Woodland Trust Internal Management Plan

Ledmore & Migdale
(Plan period – 2025 to 2030)

WOODLAND
TRUST

Management of the Woodland Trust Estate

The following principles provide an overarching framework to guide the management of all our sites but we recognise that all woods are different and that their management also needs to reflect their local landscape, history and where appropriate support local projects and initiatives.

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene in our woods when there is evidence that it is necessary to maintain or improve biodiversity, safety and to further the development of more resilient woods and landscapes.

2. We establish new native woodland for all the positive reasons set out in our Conservation Principles, preferably using natural regeneration but often by planting trees, 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. Where possible, we pro-actively engage with people to help them appreciate the value of woods and trees.

4. The long term vision for all our 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 natural and cultural heritage value of sites is taken into account in our management and in particular, our ancient trees are retained for as long as possible.

7. Land and woods can generate income both from the sustainable harvesting of wood products and the delivery of other services. We therefore consider the appropriateness of opportunities 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 encourage our woods to be used for 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. We maintain a network of sites for long-term monitoring and trials leading to reductions in plastics and pesticides.

10. Any activities we undertake are in line with our wider Conservation Principles, conform to sustainable forest management practices, are appropriate for the site and balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

Management Plan Content Page

Item

Maps

1.0 Site Details

Location:	Spinningdale, Bonar Bridge Grid reference: NH661904 OS 1:50,000 Sheet No. 21
Area:	692.98 hectares (1714.44 acres)
External Designations:	Ancient Semi Natural Woodland, National Conservation Review site, National Scenic Area, Scheduled Ancient Monument, Site of Special Scientific Interest, Special Area of Conservation
Internal Designations:	Ancient Woodland Restoration Project

2.0 Site Description

Introduction
Ledmore and Migdale Woods lie around the small village of Spinningdale, within the Dornoch Firth National Scenic Area. A network of more than 12km of paths allows visitors to explore the woods, which stretch across three distinct and craggy hills, commanding outstanding views of the surrounding landscape. The site is the most northerly of the Trust's woodlands, and also one of its largest, extending to nearly 700ha.

Ledmore and Migdale is of national interest for nature conservation, encompassing three Sites of Special Scientific interest (SSSIs): Ledmore Oakwood (95ha) Migdale pinewood (144ha) and Spinningdale Bog (29ha). Ledmore Oakwood is also designated as a Special Area of Conservation (SAC). The site is a mosaic of woodland with open ground, which provides a highly diverse range of habitats.

Migdale Pinewood is one of the most northerly pinewoods in Scotland. It supports a remarkable range of 'ancient pinewood indicator' invertebrates, lichens and plant species, which suggest continuity with the post glacial Caledonian Pine Forest. Historical records, however, indicate that much of the site was planted with larch and Scots pine in the 18th and 19th centuries.

Ledmore oakwood is an Ancient Semi Natural Woodland (ASNW) and is recorded in historic documents as far back as 1628. As a resource of valuable timber close to a navigable waterway, it has been much exploited over the centuries.

Out-with the two woodland Sites of Special Scientific Interest, the forest is dominated by birch, with a lesser proportion of pine, much of has regenerated since WWII when the Canadian Forestry Corp felled large swathes for the war effort.

The underlying bedrock is granite, and the soils are largely acid in nature. In some areas, notably Migdale Rock, the granite contains veins of alkaline minerals (epidode and calcite) which have created conditions suitable for some rare and specialised lime loving plants.

The woods are rich in biodiversity with a vast array of plant, insect, bird and animal life including otter, pine marten, osprey, peregrine, and black grouse. The woodland understory provides a habitat for a number of rare flowers, such as the creeping ladies tresses orchid. On an even smaller scale there is a rich insect life, including the fascinating Slavemaker Ant, and a variety of lichens, many of which are rare outside ancient woodland habitats. The security and sympathetic management of the site has permitted two translocations to replace lost species – twinflower and red squirrel. This has allowed the pinewood to recover as a more intact habitat.

Ledmore and Migdale Woods are important for the contribution they make to the network of woodland habitats which stretches across the southeastern corner of Sutherland. This network is diverse in character and includes key ancient semi natural woodlands - such as Gearrchoille oak wood at Ardgay, Amat Pinewood at the head of Strathcarron, the Mound Alderwoods near Golspie and the birch woods of Easter Fearn as well as numerous scattered fragments. The area also supports large areas of commercial conifer woodland, including a number of former ancient woodland sites, which have been replanted with commercial conifer crops, mostly in the last century.

3.0 Long term policy

The long-term vision for Ledmore & Migdale is that it will be a mosaic of ancient and semi-natural woodland and open ground habitats, valued regionally and nationally for its outstanding landscape, rich biodiversity and engaging history. It will be used as a learning and recreational resource for local communities and schools, and visitors will understand and appreciate the site in its historic and landscape context.

Dynamic processes of natural succession will be taking their course across the site, resulting in evolving compositions, locations and densities of woodland cover and open spaces. Up to 20% of the site may be open ground habitats at any one time, however a minimum of 10% of the site will be permanently retained as open ground, including valley mire habitat and historic features. Ancient woodland components will be secure, and the populations of key rare or threatened species, including the rock cinquefoil Potentilla rupestris will remain viable.

A limited range of management interventions will focus on significant opportunities or threats relating to the biodiversity of the site. Thinning of planted ancient woodland areas will have created a varied stand structure, thus supporting the survival of and colonisation by specialist woodland flora and fauna, and promoting long-term stand stability. Invasive non-native species will have, as far as possible been eliminated. Spinningdale Bog will be managed to retain a succession of habitats from open water to wet woodland. Deer impact will be monitored, and management will be undertaken to maintain browsing levels within acceptable limits.

4.0 Key Features

4.1 f1 Ancient Woodland Site

Description

From 2020, the key features 'Ancient Semi Natural Woodland (ASNW)' and 'Plantation on Ancient Woodland Sites (PAWS)' have been brought into this single key feature. This is to bring the PAWS objectives into line with internal PAWS guidance, to simplify the Management Plan reducing the number of key features, and to reduce duplication of objectives and information across key features.

The earliest available map evidence of woodland on the site is the Roy map of c1760, on which only Ledmore Oakwoods are identifiable. The Burnett and Scott map, surveyed 1831-32, shows what appears to be mixed plantation forest extending from Ledmore Oakwood (compartment 7) over the top of A' Chraisg and down to Spinningdale Bog (compartments 6, 8, 9, 10). Other woodland appears as small patches of broadleaved trees, likely to be of semi-natural origin; this is marked on the lower south west slope of Migdale Rock, wrapping round the eastern end of the rock, and on the lower slopes of Creag a' Bhealaich to the north of Migdale Rock (sub compartments 3e, 3d, 3c, 3i, 3j, 2a, 2b). The OS 1st edition map c.1860 shows woodland extending over the whole of the present day site, the only exceptions being Spinningdale bog, the summit of Migdale Rock, and a few farmstead fields.

By far the most significant part of the ancient woodland component is Ledmore Oakwood SSSI/ SAC(compartment 7). Within the Ancient Woodland Inventory (AWI) this is classed as 1a. This area of 72.19ha is dominated by hybrid oak Q petraea x robur = Q. rosaceae. The first known direct reference to Ledmore Wood is in a charter of 1628 of the lands of Creich which refers to the 'wood and pasture of Leadmore'. By the 18th Century, the oakwoods were being systematically coppiced to produce bark to make tannin, which was used to cure leather. Another small area of ASNW oakwood lies on the north shore of Loch Migdale (sub compartment 3e, AWI classification 2a) and is also known to have been coppiced in the 18th century. A third fragment of oakwood lies within the Fairy Glen (sub compartment 1h) and is classed as Long Established Woodland of Plantation Origin (AWI classification 2b).

There is a possibility that the present day Ledmore Oakwood may have been planted in the mid-19th century after the felling of a previous coppice oak stand. However, it may have originated as single coppice from trees of semi-natural origin or earlier planting. Lichens found in the oakwood indicate long term continuity of woodland. In contrast, the oaks in the small stand by Loch Migdale have been left to grown as multi-stemmed trees after the last coppicing, and this stand exhibits greater species variety with frequent Scots pine, aspen and juniper.

Ledmore & Migdale was extensively planted with larch and Scots pine, starting in the late 18th century, reaching a peak in the mid-19th century (Historical Records, Bangor-Jones 2014). Local memory is of a landscape dominated by huge pines when the Canadian loggers arrived during WWII to fell timber for the war effort (Matheson 2014). This suggests that at least some of it was still on its first rotation. Much of the plantation origin PAWS was included in the major harvesting operation during WWII.

Migdale Pinewood SSSI (compartment 3) is one of the most northerly pinewoods in Britain. Parts of the woods were planted around 1870 but some areas, in particular on and around the steep rocky slopes of Migdale Rock, may have developed naturally. On the southern slope of Migdale Rock, all age classes of pine are represented, and extensive areas of juniper form an understorey, principally in the scree belt. A significant number of ancient pinewood indicators are present amongst the vascular plant, lichen and invertebrate populations throughout Migdale Pinewoods. This suggests that either the ancient pinewoods relic may be of greater extent than recorded, or that site conditions and past management have allowed these species to survive and re-colonise more successfully than would be expected elsewhere.

A total of 270.76ha of the site is classed as ASNW through the Ancient Woodland Inventory (AWI) meaning that woodland has been present since at least 1860 and, in the case of Ledmore Oakwood, at least 1750. Of this, 95.82ha remains as ASNW, with the remaining 174.94ha designated as PAWS. Outwith the AWI areas, there are three further areas of woodland that appear on the c1860 Ordnance Survey 1st edition maps:

• The first area is across much of the northern aspect of A'Chraisg (sub compartment 6a) and stretching to an area of around 86ha. This is featured on the Burnett and Scott map (1831 to 1832) in addition to the OS 1st edition map and appears to have plantation banks on the west side that correspond with current evidence on the ground. The area is remembered as being mature Scots pine and is likely to have been planted as part of the 19th century planting so could fairly be classed as LEPO but there is no evidence to suggest PAWS (2b). The 1940 estate forestry maps show the area as felled or about to be felled mature woodland, and available for planting

transferring the area from 'growing mature' to 'cleared ground'. Adjacent areas were planted to the west shortly after 1940, and to the east in the 1970's. Much of the 86ha is regenerating with Scots pine and birch and has areas of wet upland heath that may retain open woodland characteristics. The ground flora is largely indicative of a long period of openness and wet heath with few woodland plants and woody evidence in banks.

• The second area is the large uniform birch stand between the Fairy Glen road and the Achue road (much of the mid part of sub compartment 1a and almost the entirety of 1c to 1g) and covers 116ha. This area is shown as woodland on the Ordnance Survey 1st edition map and, as with the above, was clear felled in the early 1940's and is shown on the estate maps as such. As with the above, the area is remembered as being mature Scots pine and is likely to have been planted as part of the 19th century planting so could also fairly be classed as LEPO (AWI classification 2b). Plantation banks can be found in sub compartments 1d and 1e. The 1969 forestry map shows the area as unstocked woodland, apart from a small area of sub compartment 1e that was under planted. This area to the north of the Allt nan Eun and east of the track shows little evidence of this supplementary planting and appears not to have any difference to adjacent woodland on the ground. Indeed, this is slightly more open. It could be considered that the small area in 1e is therefore PAWS, but the evidence on the ground suggests that this under planting largely failed. Ground flora suggests an open canopy woodland for a considerable period of time with open wet heath areas showing no sign of woodland cover.

• The third area is across the middle of the face of Creag a' Bhealaich (sub compartments 2a to 2d) and totals 23ha. Woodland along the lower slopes of this area in sub compartments 2a and 2b are shown on the Burnett and Scott map and is shown to have spread further up Creag a' Bhealaich to the southeast of the Allt Coire nan Cuorach on the OS 1st edition map. Parts of this are shown on the AWI, with part remaining outwith the PAWS zone. It is thought this area was part of the large-scale 19th century plantings and largely felled during the 1940's. Estate planting maps show dense supplementary planting here by 1969 and the area (particularly 2a) shows this Scots pine crop well. A fire in the 1980's damaged much of this young crop, leaving the site a scattered pine woodland with bracken heavily encroaching. Given the long evidence of woodland on site and subsequent planting, it is appropriate for this 23ha to be considered PAWS of semi natural origin (AWI classification 2a). There is ancient woodland indicator ground flora through this area including chickweed wintergreen, primrose, dog violet, and wood sorrel.

Given these additions, the total area of the site that can be considered to be ASNW stands at 495.76ha. The majority of this (319.8ha) is considered to be Long Established Woodland of Plantation Origin (AWI classification 2b). Ancient woodland from 1860 (AWI classification 2a) represents 103.77ha. Ledmore Oakwood (AWI classification 1a) found on maps from 1750 covers 72.19ha.

Currently, the PAWS zones are Scots pine dominated, although it seems likely that at least the south facing slopes of Migdale Rock and Creag a' Bhealaich would formerly have been more diverse with a significant or dominant broadleaf component. Only occasional non-native conifer species survive from former plantations, including fewer than ten European larch(sub compartment 3c), a single specimen Douglas fir in Ledmore oakwood (sub compartment 7f), around 100 Lodgepole pine in sub compartment 8c, and scattered young Norway spruce regenerating throughout 9a and 9b.

