses and blaeberry in the upper areas. Most of this compartment is designated ASNW at approximately 0.53 hectares. There is also a small electric services building located to the south west of this compartment at the base of the open glade.</p>							
3a	4.13	NULL		Non-wood habitat	No/poor vehicular access to the site, Services & wayleaves	Informal Public Access, Mixed Habitat	Ancient Semi Natural Woodland,

						Mosaic	National Scenic Area
<p>Area of open ground with frequent large patches of dominant bracken interspersed with frequent areas of coarse and soft grasses. Bluebells, foxgloves, tormentil, sheep's sorrel, heather and blaeberry are frequent, and there is an area of juncus around a small lochan. Occasional scattered oak and birch, becoming frequent by the track in the South East of the compartment alongside a group of planted ash, and oak seedlings raised from local seed. A small patch of Guelder rose is also present in this compartment. Bracken has been controlled previously with Asulam, and a number of small areas were scarified c.2001 to create a suitable seedbed conditions. Regeneration in this compartment was subject to persistent, dense bracken and a thick vegetation mat, and to browsing by deer. To manage this, periodic grazing by Highland cattle was introduced Dec 2007- Dec 2014, with the objective of reducing bracken vigor and breaking up vegetation mats. Regeneration of birch and willow is beginning to develop in the more open areas. A small part of this compartment along the Western edge is designated ASNW approximately 0.9 hectares. There are also a few mature conifers in this compartment a small patch of Rhododendron Ponticum towards the south of this compartment. Old dykes remain largely intact throughout this compartment.</p>							
4a	1.74	Beech	1920	Non-wood habitat		Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, National Scenic Area
<p>Open grassy area alongside the main access track. Occasional scattered oak, birch, willow, guelder rose, hawthorn and hazel throughout. A grassy space to the rear of Kilmahumaig is currently maintained as a mown glade for public enjoyment but this management will be altered from 2021 onwards to allow for rewilding. A small portion in the center of this compartment is designated ASNW, approximately 0.58 hectares</p>							
5a	4.04	NULL		Non-wood habitat	Archaeological features	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, National Scenic Area
<p>'New York Hollow' - a shallow, linear valley between the higher 'knaps'. Mainly open ground with dominant bracken in the north end. An area in the center of the compartment has been progressively planted up with locally raised tree seedlings since 1988. Towards the South of the</p>							

compartment there is occasional birch regeneration. A new grass path was established through the area in 2006. There is a substantial row of ruined dwellings in the north of the compartment, this settlement is known as 'New York', possibly named after the York Building company, and perhaps associated with the building of the Crinan Canal. Patches of wood sage are found by these remains. The Roy map of 1747-55 indicates that the shallow valleys on the site were unwooded; and it is likely that they were grazed as part of a wood pasture system. There are small sections of this compartment that are designated as ASNW totaling approximately 0.61 hectares.

6a	2.42	other oak spp	1900	High forest	Services & wayleaves	Informal Public Access, Mixed Habitat Mosaic	National Scenic Area
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Open fields of improved grassland, which are rented out for grazing. The western field is an important element within the local landscape. There are small areas of ASNW designations on the boundaries of these compartments totaling approximately 0.08 hectares.

7a	0.70	Beech		High forest	No/poor vehicular access to the site	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, National Scenic Area
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Stand of mature beech, elm and sycamore with beech maintaining dominance. Occasional ash, oak, downy birch, rowan and hazel, becoming frequent in the south of the compartment. Frequent beech and sycamore regeneration. Woodland specialist flora of soft grasses, foxgloves, bluebells and ferns rare under mature exotic trees, but found elsewhere despite dominant bracken. A notable Ash and a notable Beech have been recorded for the Ancient Tree Hunt in this compartment. A former vegetable garden converted to a tree nursery bed is situated behind Kilmahumaig cottages. It is no longer in cultivation. The South East half of this compartment is designated ASNW, totaling approximately 0.5hectares. The present stand of mature trees originated as 19th Century policy plantings along the former driveway to Kilmahumaig house. A dyke which enclosed the planted area is still partially intact.

8a	1.72	Open ground		Wood establishment	No/poor vehicular access to the site, Services & wayleaves	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, National Scenic Area
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Open glade in valley bottom dominated by bracken with scattered hazel, oak and birch. Likely to have been grazed as part of former wood pasture system this area is now naturally regenerating gradually into a more open woodland structure. Approximately 0.97 ha of this compartment is designated as ASNW covering the majority of the north and south of this compartment leaving a small open area in the center.