Of the 16 PAWS zones, nine are classed as secure, an increase of two from 2020. The remaining zones are classed as threatened due to non-native conifers, coarse vegetation, and invasive plants. One zone is classed as critical due to woodland loss (zone 11) from historic felling and fire.

Ground flora under existing canopy is dominated by blaeberry and heather, with greater or lesser diversity of ancient woodland indicator flora including pinewood specialists creeping ladies tresses, lesser twayblade, and recently translocated twinflower. The ground flora is notably more diverse in the PAWS areas of semi-natural origin and where there are base rich influences.

Where the Scots pine is well-spaced with a secure woodland specialist ground flora, it can be described as Secure Ancient Woodland Site (SAWS), although it remains somewhat of a pine monoculture. These areas continue to be monitored for change and sensitive interventions are recommended in this plan where relevant. In other areas there are dense, un-thinned stands of Scots pine with birch, which have developed from planting or natural regeneration. Finally, there are some areas where limited regeneration has occurred after wind blow, fire or felling in the past 30-80 years, and where bracken has become well-established.

Significance

The large areas of ASNW within Ledmore & Migdale woods and the extensive buffering by other woodlands of semi natural origin to the east and west, means that there is a robust core area and high potential for future continuity of habitats on this site.

Management and maintenance of the ASNW component on the site contributes to meeting the Woodland Trust objective of 'No further loss of ancient woodland'.

Restoration of PAWS represents the only opportunity to increase the area of ancient woodland with semi-natural characteristics.

A healthy restored PAWS resource at Ledmore & Migdale will connect the fragmented ancient woodland components and ensure that the whole site operates as a functional ecosystem.
The Woodland Trust is committed to restoring all non-native conifer PAWS type woodland to Secure AWS (SAWS) in its ownership and to ensure the continuing survival and, where possible, enhancement of the ancient woodland components.

Opportunities & Constraints

Opportunities
Ledmore Oakwood:
The oakwood is even aged and is showing few signs of recruitment from seedling regeneration, which may result in gaps in the recruitment of future veteran trees and a potential associated decline in ancient woodland species. There is the opportunity to diversify the age structure by:
• Favouring oak in the existing exclosures (7g).
• Providing the opportunity for oak planted at the west end of oakwood (7b) in 2003 to grow beyond browse height.
• Ensure planted oak in 8b continue to thrive without competition.
• Where there is good recruitment of other broadleaves, such as rowan and birch, demonstrating reduced browsing impacts and sufficient light, to supplement this with oak, and protect through small scale exclosures.

Pinewood:
The pinewood component across the whole site has a varied structure and has been expanding and diversifying through natural regeneration and restoration of the PAWS zones. This is providing an opportunity for ancient woodland species to expand their range from the core ASNW areas. As this has become more robust, it has provided the opportunity to carry out translocations of red squirrel and twinflower (both in 2019). There are opportunities to showcase these projects within a restoring pine woodland ecosystem.

Deer management:
There has been a significant increase in effort and cull level across the site since 2016, with damage reducing year on year to bring the population to a sustainable level addressing three issues:
• Damage to designated sites, recruitment and soils across the site.
• Creating a safety issue on the A949.
• Causing a significant economic impact on nearby farm and croft land.

Through the above, there is the opportunity to demonstrate the possibility of broadleaf recruitment outside of fencing in some locations and in partnership with wider interests through the South East Sutherland Deer Management Group.

PAWS:
Tree species on the site as a whole are artificially segregated due to past management. The relatively treeless PAWS zone 11 (parts of sub compartment 2c and 2d) with its diverse remnant flora has the potential to be restored to a more ‘natural’ and diverse woodland habitat. Other relatively open areas in PAWS zones 4 (sub compartment 3b) and 13 (sub compartments 3g to 3ii) also offer opportunities for enrichment with broadleaved species. In pinewood PAWS areas outwith Migdale Rock (PAWS 10 and 14), there is the opportunity to develop these woodlands further through opening up deep crowned trees and free up features as set out in the reviewed PAWS strategy.

Tree seed:
To collect seed from native tree species to be used for local nurseries, research, or use by Woodland Trust and partners. These collections would aim to create suitable saplings to be planted to aid woodland creation programmes in the provenance zone.

Constraints
Coarse and invasive vegetation:
Vigorous bracken has become well established in canopy gaps, limiting successful tree regeneration and colonisation by woodland flora. Opening up too much of the canopy at any one time is likely to result in bracken colonisation. The management of bracken has been identified within some PAWS zones as necessary where encroachment or density has become an issue. Outwith PAWS, bracken is a serious constraint to recruitment in the western third of Ledmore Oakwood. The high cost of this work and methodology required which takes several years, is a constraint to the scale it could be carried out.

Rhododendron is present in isolated managed bushes throughout sub compartments 7e, 7f, 8a, 8c, 3i and 3j, all are under control, but present a threat should they recolonize. Gaultheria is present in controlled patches through compartments 7,8, and 9. Both of these plants are likely to have been sourced from a nearby garden, these are now both under management in partnership with the owner to reduce or remove the source.

Recruitment and diversity:
Deer pressure is medium to low across the site, although impacts remain stubbornly high in some locations (Herbivore Impact Assessment 2025). Continued reduction targeting key locations, such as Ledmore Oakwood and Migdale Rock, will continue to be a major feature of this plan to increase recruitment and reduce damage to ground flora and soils. Some fencing will be required to assist young growth in some locations.

Much of the northern boundary of the site is with the Skibo Estate common grazings. The aged fence is porous and requires collaboration with the grazings committee to replace to halt sheep incursions.

There are insufficient oak seed trees beyond Ledmore oakwood (compartment 7). Any planting undertaken would include an element of oak if appropriate.

Other:
The welcome arrival of red squirrels in 2019 results in a reduced period during the year for felling operations although, with the relatively small scale of likely operations, this can be accommodated. Before felling work is planned, the latest Scottish Forestry advice on felling in red squirrel areas will be consulted and used for planning operations.

Twinflower in 5c and 10a have established poorly. These areas are to be excluded from mechanical harvesting and avoided. Management and advice on the future of these patches to be taken in partnership with Plantlife and North Highland Twinflower Project.

Archaeological remains can be damaged by forest operations. Any management interventions to favour PAWS restoration on the site of the Canadian Forestry Corps sawmill (PAWS zones 6,7,8) are likely to be detrimental to the features.

Factors Causing Change

Natural succession.
Grazing, browsing, and ground damage by deer, or changes in behaviour as a result of deer management activities.
Invasive non-native shrubs.
Regeneration of non-native trees
Encroachment of bracken.

Long term Objective (50 years+)

The total area of ancient woodland will not diminish. The processes of natural succession will remain dynamic within the ancient woodland, resulting in evolving structures, densities of cover, and expansion of woodland into new areas.

A permanently irregular age structure will be developing within the ancient woodland component at a whole site level, creating opportunities for the recruitment of future veteran trees, and the on-going retention of associated ancient woodland species and assemblages. Frequent standing and fallen deadwood will be present and there will be no significant threats from invasive non-native species and coarse vegetation.

Ancient Woodland components in PAWS areas will be secure within a woodland habitat which is developing, or has developed, strong semi natural characteristics, including a predominance of native tree species, a varied structure, a diverse ground flora, frequent standing and fallen deadwood and the absence of any significant threats from invasive non-native shrub species. Non-native tree species will be accepted as an occasional feature of the canopy outwith the designated sites. In suitable areas, oak will have been re-established as a component of the woodland structure.

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

Woodland recovery and establishment:
To continue with the programme of deer management reducing damage to ‘low’ in at least 75% of the site, with the remainder of the site being no higher than ‘medium’ by 2030, using the Herbivore Impact Assessment (HIA) Woodland Grazing toolkit. Cull effort and disturbance will be particularly concentrated on the Migdale Rock and Ledmore Oakwood designated sites with the aim of at least 75% of monitoring points within these being classed as ‘low’ by 2030. This will be achieved by:
• Maintaining the disturbance effort throughout the highest impacted areas, particularly Ledmore Oakwood SAC (compartment 7) and Migdale Rock (compartment 3), reducing browsing impacts at key times of year. This will be through dedicated weekly outings from

April to August annually.
• Having a reliable, professional deer management contractor in place to deliver an effective cull; reviewing the contract annually as required.
• Having an annual cull informed by the HIA results and drone monitoring; reporting of effects on neighbours, designated sites, and road users.
• Carrying out annual HIA monitoring in April and a drone survey in late winter.
• Utilising authorisations to maximise effectiveness and manage localised issues, reviewing this annually with Nature Scot.
• To increase the use of the deer deterrent product 'Trico' as a method to establish broadleaved trees in line with FSC® guidance to protect planted trees in sub compartment 7a and 7b. This will be as part of the fencing and shelter use in the 'Diversity' section below, as well as in PAWS zone 9 in plots planted in small fence plots.

Maintaining and improving the site infrastructure and access to increase effectiveness through the site maintenance work programme. This will involve:
o Annual repairs clearing topsides ditches, culverts, cross drains, cutting back vegetation and scrub.
• Playing an active role in the South East Sutherland Deer Management Group managing deer in line with our own, and our neighbours', objectives where possible through attendance at meetings, annual payments, and active discussion.
• Maintaining existing deer fencing to be deer proof through annual checking and prompt repair. To follow up repair with ground checking and thermal survey to monitor for incursions.
•Halting all sheep incursions from the Achue common grazings through patching or replacing fencing with the crofters.

Protecting ground flora:
Bracken control in the last five years has been locally effective in areas with a grass understory, and more limited success elsewhere. The long-term aim of preventing bracken encroachment by managing irradiance through the woodland is currently the only large-scale method for control. Over the next five years, to concentrate bracken control into a number of key areas:
• To mechanically roll bracken in areas safe to do so in sub compartments 7a, b, c, d up to 6ha to allow natural regeneration, and in pockets in sub compartments 1a, 2b, 3h that aid effective deer control.
• In sub compartment 7b and 7c where consistent volunteer effort in the last five years controlling bracken and gorse has seen marginal gains in tree growth, to fence up to 2ha of previously planted areas in two blocks to allow easy deer passage through the area. The fences are to be electric fences built at stock height, with a single powered line, a dummy line underneath, and a secondary powered fence 1m inside. This will be powered using a battery and solar panel. Monitoring of tree height and regeneration will be undertaken annually. Location will be off public access routes with signage and gates where necessary. Outcomes from this could be repeated on Migdale Rock in future years.

Diversity:
To retain and increase the diversity of the woodland element of the site through:
• To ensure planted hazel and aspen in sub compartment 1h establish beyond bracken control through twice yearly bracken whipping around the trees planted in 2024.
• Within the 2ha electrically fenced area in 7b and 7c to supplementary plant the natural regeneration through planting of oak, aspen, hazel, hawthorn at a density of up to 1600 trees per hectare. This to be undertaken as a volunteer task over the period of the plan.

To follow up the significant management of Gaultheria shallon and Gaultheria mucronata in sub compartment 7e (PAWS zone 16), compartments 8 and 9 (PAWS zone 14 and 16) that total an area of 0.1ha and the area of around 0.75ha in the east end of Ledmore Oakwood (sub compartment 7f) to be controlled annually through strimming in Spring then following up with spraying in summer. Where practical, to manually remove plants in small isolated locations that are manageable. In sub compartment 8b, to undertake initial and follow up control of remaining Gaultheria shallon in an area of around 0.3ha. To continue the management and follow up control of Gaultheria shallon, Gaultheria mucronata, and any other invasive non-native plants permitted within the grounds of Spinningdale House to remove the seed source and secure the oakwood habitat as far as is permitted.

Sub compartment 7f, compartments 8 and 9 (PAWS zones 14, 15, 16), and sub compartments 3i and 3j (PAWS zones 3, 4, 12) to be systematically combed for rhododendron regrowth where found. Work through annually walking through 3i, 3j, 9a, 9b, 7f.

Restoring PAWS:
The threats from invasive plants and over browsing that affect much of the site are not particular to PAWS zones and the short-term objectives set out above manage these issues. The PAWS strategy map and table provide spatial information on the location of the management set out within the PAWS zones in this key feature. The below sets out silvicultural interventions to the PAWS zones:

Migdale Larch:
• To remove remaining isolated European larch from sub compartments 3b and 3c, totalling around 20 trees.
• Supplement pioneer regeneration with the planting of up to 100 aspen and 100 hazel within four small fenced plots across the clear fell area, that will maximise natural regeneration potential through fencing on areas of bare ground or with litter bracken.

Migdale Pine:
• In sub compartment 3g (PAWS zone 2) to carefully select young pine to ringbark around mature pine that are gradually becoming shaded out. This to be done being mindful of bracken encroachment, ensuring this management does not create increase light beyond required. The total volume of trees ringbarked will not exceed 30m3.
• In sub compartment 3g, 3h (PAWS zone 13) to undertake a baseline survey of regeneration, with the aim of including in a new natural regeneration grant option where appropriate.

Recover 'lost' woodland:
In sub compartment 2c and 2d (PAWS zone 11), access difficulties have made fencing aspirations impossible with limited budget. In the next five years, to remove threat from larch regeneration and reduce browsing to allow natural processes to take place as far as possible.
• Fell or ring bark 20m3 of European larch in the vicinity of this zone on the open areas and woodland edge to remove this threat.