9a	14.56	other oak spp		High forest	Archaeological features, No/poor vehicular access to the site, Services & wayleaves, Very steep slope/cliff/quarry/mine shafts/sink holes etc	Informal Public Access, Mixed Habitat Mosaic	Ancient Semi Natural Woodland, Conservation Area, National Scenic Area, Scheduled Ancient Monument
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A large compartment of semi mature to mature mixed woodland clothing three out of the four knaps that run North East to South West, and falling steeply down to the canal side to the North and East. Abundant oak, some coppiced, and Downy birch with frequent Hazel and Rowan and occasional Cherry, Elm and Ash. A small area of wet Alder woodland is also present in the north and Beech and sycamore are found to the south bordering 6a and 7a. Two veteran oaks have been recorded for the Ancient Tree hunt in this compartment. Woodland specialists are dominant in the ground flora except in open glades and on the summit at Dun Mor. They include bluebells, tormentil, primrose, wood sorrel and dog's mercury. There are important western Atlantic fern species in the north of this compartment and bird's nest orchid present to the west. Occasional areas of dominant bracken in open glades towards the South East. There is an area of open ground 'Dun Mor' with bracken, soft grasses and heather on the ridge top in the west of the compartment, possibly the site of an iron age fort. Excellent panoramic views are obtained from this area. A path with steep sections and some stone pitching runs through this compartment from Kilmahumaig and Crinan village to a parking area by the swing bridge on the canal to the East. A viewpoint on the North end of the ridge overlooks 'New York' and looks out to sea. There is second viewpoint on East facing the slope above the canal. In the extreme South East corner of the compartment there is a steep sided knoll surmounted by an Iron Age dun. Almost the whole of this compartment is designated as ASNW, totaling approximately 10.73 hectares. This compartment also encompasses part of the Banks of Crinan Canal Scheduled Monument.

GLOSSARY

Ancient Woodland

Ancient woods are defined as those where there has been continuous woodland cover since at least 1600 AD. In Scotland ancient woods are defined strictly as sites shown as semi-natural woodland on the 'Roy' maps (a military survey carried out in 1750 AD, which is the best source of historical map evidence) and as woodland all subsequent maps. However, they have been combined with long-established woods of semi-natural origin (originating from between 1750 and 1860) into a single category of Ancient Semi-Natural Woodland to take account of uncertainties in their identification. Ancient woods include Ancient Semi-Natural Woodland and plantations on Ancient Woodland Sites (see below). May support many species that are only found in ancient woodland.

Ancient Semi - Natural Woodland

Stands in ancient woods defined as those consisting predominantly of native trees and shrubs that have not obviously been planted, which have arisen from natural regeneration or coppice regrowth.

Ancient Woodland Site

Stands in ancient woods that have been converted to plantations, of coniferous, broadleaved or mixed species, usually for timber production, including plantations of native species planted so closely together that any semi-natural elements of the understorey have been suppressed.

Beating Up

Replacing any newly planted trees that have died in the first few years after planting.

Broadleaf

A tree having broad leaves (such as oak) rather than needles found on conifers (such as Scots pine).

Canopy

The uppermost layer of vegetation in a woodland, or the upper foliage and branches of an individual tree.

Clearfell

Felling of all trees within a defined area.

Compartment

Permanent management division of a woodland, usually defined on site by permanent features such as roads. See Sub-compartments.

Conifer

A tree having needles, rather than broadleaves, and typically bearing cones.

Continuous Cover forestry

A term used for managing woods to ensure that there are groups or individual trees of different ages scattered over the whole wood and that some mature tree cover is always maintained. Management is by repeated thinning and no large areas are ever completely felled all at once.

Coppice

Trees which are cut back to ground levels at regular intervals (3-25 years).

Exotic (non-native) Species

Species originating from other countries (or other parts of the UK) that have been introduced by humans, deliberately or accidentally.

Field Layer

Layer of small, non-woody herbaceous plants such as bluebells.

Group Fell

The felling of a small group of trees, often to promote natural regeneration or allow planting.

Long Term Retention

Discrete groups of trees (or in some cases single trees) that are retained significantly past their economic felling age. Operations may still be carried out within them and thinning is often necessary to maintain stability.

Minimum Intervention

Areas where no operations (such as thinning) will take place other than to protect public safety or possibly to control invasive exotic species.

Mixed Woodland

Woodland made up of broadleaved and coniferous trees.

National vegetation classification (NVC)

A classification scheme that allows an area of vegetation to be assigned to the standardised type that best matches the combination of plant species that it contains. All woodlands in the UK can be described as being one of 18 main woodland types (W1 - W18), which principally reflect soil and climatic conditions. For example, Upland Oakwoods are type W11, and normally occur on well drained infertile soils in the cooler and wetter north and west of Britain. Each main type can be subdivided into numerous subtypes. Most real woods contain more than one type or sub-type and inevitably some woods are intermediate in character and can't be properly described by any sub type.

Native Species

Species that arrived in Britain without human assistance.

Natural Regeneration

Naturally grown trees from seeds falling from mature trees. Also regeneration from coppicing and suckering.

Origin & Provenance

The provenance of a tree or seed is the place where seed was collected to grow the tree or plant. The origin is the geographical location within the natural range of a species from where seeds/tree originally derives. Thus an acorn collected from a Turkey oak in Edinburgh would have an Edinburgh provenance and a southern European origin.

Re-Stocking

Re-planting an area of woodland, after it has been felled.

Shrub Layer

Formed by woody plants 1-10m tall.

Silviculture

The growing and care of trees in woodlands.

Stand

Trees of one type or species, grouped together within a woodland.

Sub-Compartment

Temporary management division of a compartment, which may change between management plan periods.

Thinning

The felling of a proportion of individual trees within a given area. The remaining trees grow to fill in the space created.

Tubex or Grow or Tuley Tubes

Tubes placed over newly planted trees or natural regeneration that promote growth and provide protection from animals such as rabbits and deer.

Weeding

The control of vegetation immediately around newly planted trees or natural regeneration to promote tree growth until they become established. Either by hand cutting or with carefully selected weed killers such as glyphosate.

Windblow/Windthrow

Trees or groups of trees blown over (usually uprooted) by strong winds and gales.

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