Sub compartment 8b:
• In sub compartment 8b (PAWS zone 15), cut back broom and gorse around young oak to ensure this is not impeding the growth of planted trees or natural regeneration.
• Fell the lodgepole pine and Douglas fir scattered across 8a and 8c (PAWS zone 16), felling half the trees in 2026 and the rest before the end of the plan period to provide a volume of deadwood over a slightly prolonged period.

Others:
• In sub compartment 1a (PAWS zone 9), to create small fenced exclosures (10m by 10m) and plant with aspen, hazel, and birch to shade out bracken and commence recovery.
• In sub compartments 2a, 2b, 2c, 2d (PAWS zone 10) to sensitively thin Scots pine to protect deep crown trees and non-pine features including juniper. This to be done through ring barking.
• In sub compartment 8a, 9a, 9b (PAWS zone 10) thin pine, remove spruce, and create space for non pine species to diversify stand. Volume to be the result of basal area survey in 2025/6, aiming for a basal area of 30 to 33m2 per ha.
• In suitable locations across the site, including on Migdale Pinewood SSSI, Ledmore oakwood SAC, Spinningdale Bog SSSI, to collect tree seed as available following guidance established through Trees for Life collecting no more than 20% of the seed from any one tree. The purpose for this is to aid effort by Kyle of Sutherland Development Trust, Trees for Life, and Forest Research in undertaking management and research to increase woodland cover in Sutherland in appropriate locations using suitable stock.

4.2 f2 Mixed Habitat Mosaic

Description

In Key Feature 1 'Ancient Woodland Site', the long term aims and objectives are set out to vary the main structure of the woodland, expanding and diversifying this component across the site. The habitat mosaic of this diverse woodland along with the open ground component of the site is hugely varied. Managing the site in the long term for a wide range of species and habitat needs, requires different micro habitats that need to be either managed for, protected, or in some cases created or reduced.

The habitat mosaic of Ledmore and Migdale Woods is comprised of several distinct components arranged in a pattern of irregular patches. There are at least 23 distinct NVC communities and sub-communities (Hughes & Entwhistle 1997).

The main components are birch and pine dominated woodland representing almost two thirds of the site. The age diversity of these woodland components is widely varied across the site, although the highest proportion of this is post 1950s as the site recovered from the large-scale felling carried out in the 1940s. The woodland not felled is maturing semi natural woodland and planting from the early to mid-19th century. Open ground (as identified through the 2014 Native Woodland Survey of Scotland (NWSS) is just over 20%. This figure is an absolute minimum with many open woodland areas having large canopy gaps.

As the woodland develops over the next 20+ years and management to diversify stands is realised, the structure of the site will begin to alter slightly, favouring mixed native broadleaved woodland. This is particularly the case for planting areas outlined in Key Feature 1 such as sub compartment 2d (PAWS zone 11), 8b (PAWS 15) and 7b. In areas where pine regeneration is developing, particularly in compartments 3 and 6, an increase in pine woodland will be seen. These changes will be subtle, however, with an average loss of only 1.2% of open ground per decade forecast for the next two decades within the LTFP.

In addition to these dominant tree species, minor tree species are represented in varying levels. These are vital components of the woodland for biodiversity interest and can also be of importance for their cultural significance. These include ash (boundary walls), aspen (Rare longhorn beetle Saperda carcharias, and the aspen hover fly Hammerschmidtia ferruginea) , bird cherry (Hammerschmidtia), rowan (Osmia uncinata), hazel (lichen spp.), wild cherry, crab apple, blackthorn, hawthorn, holly, willows, alder and juniper. The site is particularly notable for its abundant juniper. It is unfortunate that the disease of juniper Phytopthera austrocedri has been present to the west of Bonar Bridge for some years and with the movement of deer and people, it is likely the disease may affect the juniper population in this wood in years to come.

The south facing crags of Migdale Rock support a calcareous cliff sub-montane flora including rock rose Helianthum numularium wild strawberry Fragaria vesca, pyramidal bugle Ajuga pyramidalis and rock cinquefoil Potentillia rupestris. Rock cinquefoil is known at just two locations in Scotland, the other being at nearby Loch Fleet.

There are six specimens of the rare Rock Whitebeam, Sorbus rupicola in Ledmore Oakwood (cpt 7) - this is one of only two sites recorded in eastern Scotland, the other being a few miles north at Loch Fleet. It grows on the edge of the Dornoch Firth within a 200m stretch where there are locally lime-rich conditions.

The site is a haven for a huge abundance of wildlife and is used by students and universities because of its diversity, scale, and northerly latitude. Researchers study here to understand species behaviour, monitor effects on species due to climate change, or as a refuge for species previously lost and threatened elsewhere. Invertebrates have been well documented on the site through the hard work and dedication of the late Philip Entwhistle recording over 500 species. Studies have shown the importance of the site for Scottish, hairy, and slave-maker ants, all of which are near their northern limit and are isolated geographically due to historical woodland loss across the country. These ants thrive here, and management considers the impacts and benefits of a diverse structure on species such as this. A very rare furrow bee discovered here in 2017 has the largest known colony anywhere in the north Highlands, with Exeter University carefully studying and maintaining the site.

With a robust habitat in a stable and improving condition, the site welcomed back the rare pinewood plant twinflower through a translocation project with the North Highland Twinflower Project in 2019. Later in 2019, red squirrels were translocated back to the woodland and these charismatic creatures quickly settled in. In future years, similar projects will be considered for the site if appropriate.

As well as schedule 1 bird species breeding or using the wood for feeding, summer migrant passerines breed here with some near their northerly limit. The site has also been identified as an area suitable for the potential expansion of capercaillie from stable populations to the south of the Dornoch Firth.

78 species of insect have been recorded in Ledmore oakwood including 37 species of Lepidoptera and other species previously unrecorded at these latitudes, notably Neuroterus albipes, and Dasyneura malpighi (gall-forming insects) and Heliozella sericella, Tischeria ekbladella, Profenusa pygmaea and Ectoedemia albifasciella (leaf miners)(Entwhistle 1998).

Spinningdale Bog SSSI, a rare ‘valley mire’ habitat, is unusual in the site in that it is managed as an open ground habitat for the long term. This designated site supports dense stands of reed canary grass Phalarus arundinacea and common reed Phragmites australis plus a variety of other species including bogbean Menyanthes trifoliata, bottle sedge Carex rostrata, marsh ragwort Senecio aquaticus, marsh cinquefoil Potentilla palustris and bog pondweed Potamegeton polygonifolius. The bog also supports the bog orchid Hammarbya paludosa and coralroot orchid Corallorhiza trifida. In addition, it supports an important insect fauna, including northern emerald dragonfly Somatochlora arctica, a very local moth Adelea cuprela, the hoverfly Tropidia scita, the horsefly Hymbomitra lurida, and the jumping spider Salticus cingulatis (Entwhistle 2008).

Numerous Sphagnum species are found on the bog, including fine bog moss S. recurvum, which is dominant, together with blunt leaved bog moss S. palustre, S. pappilosum, and S. capillifolium.

This plan, and the Long Term Forest Plan intention over the next 20 years, seeks to maintain around 20% open ground throughout as a vital component of the structure of this site. This includes maintaining Spinningdale Bog SSSI as an open valley mire at the openness achieved by 2018 following significant scrub clearance. The current open ground component of the site represents a range of habitats including wet and dry acidic heath, dwarf shrub heath, blanket mire, screes and cliffs, acidic grassland, marshy grassland, and wet flushes.

The majority of open ground comes from natural or human intervention in the last 70 years. The most significant of this is the felling of around two thirds of the site in the 1940’s when two Canadian Forestry Corps logging camps were operating on the site. This was followed by a large windblow event in the 1950’s on the north side of Migdale Rock and fires in the 1980’s on A’Chraisg, Migdale

Rock, and Creag a' Bhealaich.
A significant regeneration pulse comes from the 1980's and early 1990's, likely due to a period of high culling effort by the sporting tenant. New seedling recruitment has slowed since then as coarse vegetation has developed and deer pressure has increased. The density and age of regeneration varies widely, and is patchy in some areas, and very dense and robust in others.

Significance

The mosaic of woodland with open ground habitats in such a complex mix has created a very diverse habitat which is significant in its location and scale in south east Sutherland.
The biodiversity of the site has been recognised with the Ledmore Oakwood, Migdale Rock, and Spinningdale Bog SSSI designations, with Ledmore Oakwood also boasting the additional SAC designation.

The robustness and resilience of the site has been recognised in using this site for the translocation of threatened species appropriate to the site.

The development of native woodland through natural regeneration will extend and buffer existing semi-natural woodland across site, forming a significantly larger core habitat area. Through working with neighbouring landowners through the DMG, there is the potential for the habitat on the peripheries to increase in their diversity as deer pressure reduces.

This large, contiguous area of semi-natural woodland is important in the context of climate change, as it is likely to be more stable and resilient than the more fragmented native woodland typical of the Highlands. The woods also have a significant cultural value, having once been extensively occupied with associated farming, forestry and industrial activity.

There is a significant common juniper population on the site, mainly around Migdale Rock and on the lower slopes to the north of Spinningdale bog. Juniper is a vulnerable and declining species in Scotland, with few areas outside of Strathspey having such significant a population. There is no indication of Phytopthera austrocedri currently (2025) and being a slightly isolated population diverse in age and structure may be an advantage for the longevity of this species in the wood.

The mixed habitat mosaic supports a range of species, regarded as wholly reliant on the habitat provided by the site.

Management of the mixed habitat mosaic contributes to the Woodland Trust objectives to protect, restore and create native woodland.

Spinningdale bog is a complex 'Valley Mire', the sole example in east Sutherland. It shows a complete succession from open water to woodland and provides an extensive area of valuable habitat that is now nationally rare. The bog is designated as a Site of Special Scientific interest (SSSI)

The bog supports a range of species which are wholly reliant on the habitat it provides, for example the proximity of the bog to ancient woodland provides an important niche for the northern emerald dragonfly.

Opportunities & Constraints

Opportunities:
Through careful interventions, the site can be further increased in diversity through the increase of tree species in parts of the site identified through the PAWS strategy, increasing the areas classed as mixed native broadleaves.

Aspen is a particularly important species in the wood supporting a wide range of other species, with a dedicated previous project in sub compartment 2b.

Where there are particularly unusual tree species for the wood (rock whitebeam and crab apple) to look to use existing specimens as a seed source, and if possible plant further specimens in appropriate locations.

For other under-represented species such as bird cherry, wild cherry, hazel, holly, and, in places, sessile oak, to plant these as part of a mix suitable to the site and ground to increase diversity and seed trees.

Where invasive non-native species are threatening niche habitats, such as Cotoneaster on the crags of Migdale Rock, to use the management interventions as demonstration opportunities, and interest users, land managers and the local media to assist in reducing the spread of these species, and in reporting other such species through the Scottish Invasive Species Initiative.

The control of bracken in priority locations can be carefully monitored to demonstrate effectiveness and costs of methods used.

With Spinningdale Bog SSSI largely cleared of scrub, to the scale to protect the features of the site, there is the opportunity to look further at what further restoration could take place to ensure the long term stability of the bog without regular human intervention.
Constraints:
Deer browsing is a constraint on successful tree regeneration and on the survival of veteran hazel stools. Deer present a serious threat to new recruitment of seedling regeneration, with Juniper being especially vulnerable to browsing.

Due to the presence of Phytopthera austrocedri to the west of Bonar Bridge, the current advice from Nature Scot is to not plant juniper on the site, so any increase in cover would be reliant on the management of favourable conditions adjacent to existing stands.
Locally dominant bracken is a constraint on successful tree regeneration and may reduce the habitat value of open glades, especially for Pearl Bordered Fritillary, which, while it requires bracken to complete its lifecycle, is not favoured by dense cover. Bracken control in selected areas may provide the opportunity to diversify the habitat mosaic. The topography of the site makes it challenging to carry out mechanical control on a meaningful scale apart from a very few locations making large scale control time consuming and costly.

Aspen mapping undertaken in 2021 allowed the extent of this important tree to be viewed, planting of additional clones would further diversify this.

There are few specimens of rock whitebeam or crab apple. As part of enrichment planting in appropriate locations, to consider these two species.

The site is an island oasis for Scottish wood ants, and a particularly important location in Sutherland for hairy wood ant and slave maker ant, with these three species requiring well-lit glades and woodland edge. The maintenance of such a habitat should not diminish diversity, but limits the succession of these areas of ground as the site develops.

The management of Cotoneaster on the cliffs of Migdale Rock and the control of Gaultheria in Ledmore Oakwood are challenging due to the topography and/or difficulty in managing the plant itself. These plants are also in the wider environment so management interventions will need to be ongoing to be successful if control at source is not possible.

Management interventions to increase diversity must ensure no damage to existing diversity. Whilst there is an abundance of biological recording across the site it is not held in a way that can be easily accessed or interrogated to support management practice.

There is well documented archaeological, cultural, and historical human use of the site. Any management must take these into account and take steps to not damage remnants and protect them where possible.

Ash die back was first confirmed on site in 2021, although there are very few ash on site, although there are two very large ash associated with farmstead buildings by Kyloag. Phytopthera austrocedri, a disease to affect juniper is known locally near Bonar Bridge, although not known on site. This proximity may have a bearing on juniper health here in future. There is no evidence of Dothistroma, which would be most detrimental to the site.

Factors Causing Change

Natural succession
Invasion by non-native species, or the further spread without intervention.
Grazing, browsing, and ground damage by deer, or changes in their behaviour as a result of deer management activities.
Hydrological changes.
Encroachment of bracken.
Tree disease.

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 interest of the cultural landscape.

The proportion of woodland cover to open ground will be gradually increasing. Over the next 20 years, as the woodland cover increases slightly, the existing woodland will also increase in diversity and structure and lay the foundations for future recruitment of new woodland across the site.

Native habitats and species (where they are wholly dependent on the habitat) will be secure from the threat of ongoing change or decline due to the spread of invasive native or non-native species, and detrimental succession.

A permanently irregular age structure and tree density will be developing at whole-site level, creating opportunities for the recruitment of future veteran trees, the ongoing retention & colonisation of associated woodland species including flora, fungi and bryophytes, and the development of stable, windfirm stand structures.
Designated sites will be in favourable condition status as assessed by Nature Scot.

The valley mire feature will continue to support viable populations of the specialised plants and insects which depend on the habitat it provides.

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

Protection of, research, and management for, existing known features. While the site is managed in a holistic way, there are a number of particular species or habitats which require a level of intervention to allow them to continue to thrive:
To remove 120m of rabbit fenced aspen exclosure in 2b as ineffective.
To create additional space and light for rock white beam through removal of selected limbs from 10 oak trees in sub compartment 7f in the east side of Ledmore oakwood.
To cut back vegetation in the two successful twinflower translocation plots measuring 10m by 10m in sub compartment 5c and work with Plantlife and the North Highland Twinflower Project to develop further translocations if appropriate.
Support Trees for Life monitoring of the red squirrel population as directed by them.
To fell up to 20m3 of birch on the border between 7e and 7f to protect the dense ant nest colony there, allowing sunlight to reach these nests before they are fully shaded.
With advice from Exeter University, to carefully manage the successional vegetation on the furrow bee bank in sub compartment 1a to retain the population and breeding area.
Towards the end of the plan period, to undertake a sweep of Migdale Rock cliff (sub compartment 3d) for Cotoneaster regrowth and remove from site.
Starting in winter 25/26, and every three to five years, to sweep the 12ha of the open central area of Spinningdale Bog (sub compartment 4a) for alder and willow regrowth from the clearance work carried out from 2012 to 2017. In each sweep round, to pull out or cut using hand tools. This will retain the bog as an open feature for the many species that rely on this unusual habitat.
To ensure the existing raptor interest on the site is retained through ensuring nests are usable and no negative impacts from other management interventions.
To plan for the resurvey of the Coppins & Coppins lichen survey in Ledmore oakwood (compartment 7) to take place in 2026, 25 years after the original survey.

4.3 f3 Archaeological Feature

Description

The built history of the site is fascinating, and provides a very useful insight to the structure and diversity of the site as it stands today. In managing with, and for, these features, we can respect the built past of the site while developing its future, or reverting it back to a previous state, depending on the habitat and condition.

A total of 40 features or groups of features of archaeological and historic interest have been recorded in Ledmore & Migdale woods, including a concentration of chambered cairns, three of which are Scheduled Ancient Monuments (SAMs).

There are extensive post medieval sites including relatively complex townships such as at Kyloag (sub compartment 1a), Torroy (sub compartment 1b) and Creag na Sroine (sub compartments 8a and 8b), some small isolated farmsteads and some individual buildings, such as the corn mill on Spinningdale burn (sub compartment 5b). The recently purchased Fairy Glen (sub compartment 1h) is another particular hot spot with a chambered cairn, and more recent historic interest with footings for one of Carnegie's bridges and a stone carved for the opening of the Fairy Glen in the early 1900's, leading to the site of a former cabin in sub compartment 1e.

Several plantation banks are evident in the woods, notably in compartment 1 and along the northern edge of Ledmore oakwood (sub compartment 7).

Perhaps the most mysterious, however, is the report of a 'tunnel' discovered in the 1950's on the North side of Migdale Rock, now lost.

Significance

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

The concentration of chambered cairns at Ledmore and Migdale woods is notable for the area with the three scheduled monuments being of national interest.

Opportunities & Constraints
Operations affecting SAMs require consultation with Historic Scotland and may require the issue of Scheduled Monument Consent. Management operations, including felling, path or road construction and tree planting may disturb archaeological sites. There is an opportunity to interpret the archaeological interest of the site to contribute to public interest and enjoyment.
Factors Causing Change
Vegetation encroachment, physical disturbance
Long term Objective (50 years+)
Evidence of previous human settlement and occupation will be protected and will contribute to the attractiveness and interest of the site.
Short term management Objectives for the plan period (5 years)
The Scheduled Ancient Monuments at Rivra (sub compartment 1d, by the Achue track) [Index no. 1803], Creich Mains (sub compartment 7a) [Index no. 1805] and Kyloag (sub compartment 1a) [Index no. 1799] will be kept free from trees and woody growth by monitoring these every two years. Sites of archaeological interest will be protected from disturbance caused by management operations in their vicinity.

4.4 f4 Connecting People with woods & trees

Description
Ledmore and Migdale Wood occupies a commanding position in the landscape, stretching from the northern shore of the Dornoch Firth, through Ledmore Oakwood, over the hills of A'Chraisg and Migdale Rock, and onto Creag a' Bhealaich. It can be seen from the Dornoch Bridge just five miles away on the A9 - part of the hugely popular North Coast 500 route. It sits mostly within the 7500 hectare Dornoch Firth National Scenic Area and is a dominant part of the view from the B9176 'Struie' road from the large viewpoint layby above the south shore of the Dornoch Firth. Its scale, diversity, designations, species, translocations and built history make this a fascinating site to explore and learn about the wonders of trees and woodland in a Highland landscape. It provides abundant opportunities for education, engagement, and enjoyment while respecting the nature of the site and the communities who live and work alongside it. The main car park for the site sits half a mile from the community of Spinningdale on the unclassified road to Migdale. It can be found by following the brown tourist signage on either side of the community of Spinningdale. The car park can take up to ten cars and has orientation information, a map, and a site leaflet. 200m beyond, up a fairly steep slope, is the partially restored Torroy Croft building, used regularly as a base and shelter for groups and events. Torroy Croft is open throughout the year for the public to use responsibly and is a popular picnic spot. Three other entrances also have orientation boards. The site has an extensive footpath and track network. A number of waymarked trails invite users to explore the many vantage points and varying habitats the site has to offer. In total there are around 12 kilometres of footpath, including four waymarked routes of varying lengths and difficulty. Many of the routes are firm vehicular tracks made from locally sourced materials and some previously bulldozed routes have been improved over the years. Some of the footpath sections are undergoing improvements to surfacing and drainage to further improve usability. For less able visitors, the site leaflet features a route marked in yellow that avoids steps and a gate. It runs from the car park along the unclassified road to the path network. There are a number of routes through the site classed as core paths. These are the main routes through and within the site and link up the site path network with a wider network of paths and routes classified as rights of way. These include routes that link with a picturesque path along the north shore of Loch Migdale to the community of Migdale. In addition to the main car park at Torroy, there is parking available for two vehicles on the north east edge of the wood along the Achue

Road marked on the leaflet. There is also parking for three vehicles at the west side of the wood on the northern shore of Loch Migdale, accessed via the narrow road off the Bonar Bridge to Migdale road.

There are six benches through the site which are marked on the site leaflet. Three of these have been hand carved from oak cut onsite and are painstakingly crafted to represent features of the woodland. They are a real feature of a visit to the site.

Ledmore and Migdale woodland is situated within a 20-mile radius of a population of over 10,000, including the towns of Tain and Dornoch and numerous coastal villages. It is five miles from the main A9 trunk road, and a one-hour drive north of Inverness. Local tourism has skyrocketed in recent years with the development & promotion of the North Coast 500 route that passes within five miles of the site on the A9. South East Sutherland is a popular holiday destination with beaches, golf, and the coastal Dunrobin Castle. Inland tends to see fewer tourists and these appear to be the visitors seeking particular attractions or experiences.

Limited data on visitor numbers (supported by data from comparable local sites) suggests visitor numbers in the region of 8000-10000 per annum. This has increased anecdotally due to the installation of tourist signage in 2017, the production of a new site leaflet in early 2019, and promotion associated with the red squirrel translocation in late 2019. The increase in visitor numbers has also increased the number of instances of wild camping, campfires, visitors with dogs, and litter. While the vast majority of these access takers are responsible and follow the guidance set out in the Scottish Outdoor Access Code, there have been a small number of instances of irresponsible behaviour.

In the last five years, engagement was very limited in the early part of the management plan period due to the COVID pandemic restrictions. Since then, activities and events have generally been low key and run by third party organisations. Highlife Highland run two walks per year, NHS Highland use Torroy for Branching Out sessions, Kyle of Sutherland have run occasional walks, and summer story telling sessions have been organised through Witchbird Tales.

The volunteer Woodland Working Group meets twice per month undertaking a range of tasks. Growing in skill and capacity, they have become an extremely useful group helping to deliver management across the site.

There is currently no regular engagement with local schools , though this would be desirable if resources allowed. The nearest schools are Bonar Bridge Primary (3.5 miles), Gledfield Primary (7.5 miles), and Edderton Primary (12.2 miles) with Tain Royal Academy being the nearest secondary school (12 miles).

A total of 40 features of historical interest have been recorded on the site, including prehistoric, chambered cairns, post medieval townships, farmsteads, field systems and isolated features such as a watermill. One of the prehistoric cairns is easily accessible from the path network.

Significance

Ledmore and Migdale Wood is an important landscape feature which contributes to the dramatic setting of the Dornoch Firth National Scenic Area.

The scale and diversity of the site is locally significant as there are few other locations in Sutherland where you can be immersed in a vast native wooded landscape.

The site is just five miles from the hugely popular North Coast 500. Management of the tourists who venture to quieter locations such as Ledmore & Migdale should be carefully considered.

Public access to and through the site is significant for local walkers, cyclists and horse riders. The site is the backdrop to nearby Loch Migdale, a draw for wild swimmers and canoeists.

The provision of access supports the Trust's vision of ‘a world where woods and trees thrive for people and nature’.

Opportunities & Constraints

Opportunities:
Being within five miles of the North Coast 500, and seven miles from the tourist hub of Dornoch, there is an opportunity to increase site awareness and footfall. The approach needs to be considered carefully however. Many sites around the NC500 quickly become inundated with campers, litter, and waste. While it may be desirable to increase visitors to the site, we would prefer to attract audiences looking for quiet recreation.

The site has the facilities to be utilised as a venue for outdoor learning developing projects with primary, higher, and further education.

Given the rich biodiversity of the site, there is an opportunity to engage, inspire, and inform visitors and interested groups and individuals about the species that thrive in the woods, as well as the work done to manage for them.

With the car park and Torroy Croft shelter, the site is well set up for a range of guided walks and events.

Some of the management elements of the site such as PAWS restoration, could be used to demonstrate management and potentially engage audiences.

Through local groups and organisations, such as Gearrchoille Community Woodland and Tain District Field Club, there are opportunities to share information, expertise and data to further inform the management of the site and to develop closer links with others.

The most recently acquired part of the site, the Fairy Glen (sub compartment 1h) is very close to the village of Spinningdale and is readily accessible from the road. With the area being deer fenced, making it slightly different to the wider wood, it provides an opportunity to develop this part of the woodland closely with the community to manage the area in a way that suits their needs as well as our own. This could include using hazel coppice, planting, as well as community picnics, story telling, etc.

Constraints:
While the site provides a vast range of opportunities with schools, communities, users and wildlife, one of the largest constraints is capacity to deliver these elements. Funding will be sought through FGS and other avenues to bring in contractors to run walks and events when possible.

The site is a wild woodland, and the management of the site needs to work sympathetically alongside its key features. With this in mind, information panels tend to only be at site entrances, or for specific projects, such as the red squirrel release. Signage will not be placed throughout the woodland. Paths and tracks will be functional for management and access by vehicles so will mostly always be a rougher robust surface rather than the more finely built and maintained surfaced routes more often found in lowland or peri-urban settings

Around Torroy, there are kissing gates and a set of steps impeding access for some from the car park. The road route marked on the leaflet is the only easy access route.

Steep, unstable, or wet ground, make it difficult to create access to some of the more desirable locations such as Spinningdale Bog or the top of Migdale Rock. Improved access would also result in the loss of ancient woodland ground flora habitat.

The site has a reasonably high tick population with Lyme's disease known to be in the area.

Factors Causing Change

Anticipating an increase in rainfall, and coming in more extreme bouts, water on the paths together with a forecast increase in the number of visitors to the site will require a higher specification of path with more labour-intensive maintenance programme.

Long term Objective (50 years+)

Ledmore and Migdale will provide an extensive area of quiet informal recreation for a wide range of users both from the local area and from further afield. Sensitive use of the site will be encouraged via targeted communications. Visitors will be reminded to behave appropriately and respect the value and importance of this wood for local people and wildlife.

Entrances and signage will have a welcoming appearance and there will be a network of robust paths providing a range of linear and loop routes suitable for walkers, horse riders and cyclists, where possible linking to the wider path network.

The use of the site for education will have increased as a result of visits from local schools and Universities, as part of John Muir Award, Rural Skills, or particular studies of certain species or groups.

Where appropriate, local businesses and individuals will be supported through the provision of available timber to assist in the manufacturing of local products that will have an association with Woodland Trust.

There will be well supported volunteers delivering elements of the engagement, research, and maintenance programme of the site.

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

Access provision will be in keeping with WT access guidelines. Achieved by:
• Ensuring that entrances and signage are welcoming to visitors and well cared for (annually).
• Ensuring that all 12km of managed paths are kept well-drained and free from encroaching vegetation by cutting, and that access features (e.g. bridges, steps, entrances, boundary features, etc. are kept in good order (annually).
• Ensuring that all viewpoints are maintained free of encroaching vegetation, where it is obscuring the view (annually).
• Ensuring that the site is kept safe and welcoming by: repair of vandalism (when needed); clearing of fallen trees where access is obstructed (as needed); and regular site safety surveys (as per risk assessment).

The visitor welcome and experience will be further enhanced by:
• Carrying out improvements to the path and track network as set out KF1.
• Replace the bench in sub compartment 6a looking north east over Spinningdale and Creag a' Bhealaich by the end of 2025.

Visitors will be attracted to the wood and informed about walk routes, responsible access, and points of interest via the following improvements:
• To ensure the leaflet and orientation boards complement each other without creating confusion by replacing on-site orientation boards with new design maps and information in 2025, with the board celebrating the natural and cultural history of the site.
• To review the site leaflet before each reprint to amend any changes or errors annually.
• Maintain the wood's Facebook page as a key tool to engage directly with a dispersed community of users.
• To review and reduce the volume of waymarking on site :
o When replacing waymarkers in 2025, ensure the different coloured routes are marked on the same post to reduce the quantity of posts in the wood.
o Removing confidence markers in 2025.
• Working with the Highland Council Access Officer to ensure signage is in place at locations where there are repeated instances of non-compliance with the Scottish Outdoor Access Code, ensuring visitors are aware what their rights are and are not, particularly around fires, uncontrolled dogs, and latrines.

The site will be used for education and engagement by:
• Continuing to support and develop the Woodland Working Group to deliver elements of the work programme.
• Inviting each local Primary and Secondary school to use the site through the use of Tree Tools for Schools, and to offer participation and assistance with rural skills programmes when relevant.
• Developing a programme of guided walks and events with input from volunteers, the community, Highland Council Ranger Service, ourselves, and partners to develop further understanding of the importance of the woodland, how to enjoy the woodland responsibly, the usefulness of timber products, and the history of the site. Again, the scale of this will be dependent on the availability of funding.

The site will be maintained as safe and welcoming through tree safety inspections of all areas by roads, houses and other high value features every two years, and for all paths every four years, and to undertake the management required. This will include the removal of trees and limbs identified by a competent person, ensuring the sites features are not compromised while reducing risk for the public using or passing through the site.

Appendix 1: Compartment descriptions

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
1a	18.05	Birch (downy/silver)	1940	PAWS restoration	Archaeological features	Ancient Semi Natural Woodland, National Scenic Area

South facing slope between the unclassified Migdale road and the west end of the Achue track.

Predominantly well-spaced, mature birch woodland regenerated since the large scale felling during the Second World War, with open areas on former field sites. Groups and scattered individual mature Scots pine are frequent throughout. Aspen and rowan are occasional throughout. Occasional juniper and ash are found in the west of the sub compartment, the latter associated with former field boundaries. Areas of abundant to dominant birch seedling regeneration are frequent. There are occasional areas of Scots pine regeneration becoming more frequent to the north.

Bracken is frequent throughout and dominant in some areas, particularly on former field sites. melancholy thistle Circium heterophyllum is found in this sub compartment but not elsewhere on the site (Entwhistle 2008). A number of notable lichen species, some associated with old woodland sites, are present, particularly on birch and pine. Key specimens have been tagged. (Coppins & Coppins 2001).

Aspen supports the rare longhorn beetle Saperda carcharias (Entwhistle 2008).

Almost half of this compartment is recorded as Ancient Semi Natural Woodland (ASNW) on the Ancient Woodland Inventory (AWI), with small pockets identified within the Planted Ancient Woodland Site (PAWS) strategy. There is no discernible difference on the ground between native woodland (ASNW) and PAWS so has been removed from the PAWS strategy considered as restored. Bracken is an issue within both descriptions and will be considered for management regardless of status of PAWS or not. The whole area appears as unenclosed woodland on the Ordnance Survey (OS) 1st Edition map, and on previous maps including Burnett & Scott 1855 and, arguably, on Roy 1755. The name Kyloag appears as Coille oag on earlier maps (Gaelic: 'coille' -wood; 'oag' - young. Norse 'oag' - burial mound). Three veteran Scots pine have been recorded on the Ancient Tree Inventory in this sub compartment.

The sub compartment contains a chambered cairn and the township of Kyloag, with the remains of several buildings and extensive field patterns. A second chambered cairn is largely on adjoining property and is a Scheduled Ancient Monument (Kyloag Index no. 1799).

1b	3.09	Mixed native broadleaves	2013	Wood establishment	Archaeological features, Housing/infrastructure, structures & water features on or adjacent to site	National Scenic Area

Young native woodland planted 2013 in a previously bracken-dominated field on a moderate south-facing slope.

Torroy farmstead is in the north western corner of the sub compartment, including remains of buildings, enclosures and fields. The ruined dwelling was converted into an open, roofed shelter in 2013 to provide a base for group activities and picnics. A car park and access track were constructed at the same time. Attractive viewpoint across the site and to Dornoch Firth from Torroy.

A small area in the south west corner of 0.5ha is within the ancient woodland inventory as ancient woodland of semi natural origin.

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
The south west facing bank from the car park to the restored building is home to a very large colony of furrow bees being studied by Exeter University for their unique behaviour, compared to the behaviour of the same species in the south of the UK.						
1c	27.51	Birch (downy/silver)	1940	Min-intervention	Housing/infrastructure, structures & water features on or adjacent to site	National Scenic Area
Very large swathe of even aged birch regeneration across a south facing hillside, probably derived from natural regeneration following large scale felling during the Second World War. Predominantly B. pubescens with some B. pendula above Rhivra. Density varies & includes some large, scattered glades, especially in the northwest corner. The birch becomes progressively more stunted towards the east of sub compartment. Scots pine and birch is regenerating throughout the sub compartment, vigorously in places. Thinning was carried out over 19ha Birch in 2002. This area appears as woodland on the OS 1st Edition map and is remembered locally as being Scots pine, which was felled during WWII by the Canadian Forestry Corps. A former Scottish Water tank is situated at the west end of the sub-compartment, this is now privately owned. In the northwest corner, there are the remains of a group of buildings.						
1d	23.36	Birch (downy/silver)	1940	Min-intervention	Archaeological features	National Scenic Area, Scheduled Ancient Monument
South facing moderate slope levelling out to the Achue track. Supports a large area of open heather moorland with large irregular patches of birch regen. and frequent Scots pine. The Rhivra or Achaidh chambered cairn by the Achue track is a Scheduled Ancient Monument [Index no. 1803]. There is a second cairn and a farmstead also within this sub compartment. This area appears as woodland on the OS 1st Edition map and is remembered locally as being Scots Pine, which was felled during WWII by the Canadian Forestry Corps.						
1e	23.82	Birch (downy/silver)	1940	Min-intervention	Archaeological features, Gullies/Deep Valleys/Uneven/Rocky ground	National Scenic Area
Moderate to steep south facing hillside bisected by a deep steep sided valley with an attractive permanent burn, the Allt nan Eun – known locally as the Fairy Glen. Steep banks have well-spaced Birch and Scots Pine at all stages. Part of the area is enclosed by 19th C. plantation banks. The area within the plantation banks appears as woodland on the 1855 Burnett & Scott map. The whole of the sub compartment is shown as woodland on the OS 1st edition map c.1860 It was probably felled during WWII by the Canadian Forestry Corp, but steep sided sections along the Allt nan Eun may support remnant ASNW. The southwest corner is Ancient Semi Natural Woodland - Long Established Woodland of Plantation Origin. In the early 1900's a walk crossing the burn on 9 wooden bridges was built by Andrew Carnegie. The walk led to a log picnic cabin						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
in the upper part of the glen at NH 677 908. The bridges and the cabin are gone, but traces remain. A modern bridge crosses the burn just below the site of the cabin.						
1f	9.2	Open ground		Min-intervention	null	National Scenic Area
Flat, open heather moorland developing into low density bog woodland above south facing slope supporting a large area of raised blanket bog with very stunted, Scots pine and some downy birch widely scattered in wet ground. This area appears as woodland on the OS 1st Edition map, but not on previous maps. It was probably felled during WWII by the Canadian Forestry Corps.						
1g	30.32	Birch (downy/silver)	1940	Min-intervention	Archaeological features, Services & wayleaves	Ancient Semi Natural Woodland, National Scenic Area
South facing slope supporting open heather moorland with a wooded margin. The moorland supports occasional groups of young silver birch regen and individual Scots pine. Large patches of gorse are present on previously disturbed ground. Remains of 1850's plantation banks are visible. The wooded areas bordering the moor are composed of dense, scrubby silver birch regeneration to the north, semi mature silver birch to the south west, pine and birch to the south, a wet area with dense birch and goat willow at the south east corner, and a strip of open mature silver birch along the roadside to the east. Gorse is frequent in glades and as an understorey throughout. The gully of the Allt Ruadh marks the southern boundary of the property. The south east and south west corners of the sub compartment are shown as woodland bordered by plantation banks (one follows the line of the path) on the Burnett & Scott 1855 map. The area bordering the Achue road was used for a large timber stacking area by the Canadian Forestry Corp s during WWII. The whole of the sub compartment is shown as woodland on the OS 1st edition map c.1860. Part of the SW corner is recorded as ASNW - Long Established Woodland of Plantation Origin.						
1h	2.83	Birch (downy/silver)	1940	Min-intervention	Gullies/Deep Valleys/Uneven/Rocky ground, Services & wayleaves	National Scenic Area
Purchased in 2020 as a fenced area to the south west of 1e, this compartment is made up of birch with some hazel, cherry, holly, willow and alder in the northern half, and mature sessile oak in the southern half. In the upper half, the ground flora comprises of greater woodrush, grasses and bluebell. In the southern half, bracken has becomes dominant, although some planting of oak in some canopy gaps will assist in reducing the capability of dominance in the long term, although lateral light from the fields will also be an ongoing issue going forward. Designated as Ancient Semi Natural Woodland - Long Established Woodland of Plantation Origin, and part of a slightly larger block of ASNW within the area adjacent in sub compartment 1e and 1g. It first appears as woodland on the Burnett and Scott map in 1831. The cultural history in this small compartment is vast. Two chambered cairns at the southern corner and a dedication memorial stone to a Carnegie family member. the route to the cabin in 1e crossed the stream mid way up the compartment with the stone abutments still visible and in good repair. To the uphill of this is the real gem of this spot, a carved stone bearing Carnegie's name opening the Fairy Glen in 1907.						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
2a	12.58	Scots pine	1975	PAWS restoration		National Scenic Area

South facing slope above the Spinningdale to Migdale public road, supporting birch and Scots pine regeneration at all stages, with a small area of mature Scots pine woodland on the west bank of the Allt Coire nan Caorach. Much of the regeneration is more than 40 years old and has reached thicket stage. Birch are present throughout, becoming frequent along the road side. Juniper is frequent under the mature pines. A small area in the north of the sub compartment is ancient woodland of semi natural origin.

The sub compartment suffered fire damage in the 1980's, which may have been less severe here than in the remainder of compartment 2, allowing regeneration to become established earlier.

Pearl bordered fritillary has been recorded in this sub compartment (Butterfly Conservation Scotland).

An overgrown forest track leads from the road on the east side of the burn towards a ruined farmstead in sub compartment 2b. This sub compartment appears as unenclosed woodland on the OS 1st Edition map and on previous maps including Burnett & Scott 1855. The area to the south east of the stream is thought to be part of the large scale 19th century plantings and felled during the 1940's with subsequent woodland damaged through fire.

2b	10.71	Scots pine	1975	PAWS restoration	Archaeological features	Ancient Semi Natural Woodland, National Scenic Area

Gentle to moderate undulating south facing slope, between the Spinningdale to Migdale public road and a (partially overgrown) forest track on its northern edge.

The sub compartment suffered fire damage in the 1980's. The area is predominantly open but supports scattered senescent birch woodland with many dead and fallen trunks, probably related to the fire. There are large open areas of both bracken and Calluna. Groups and scattered individual mature Scots pine survive. Occasional birch and Scots pine regen of around 20 to 25 years old is present, except in areas dominated by bracken. Pine regeneration becomes frequent at lower levels.

There are occasional groups of mature aspen in the centre and towards the east of the sub compartment with two fenced plots also in the sub compartment, with limited success for suckering. The very rare hoverfly Hammerschmidtia ferruginea which develops in the bark of recently dead aspen and feeds on the decaying cambium has been recorded at Ledmore & Migdale (Entwhistle 1998).

Several veteran hazel stools survive adjacent to the Achue track, with some seedling regeneration. Oak, rowan and juniper are occasional throughout.

A number of notable lichen species, some associated with old woodland sites, are present particularly on hazel and aspen. Key specimens have been tagged. (Migdale Lichen Survey Coppins & Coppins 2001). The wood ant Formosa aquilonia has been recorded on this area (Entwhistle 1998).

There is a ruined farmstead in the north west corner, largely destroyed by a later forest track. This sub compartment appears as unenclosed woodland on the OS 1st Edition map, and on previous maps including Burnett & Scott 1855. Most of it is recorded as ASNW, except for an area in the north west corner around the former farmstead. It is probable that some felling took place here during WWII. An area at the northern edge is recorded as PAWS, but the surviving tree cover appears to be of semi-natural origin. Seven veteran Scots pine have been recorded on the Ancient Tree Inventory in this sub compartment.

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
2c	22.4	Scots pine	1975	PAWS restoration	Very steep slope/cliff/quarry/mine shafts/sink holes etc	National Scenic Area
South facing, moderate to steep slope, becoming open heather moorland at the northern edge. This sub compartment suffered fire damage in the 1980's. Occasional mature Scots pine survive in upper part of the sub compartment. Large patches of dense silver birch and scattered Scots pine regen at various stages are frequent in the south of the sub compartment, becoming occasional at higher levels. There are large open areas of both bracken and Calluna. Larch regeneration is frequent at the upper edges of the sub compartment, although management started in 2023 to remove. This sub compartment. appears as unenclosed woodland on the Burnett & Scott map of 1855 and on the OS 1st Editon map c.1860. Part of the western portion is recorded as PAWS, but any previous plantation appears to have been felled, possibly during WWII.						
2d	27.91	Open ground		PAWS restoration	Very steep slope/cliff/quarry/mine shafts/sink holes etc	National Scenic Area
High, open, exposed, south facing heather moorland adjoining an area of Skibo estate. Part of the western portion is designated PAWS, but any previous plantation appears to have been felled, possibly during WWII.						
3a	4.99	Scots pine	1880	PAWS restoration	Archaeological features, Services & wayleaves	Ancient Semi Natural Woodland, National Scenic Area, Site of Special Scientific Interest
Stand of mature Scots pine mixed with mature silver birch and aspen, near the main woodland entrance. Aspen and rowan are frequent along the edge of the Allt Leacach burn. There is locally frequent regen of all species, with abundant Scots pine and birch in a wayleave. Bracken patches are frequent in open areas, but there is diverse ground flora beneath. There is a cairn in the north east corner, below the Spinningdale to Migdale Road, and part of a farmstead site to the west of the Allt Leacach (which extends into sub compartment 3J). A number of ancient pinewood indicators are present including lichen and invertebrate species assemblages (Coppins & Coppins 2001; Entwhistle 1998). The area to the east of the Allt Leacach is recorded as ASNW (although shown without trees on the Burnett & Scott 1855 map). The area to the west of the Allt Leacach is recorded as PAWS and is shown on maps as wooded from 1855 – it seems likely that it is in fact ASNW.						
3b	12.83	Scots pine	1950	PAWS restoration		National Scenic Area, Site of Special Scientific Interest
Lower south east slope of Migdale Rock. An area of frequent to abundant thicket birch and pine bisected by a band of open ground supporting occasional pine and birch regen. Bracken patches are frequent, becoming dominant in the open central area. A number of ancient pinewood indicators are present including invertebrate and lichen species assemblages (Migdale Lichen Survey Coppins & Coppins 2001; Invertebrate Assessment, Entwhistle 1998). Approximately 2/3 of the compartment is recorded						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
as PAWS. This area is shown on both the Burnett & Scott 1855 map and the OS 1st edition map c. 1860 as wooded. Local information is that there was extensive windblow in this area in a 1950's storm (Entwhistle 1997). A path (now overgrown) is shown on earlier maps (1855, 1860,1966) running from a former farmstead site at the end of Loch Migdale to Kyloag, roughly along the north east edge. This sub compartment is within Migdale Rock SSSI, which is currently assessed by Nature Scot as 'unfavourable – declining' due to the presence of non-native species: principally larch, with rare rhododendron. All these issues are in hand and is likely the site would be considered 'unfavourable – recovering'.						
3c	22.69	Scots pine	1880	PAWS restoration	Housing/infrastructure, structures & water features on or adjacent to site	National Scenic Area, Site of Special Scientific Interest
Moderate to very steep south facing slope with mature, well-spaced, retained plantation Scots pine of good form becoming progressively stunted and more sparse towards higher ground. Towards the west end, mature juniper is frequent and there are open areas supporting good Scots pine regen. There are occasional groups of aspen along the Loch Migdale shore (some on neighbouring property) There is an area of recently felled (2022 and 2024) larch with a developing bracken and Calluna understorey. Near the E. end of the Loch there are a few mature Norway Spruce off Woodland Trust land. There are some flat strips of land with patches young Scots pine and birch regen. along the access track as it approaches Loch Migdale from the east. These relate to the Canadian Forestry Corp camp which was at the head of Loch Migdale. Cross bars seen on some trees are said to have supported telegraph wires to the camp (Hughes & Entwhistle1997). A number of ancient pinewood indicators are present including invertebrate and lichen species assemblages (Coppins & Coppins 2001; Entwhistle 1998). The Slave Making Ant Formica sanguinea is present at the E end of the sub compartment. Most of this area is recorded as PAWS. It is shown on the Burnett & Scott 1855 map as sparsely wooded, becoming treeless along the loch shore. The wooded area is more extensive on the OS 1st edition map c. 1860. A fire swept over Migdale Rock and through this compartment in 1880, destroying what was then describes as a young plantation. This sub compartment is within Migdale Rock SSSI, which is currently assessed by Nature Scot as 'unfavourable – declining' due to the presence of non-native species: principally larch, with rare rhododendron. All these issues are in hand and is likely the site would be considered 'unfavourable – recovering'.						
3d	10.31	Scots pine	1880	Min-intervention	Very steep slope/cliff/quarry/mine shafts/sink holes etc	National Scenic Area, Site of Special Scientific Interest
Crags and steep slopes with frequent large and small groups of old stunted Scots pine, becoming more open spaced towards the east end. There are groups of mature birch along the cliff base, frequent mature juniper and occasional mature holly. A number of ancient pinewood indicators are present including lichen and invertebrate species assemblages (Coppins & Coppins 2001; Entwhistle 1998). The cliffs rise in an irregular series of steeply sloping granite faces. The rocks support a diverse lichen flora. There are some base rich seepage areas giving rise to a calcicole flora which includes the nationally rare rock cinquefoil, Potentilla rupestris.						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
Non-native cotoneaster species threatening the plant assemblage were controlled from 2022 to 2024, with monitoring and removal required at least every five years to ensure this issue does not return. Although this area does not appear as wooded on early maps, it is possible that its inaccessibility made it a refuge for the stunted remnants of a much earlier forest. The greatest diversity in ancient pinewood lichen flora was found in this sb compartment. This sub compartment is within Migdale Rock SSSI, which is currently assessed by Nature Scot as 'unfavourable – declining' due to the presence of non-native species: principally larch, with rare rhododendron. All these issues are in hand and is likely the site would be considered 'unfavourable – recovering'.						
3e	2.81	Sessile oak	1880	Min-intervention	Very steep slope/cliff/quarry/mine shafts/sink holes etc	National Scenic Area, Site of Special Scientific Interest
Moderate south facing slope above the loch side supporting dominant mature oak with frequent mature 'granny' Scots pine and occasional holly, and juniper. Diverse understory with blaeberry, heather and patches of bracken. Some of the oak shows signs of having been pollarded or coppiced in the past. This is thought to be the 'Migdale oakwood' referred to in historical documents. The area is shown as wooded on maps from 1855 onwards, and is recorded as PAWS, but has strong semi-natural characteristics. 1 veteran Scots pine has been recorded on the Ancient Tree Inventory. This sub compartment is within Migdale Rock SSSI, which is currently assessed by Nature Scot as 'unfavourable – declining' due to the presence of non-native species: principally larch, with rare rhododendron. All these issues are in hand and is likely the site would be considered 'unfavourable – recovering'.						
3f	4.5	Birch (downy/silver)	1900	Min-intervention		Ancient Semi Natural Woodland, National Scenic Area, Site of Special Scientific Interest
Rectangular sub compartment of birch with two small groups of mature Scots pine in centre. Several large 'granny' birch are present. Part of the sub compartment is recorded as ancient semi natural woodland.						
3g	39.6	Scots pine	1930	PAWS restoration		National Scenic Area, Site of Special Scientific Interest
Moderate to steep south facing hillside rising to rounded and flat crest. Almost pure Scots pine ranging from large 'granny' specimens at low levels gradually decreasing in size towards high ground on crest of hill. Open gullies support scattered mature silver birch. The broad summit of Migdale Rock has shallow soils and rocky outcrops supporting Calluna and abundant Scots pine regeneration. There are commanding views in almost all directions. The lower slopes to the west of the sub compartment are recorded as PAWS, corresponding approximately to the extent of tree cover shown on early maps - this area has strong semi-natural characteristics. A fire swept over Migdale rock and through this compartment in 1880, destroying what was then described as a young plantation.						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
3h	31.68	Scots pine	1955	PAWS restoration		National Scenic Area, Site of Special Scientific Interest
Gentle northeast facing undulating slope supporting open moorland mainly of heather and rough grasses with large swathes of bracken covering 50% of the area. Much of this area was windblown and the timber subsequently cleared after a major storm in the 1950's. Numerous dead, standing, tree trunks on higher ground. Scattered large thickets of downy birch and frequent scattered groups of silver birch and Scots pine regen. at various stages. Approximately 2/3 of the area is recorded as LEPO (long established of plantation origin), although current tree cover is limited to patchy regeneration. Tree cover on the OS 1st Edition map indicates that the whole area was under woodland c. 1860. No tree cover is shown on the Burnett & Scott 1855 map (surveyed 1831-32). An underground tunnel was uncovered in this vicinity during the logging operations after the 1950's storm, but subsequently lost.						
3i	13.69	Scots pine	1880	Min-intervention	Very steep slope/cliff/quarry/mine shafts/sink holes etc	National Scenic Area, Site of Special Scientific Interest
Mid slope occupying broad eastern ridge of Migdale Rock. Frequent Scots Pine regen at all stages with frequent groups of mature Scots pine, including occasional large 'granny' trees. Glades of heather and blaeberry with small patches of bracken. The majority of this area is recorded as of Long Established Plantation Origin (LEPO) on the Ancient Woodland Inventory. Tree cover on the OS 1st Edition map indicates that the whole area was under woodland c. 1860. No tree cover is shown on the Burnett & Scott 1855 map (surveyed 1831-32). 1 veteran Scots pine has been recorded on the Ancient Tree Inventory.						
3j	11.52	Birch (downy/silver)	1900	Min-intervention	Mostly wet ground/exposed site	National Scenic Area, Site of Special Scientific Interest
This sub compartment. stretches along the south side of the minor Migdale to Spinningdale road, following the stream valley of the Allt Leacach. It is predominantly open wet flush to the west with frequent gorse and broom, becoming progressively more wooded to the east. There is frequent scattered Scots pine and birch regeneration at all stages, largely checked on the wetter areas. Developing regeneration and mature Scots pine and birch are frequent along the road side, with occasional mature 'granny' Scots pine. Pale butterwort Pinguicula lusitanica has been recorded in this sub compartment (Entwhistle 2008). In the centre of the sub compartment, there is a level alluvial area under the north facing slope of Migdale Rock supporting a well spaced stand of even-aged birch. Towards the east end there is an area composed of well grown granny pine and senescent birch, with abundant juniper in the understory, and frequent alder along the streamside. There are the remains of a former farmstead on level ground at the west end, while the boundaries of the township of Kyloag extend into the east end, where there is a rectangular stone wall footing. A small portion is recorded as PAWS, however most of this area appears to be recent secondary woodland of semi natural origin, and the associated lichen flora is indicative of recent disturbance (Coppins & Coppins 2001). The whole area is shown as woodland on the OS 1st Edition c. 1860, but only the extreme east end, opposite Kyloag, is shown as tree covered on the Scott & Burnett map of 1855). The area of granny pine opposite Kyloag supports a reasonable pinewood lichen flora. 3 veteran Scots pine have been recorded on the Ancient Tree inventory.						
4a	29.21	Open ground		Non-wood habitat	Mostly wet ground/exposed site, No/poor vehicular access to the site	Ancient Semi Natural Woodland, National Scenic Area, Site of

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
						Special Scientific Interest
Spinningdale Bog SSSI: a nationally rare habitat supporting a rich flora and insect fauna. Large expanse of valley mire with scattered, stunted willow and birch present, and some pine regen encroaching from the margins. Frequent groups of alder line the banks of Spinningdale burn, which runs through the mire. The edges of the mire are wooded. At the north west end this is composed of birch, Scots pine (including some mature specimens) and occasional alder on wet, seasonally flooded ground. Tree cover thins progressively towards the edge of the mire. The north east side of the compartment rises up to the Migdale road and is better drained, supporting large, well-spaced senescent birch with mature Scots pine and occasional other broadleaves including aspen. Areas of regenerating Scots pine and willow species extend out into mire below. The south east end of the compartment supports dense mixed birch and willow on flat ground, as well as a small area of open field with single specimens of very large, mature alder and scattered small groups of mature birch. There is a single large, crab apple tree close to the road side confirmed as pure wild apple and, at time of writing, the most northerly wild apple in mainland Britain, and of considerable age. The south western edge follows the line of the Spinningdale burn. It supports a narrow strip of mixed alder, silver birch and grey willow, widest at the western end, gradually thinning out towards the east. The trees are mature but appear to have been stunted by the soil conditions. Small portions of the north western corner are recorded as ASNW. Historic maps show a long history of management of water-flow through the bog, including a 19th century canalisation scheme to feed into a hydro plant at Spinningdale house. This sub compartment is designated as Spinningdale Bog SSSI, it is currently assessed as unfavourable-declining by Nature Scot due to the progressive colonisation by scrub, and possible drying out of the bog habitat. Work was carried out from 2012 to 2016 to clear the core of the bog and this is maintained every three to five years to retain the open ground.						
5a	1.83	Alder species	1960	Min-intervention		National Scenic Area
Flat area of ground at east end of Loch Migdale with large alder below the dam giving way to mature birch on the north side of the stream on the site of a former farmstead. There are occasional mature ash and Scots pine. The shingle beach at the dam is a popular picnic site. Pearl bordered fritillary has been recorded in this sub compartment (Butterfly Conservation Scotland).						
5b	7.08	Birch (downy/silver)	1920	Min-intervention	Archaeological features, Gullies/Deep Valleys/Uneven/Rocky ground	Ancient Semi Natural Woodland, National Scenic Area
Large, complex, streamside, sub-compartment incorporating both sides of a deep gorge and associated riparian zones. Supports large alternating groups of mature 'granny' birch and large Scots pine with groups of alder on streamside banks. Some mature ash and groups of pole stage birch and pine are also present. Some small groups of aspen present in a rich, diverse, understorey. Opposite leaved saxifrage Chrysosplenium oppositifolia occurs at the east end of the sub-compartment. There is a ruined cornmill on the north bank of the burn, said to have burned down in 1809 (Hughes & Entwhistle 1997). A large concreate sided hole discovered in 2021 is thought to be the sump for kitchens from the Canadian camp across the track, this is covered with a grill. This sub-compartment is recorded as ASNW.						
5c	5.74	Scots pine	1900	PAWS restoration	Archaeological features	Ancient Semi Natural Woodland, National Scenic Area
Flat streamside area of diverse character with two small areas of Scots pine plantation and an area of birch with occasional willow, alder and Scots pine. This sub compartment is recorded as PAWS, with an area of ASNW in the centre. Some remains of a						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
farmstead and enclosures can be seen, although they have been largely destroyed. This may have occurred during WWII when a sawmill was established here by the Canadian Forestry Corp. (Carter & Wordsworth 1997).						
6a	112.28	Birch (downy/silver)	1970	Min-intervention		National Scenic Area
Large area on the hill between Ledmore Oakwood and Spinningdale burn. The crest of the hill is a moorland plateau, dropping into north facing slopes towards the burn. Thissub compartment supports a mosaic of large and small groups of Scots pine and silver birch regen at all stages. Trees become progressively more stunted towards the brow of hill. On the north facing slopes there are large groups of pole stage birch and pine. There are two groups of very stunted but mature Scots pine growing in isolation in centre of the exposed moorland plateau. Natural regeneration is abundant across much of this sub compartment, and part of a new natural regeneration scheme. There are wet flushes at the northern edge and south east corner of the sub compartment. There is a commanding view point on the summit of A'Chraisg. This area is first shown as woodland on the Burnett & Scott map of 1855. It remains on subsequent maps until 1935, and was probably felled during WWII. Black grouse are occasionally present in this sub compartment, and an artificial raptor nesting platform was constructed the late 1990's.						
7a	4.15	Open ground		Min-intervention	Archaeological features	National Scenic Area, Scheduled Ancient Monument, Site of Special Scientific Interest, Special Area of Conservation
Area of exposed heather moorland on moderate south facing slope near crest of hill. Occasional scattered, stunted Scots pine and birch regen. There is a chambered cairn (SAM, Creich Mains Index no. 1805) on the western boundary, and the upper edge is enclosed by a bank or dyke, which continues east along the top of sub compartment 7d to the Allt an Fhuarain. It seems likely that the plantation bank was constructed in the mid 19th century to protect new plantations on the high ground in sub compartment 6a.						
7b	6.4	Open ground	2003	Min-intervention	Archaeological features	National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Moderate to steep south facing slope. Dense gorse was cleared from a large part of this area, and around 5000 mixed broadleaf trees were planted in 2003-04. Recolonisation by gorse and deer browsing have hampered successful establishment. Intensive bracken whipping and rolling and building of gorse corrals have allowed some trees to grow beyond deer browse height, although remain vulnerable. The north east corner supports large areas of dense, mature gorse with large groups of thicket stage downy and silver birch growing through. There are the remains of two buildings on the far side of the property boundary to the south west.						
7c	6.63	Birch (downy/silver)	1900	Min-intervention	Archaeological features	Ancient Semi Natural Woodland, National Scenic Area, Site of

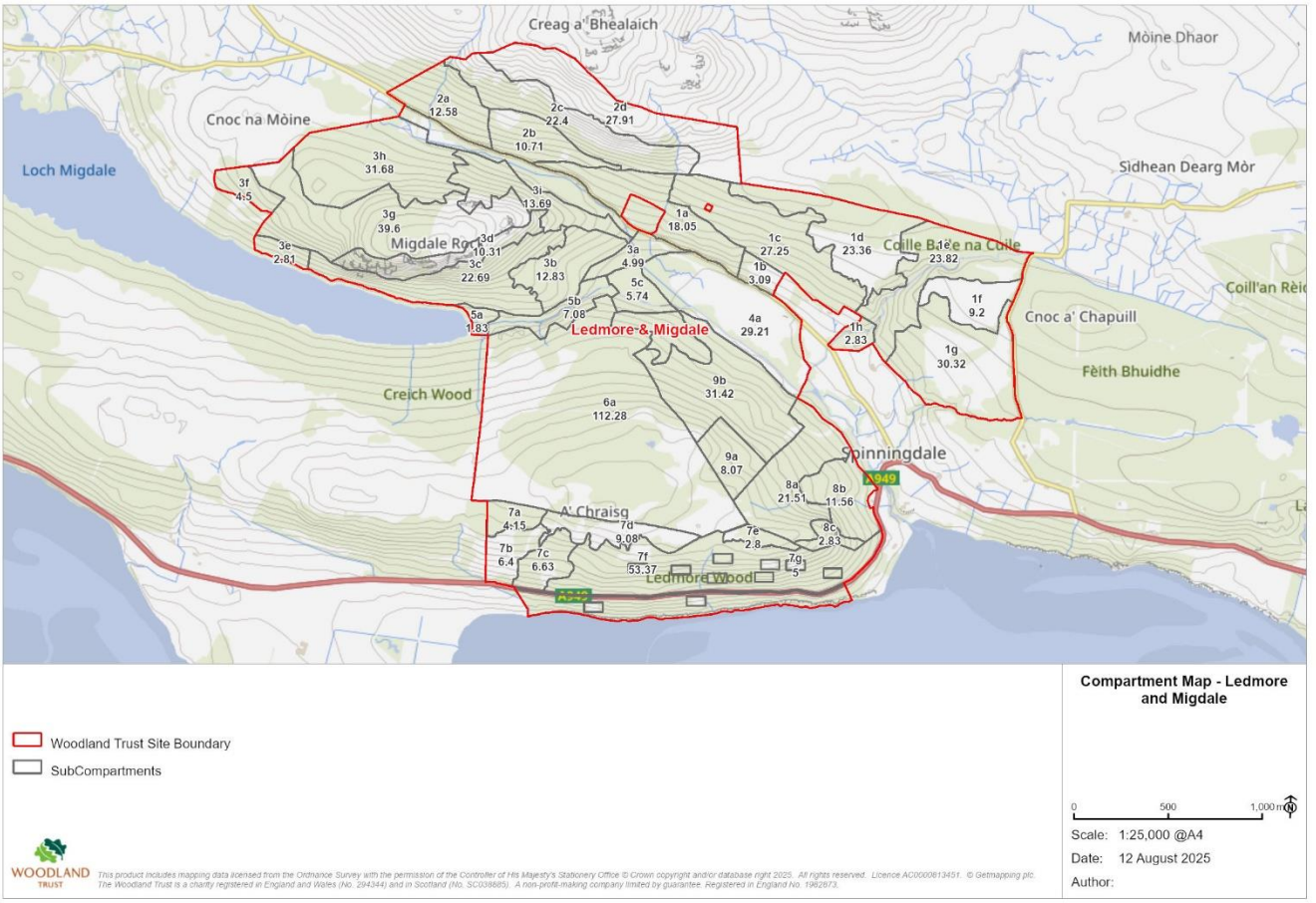
Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
						Special Scientific Interest, Special Area of Conservation
Moderate south facing slope supporting well spaced, mature 'granny' birch around series of large glades of dense bracken, the largest of which is now grass dominated through five years of bracken rolling from 2021 to 2025. There is a dense, isolated thicket of blackthorn, occasional browsed holly and rare mature Scots pine. The open glades in this area are associated with an area of former fields, defined by stone banks and clearance heaps.						
7d	9.08	Open ground	1980	Min-intervention	Archaeological features	National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Linear sub compartment on moderate south facing slope supporting mature, senescent silver birch and open glades of bracken. Woodland opens out into heather moorland at the upper edge, with large swathes of thicket stage downy and silver birch woodland in more sheltered undulations. The upper edge is enclosed by a bank or dyke, which continues west along the top of sub compartment 7a, and east to the Allt an Fhuarain burn. This bank was probably constructed in the mid 19th century to protect newly planted woodlands in sub compartment 6a.						
7e	2.8	Birch (downy/silver)	1980	Min-intervention		National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Area of very dense thicket stage silver birch regen on flat moist land near crest of hill and adjoining the plantation area in sub compartment 8a. Some open glades to north of sub compartment.						
7f	53.37	Sessile oak	1850	High forest	Housing/infrastructure, structures & water features on or adjacent to site, Sensitive habitats/species on or adjacent to site, Site structure, location, natural features & vegetation	Ancient Semi Natural Woodland, National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Steep, south facing slope supporting a very large area of pure, even aged, mature, oak woodland. Regen rare, due to a combination of low light levels under mature canopy and deer browsing. Occasional Gaultheria and Rhododendron present in the eastern end, although all managed and require further control. The A949 road cuts through the sub compartment running parallel to the sea shore. There is a small strip of Scots pine and silver birch along north side of the road to the east of the Allt an Fhuarain. There are numerous groups of large pole stage silver birch along the south side of the road and a group of mature sycamore at the western end. Some small groups of semi-mature aspen are present on the south side of the road at the western						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
end, and on the seashore at the eastern end. Rock whitebeam is present in small calcareous flushes along the shore. The wood ants Formica aquilonia and F. lugubris have been recorded in this sub compartment. The shoreline has been identified as an activity cluster site for otter (Wells& Paterson 2008). This sub compartment is recorded as ASNW, and map evidence shows that an oak wood has been present on the site since at least the mid 18th century. Historic evidence suggests that it was managed for coppice in the 19th century. It is not clear whether the present woodland cover (approx 100-150 years old) is derived from singled coppice after the last 19th century cutting, or from a subsequent planting. There are areas of clearance cairns and an extensive former farmstead site at the upper edge, with occasional larger oaks and open areas of bracken on the former fields. The bank which runs east to west above the oakwood changes direction to enter this sub compartment and join the head of the Allt an Fhurain. Just above this point there is the first of a series of four boundary marker stones (only two have been found on the ground) which continue the line of the burn across the hill above the oakwood. These marked the march between Pulrossie Estate to the east and Creich Estate to the west, prior to their amalgamation in to Skibo Estate in the late 19th century. In 1998 a series of 10no 0.5 ha regeneration plots were established in the oakwood with varying treatments (felling, thinning, fencing) and baseline monitoring of regeneration was carried out in the following year. In 2013 a repeat survey revealed adequate levels of regeneration in plots which had been deer fenced and were free of completion from bracken. In other plots and elsewhere throughout the oakwood seedling recruitment is poor. Two of these plots that were only rabbit fenced were removed in 2022 as ineffective.						
7g	5	Mixed native broadleaves	1998	Wood establishment		Ancient Semi Natural Woodland, National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Series of eight plots and two control areas within the boundary of sub compartment 7g, which were set up in 1998 to assess the effect of different management regimes on regeneration. The plots are 100m X 50m rectangles of 0.5ha each. The central 0.25 ha of each plot was felled, retaining 4 seed trees in half of the treatments. The remaining 0.25 ha of each plot was thinned, with the intensity tapering out towards the plot edges. A) Deer & rabbit fencing, 4 seed trees retained B) No fencing, 4 seed trees retained C) Rabbit fencing, 4 seed trees retained (removed in 2022 as in need of repairs) D) Deer fencing, no seed trees retained E) Deer fencing, 4 seed trees retained F) No fencing, no seed trees retained G) Deer & rabbit fencing, no seed trees retained H) Rabbit fencing, no seed trees retained (removed in 2022 as in need of repairs) i) Deer and rabbit fencing, control no felling J) No fencing, control no felling. Base line monitoring of the plots was carried out (James 1999). A follow up survey was carried out of plots A, B, D G in 2014, which recorded an average stocking rate of 2247/ha (excl mature trees) in the deer fenced plots, with oak (including coppice regrowth) making up 11% of the total. Recruitment in the unfenced plot B was only 25% of the level in fenced plots. (Beck 2014). In 2023, the deer fenced plots were thinned to favour oak saplings.						
8a	21.51	Scots pine	1960	PAWS restoration	Archaeological features	National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Moderate north facing slope rising to crest of hill supporting plantation Scots pine (p1960) which was thinned in 1998 and 2004. Stature decreases towards upper elevations. Stream sides were cleared to 30m & open ground created on site of clear felled Sitka spruce in 1998. Limited regeneration of birch has occurred in open areas. A substantial amount of windblow occurred in this area in 2005, particularly towards the crest of the hill. A small stand of 0.6 ha Sitka spruce at NH668895 was felled in 2010. The north west side of the sub compartment is bounded by broad ride or firebreak, which first appears on the Burnett and Scott						

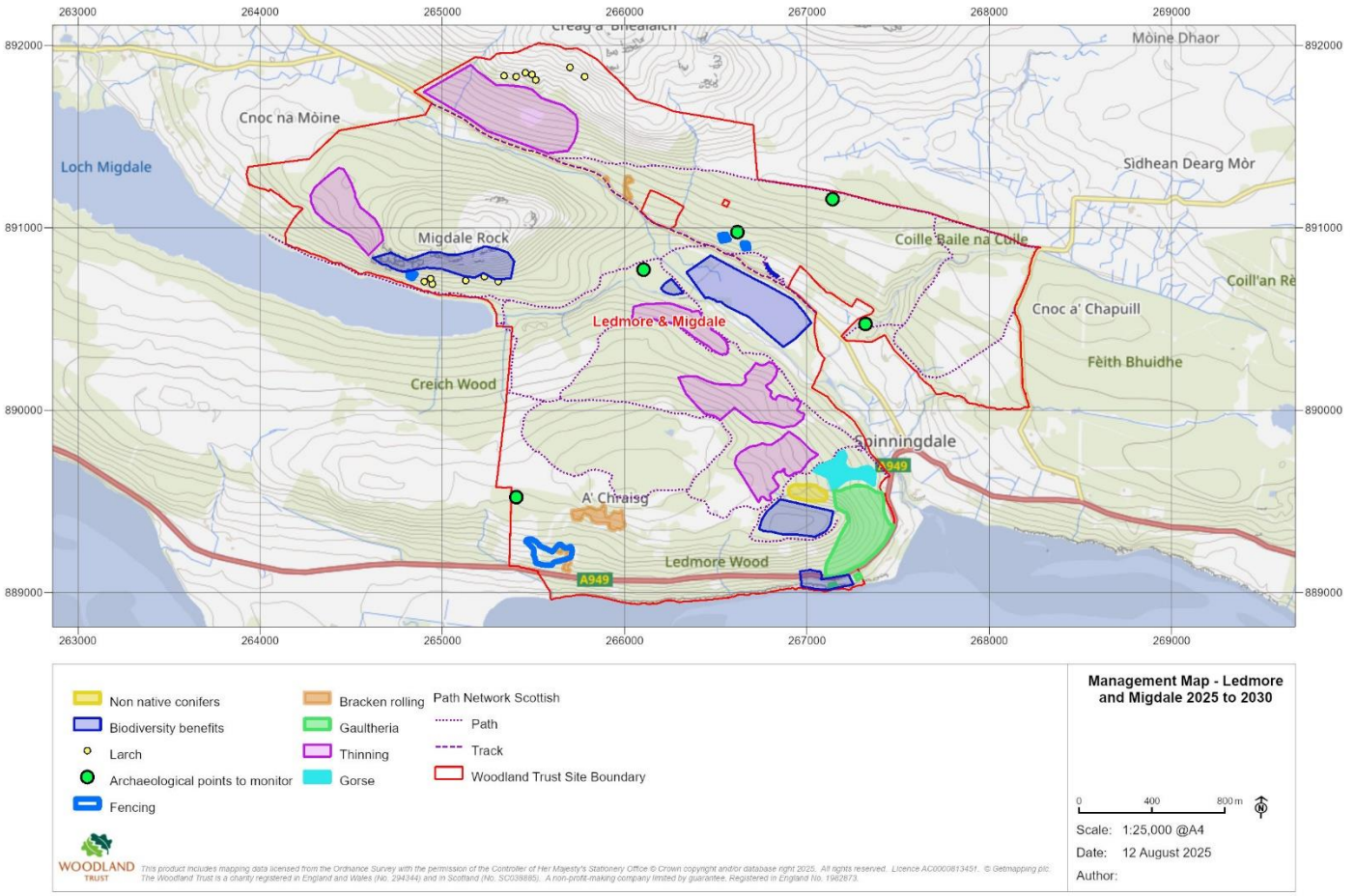
Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
map of 1855, and follows the march between the former Pulrossie and Creich estates. There are remains of a deserted township with several buildings and dykes stretching into the adjacent sub compartment 8b. Most of This sub compartment is PAWS of LEPO origin, and was probably 19th century plantation, felled during WWII and subsequently restocked. There is a small area at the south edge of the sub compartment which is recorded as PAWS of ASNW origin and falls within the SSSI &SAC. This area has, however, been almost completely windblown. Occasional Rhododendron & Gaultheria are present.						
8b	11.56	Mixed native broadleaves	2017	PAWS restoration	Archaeological features, null	National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Gentle to moderate north and east facing slope becoming steep at higher elevation. 10.74 ha of p1960, previously thinned Douglas fir and lodgepole pine were felled in 2010. The majority of the sub compartment was deer fenced in winter 16/17 and planted in March 2017 with sessile oak majority, hazel, rowan, aspen, with small scale additional planting of juniper, alder and willow in 2018 and 2019. The tree shelters were all removed by the end of the 2024. This sub compartment is recorded as PAWS of LEPO origin, and was probably 19th century plantation, felled during WWII and subsequently restocked. There is a small area of approximately 2.8ha at the south edge of the sub compartment, which is designated PAWS of ASNW origin, and falls within the SSSI & SAC. Part of this is under an isolated stand of 0.91ha Scots Pine, the remainder is under heavily windblown lodgepole pine and Douglas Fir, which has been undergoing gradual removal by ringbarking and felling to waste since 2020. There are remains of a deserted township with several buildings and dykes stretching into the adjacent sub compartment 8a.						
8c	2.83	Birch (downy/silver)	1960	PAWS restoration		Ancient Semi Natural Woodland, National Scenic Area, Site of Special Scientific Interest, Special Area of Conservation
Very steep east facing cliff and boulder scree. Supports well-spaced mature and pole stage silver birch with occasional rowan. Also occasional lodgepole pine and Scots pine on lower boulder scree. Very thick moss on boulders. Most of the sub compartment falls within the SSSI & SAC. The south half is recorded as ASNW, and the north portion PAWS of ASNW origin. Camera trapping in this area has found regular use by pine marten and badger.						
9a	8.07	Scots pine	1960	PAWS restoration		National Scenic Area
Moderately steep north facing rectangular sub-compartment of Scots pine thinned in 1998, 2004, and 2018 rising to near the crest of the hill. A broad ride to the south east separates it from sub compartment 8a and supports frequent groups of birch. Occasional pole stage silver birch is present. There are some wet areas within the woodland resulting in patches of stunted trees. The trees become progressively less vigorous towards the southwestern edge at higher elevations. There is an area of windblow in the W corner. This sub compartment is PAWS of Long Established of Plantation Origin (LEPO). It was probably 19th century plantation, felled during WWII.						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
9b	31.42	Scots pine	1975	PAWS restoration	Mostly wet ground/exposed site	National Scenic Area
Moderate north facing slope above Spinningdale Bog supporting very large area of exceptionally vigorous Scots pine and silver birch regen of all stages and of varying density. Diverse mix of other individual native broadleaves scattered throughout. Occasional regen of Sitka spruce and Douglas fir. Very irregularly shaped, large groups of plantation Scots pine remain after forest fire in southeast of compartment. These are difficult to distinguish from the natural regen when close up. Includes large open areas in the south east partially attributable to clearfelling of Sitka, and possibly to a past fire. These areas support occasional to frequent groups of Scots pine and birch regen. This sub compartment can be described as PAWs of LEPO origin. Respacing of Scots pine regeneration to diversify structure and release native broadleaf regen took place over approx. 7 ha within this sub compartment in 2010 and 2018.						
10a	7.56	Scots pine	1950	PAWS restoration	Mostly wet ground/exposed site	National Scenic Area
Gentle to moderate north facing slope supporting thinned semi-mature Scots pine plantation woodland on both sides of a track, with occasional suppressed individual silver birch, ash and wild cherry.						

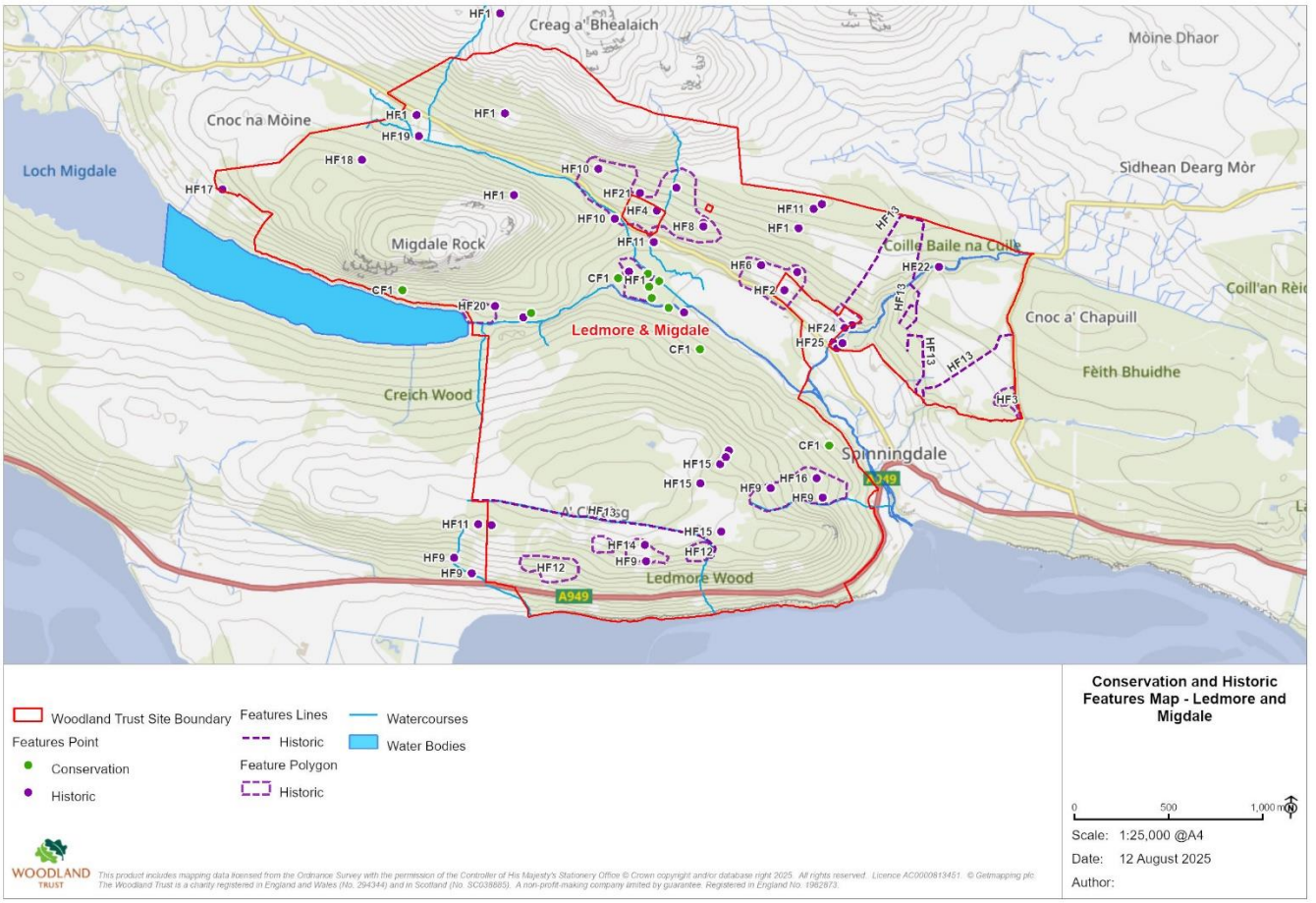
Map 1: Compartment Map and Boundary



Map 2: Management Map 2025 to 2030



Map 3: Conservation and Historic Features Map


Creag a' Bhealaich
Mòine Dhaor
Cnoc na Mòine
Loch Migdale
Sidhean Dearg Mòr
Migdale Rock
Coille Baile na Cuile
Coill'an Rèi
Cnoc a' Chapuill
Ledmore & Migdale
Fèith Bhuidhe
Creich Wood
Spinningdale
A949
Ledmore Wood
Woodland Trust Site Boundary
Features Point
Conservation
Historic
Features Lines
Historic
Feature Polygon
Historic
Watercourses
Water Bodies
Conservation and Historic Features Map - Ledmore and Migdale
0
500
1,000 m
Scale: 1:25,000 @A4
Date: 12 August 2025
Author:
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