

Undoing the Silence of the Southern Uplands



Images: Black Grouse by Malcolm Stott taken in the Moorfoot Hills, Glenlude Hill by Darren Flint

Nature Restoration Fund
Development Stage

Darren Flint: Southern Uplands
Partnership

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This project is supported by the Scottish Government's Nature Restoration Fund, managed by NatureScot



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Project Partners & Management

Lead Partners: Darren Flint, Southern Uplands Partnership darren@sup.org.uk Julia Gallagher, RSPB Scotland Julia.Gallagher@rspb.org.uk	
Core Project Partners (alphabetical): <ul style="list-style-type: none">• Airds Estate• Borders Forest Trust• Buccleuch Estate• Carbon Crichton Centre• Carcant Estate• Forestry & Land Scotland• Galloway and South Ayrshire Biosphere• John Muir Trust• National Trust for Scotland• NatureScot• Tarras Valley Nature Reserve• Wemyss & March Estates• Woodland Trust	Wider stakeholder partners (alphabetical) <ul style="list-style-type: none">• Game & Wildlife Conservancy Trust• Scottish Water• SEPA• Tweed Forum
Project Management: The project will be managed by a steering group made up of representatives from the Southern Uplands Partnership, RSPB, representation from each of the five focus areas and NatureScot. The group will initially meet monthly, while in its infancy and key project elements are getting off the ground, to be amended as necessary.	

Document Purpose:

To report on the development phase funding outputs in support of a proposed southern Scotland uplands habitat restoration and community engagement project. This has been enabled through the award of NatureScot Nature Restoration Funding in December 2022.

Project Vision:

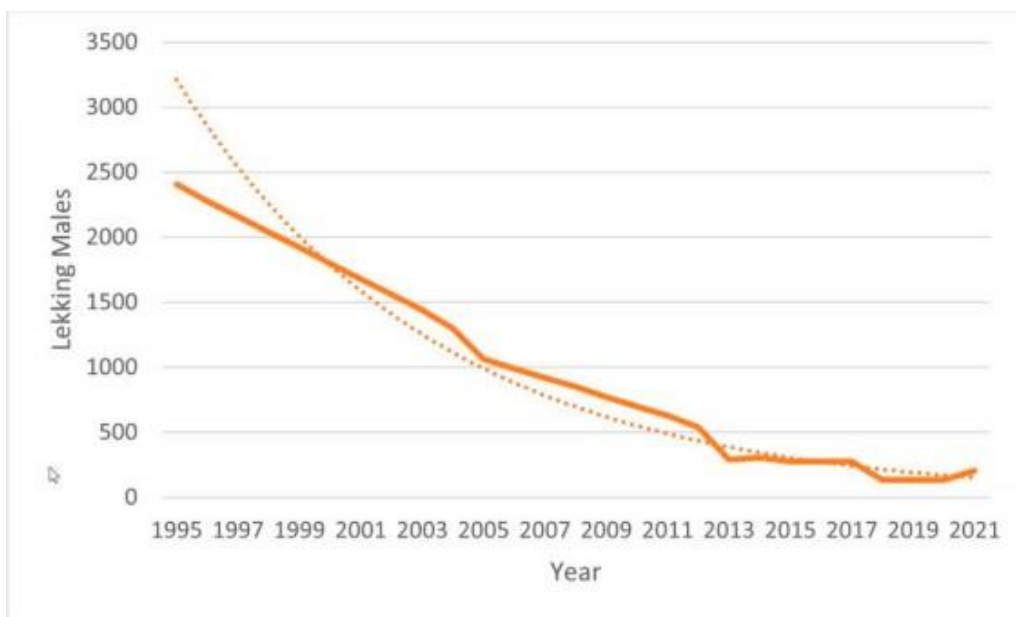
Over the last half century southern Scotland has experienced unprecedented change and pressure to its upland habitats, biodiversity, land use and the communities that reside here. Taking the totemic species of black grouse to illustrate these changes, this once abundant upland bird has declined in southern Scotland by up to 69% between the 1990s and 2005. Their gurgling calls were once common in our soundscape, while the spectacle of strutting males gathering on mass at lek sites is a sight few will see today. Add to this the calls of other signature species such as curlew and snipe, this diminished wildlife spectacular is emblematic of the wider biodiversity loss. The recovery of black grouse would strongly indicate a rebounding landscape, one intrinsically linked to the wider health of our uplands; and the people and communities who live, value and manage this land.

Supporting information

Our uplands are undergoing changes caused by a range of environmental factors including climate change and land use practices, which are directly contributing to the decline in the quality of upland habitats, biodiversity and the totemic species

that rely on it, such as black grouse and curlew. As a key indicator species of this habitat the status of black grouse is intrinsically linked to the wider health of our uplands, while the people and communities who own and manage this land are instrumental in its recovery. This project will support landowners and communities in the protection and management of this valuable habitat and in the conservation of the species which rely on its recovery.

Black grouse in Scotland declined by 29% between the 1990s and 2005, and in the southeast and west of Scotland by 49% and 69% respectively. The population in southern Scotland is now vulnerable to extinction with just over 200 lekking males recorded in 2021 and the population now isolated from birds to the north of Scotland and to the south in England.



Overall trend for black grouse in southern Scotland

Southern Scotland has been identified by the Scottish Black Grouse Biodiversity Action Plan Steering Group as a priority area for black grouse conservation action due to its ongoing decline. In response to this concern NatureScot commissioned a desk-based study in 2014 – 'Black Grouse conservation in southern Scotland' (GWCT 2014) which concluded that the long-term viability of black grouse in southern Scotland is dependent on implementing conservation measures at a landscape-scale.

Over the last 20 years various efforts have been made to address the decline in black grouse but these efforts have not been sustained with little direct action in the last ten years aside from annual lek survey to monitor status. A recent targeted project in Galloway through the Galloway Glens project demonstrated the effectiveness of having resources to delivery targeted conservation work and advisory support in partnership with key stakeholders. Grant support through agri-environment schemes although targeted for some species is short-term funding over a five-year period which limits its effectiveness without dedicated resource to support and maximise its take-up. In addition, there has been little support for collaborative efforts which are important if we want landscape scale improvements, which are required in order to achieve sustainable land-use changes in the uplands in support of vulnerable species and habitats.

Project need and research evidence:

Southern Scotland was identified by the Scottish Black Grouse Biodiversity Action Plan (SBGBAP) Steering Group as a priority area for conservation effort based on the following reports:

- NatureScot commissioned Game & Wildlife Conservation Trust (GWCT): 'Black Grouse Conservation in Southern Scotland' study (2014)
- NatureScot commissioned GWCT: 'Black grouse conservation in southern Scotland - Phase 2. Development of a regional strategic conservation plan' (2016)
- NatureScot: South Scotland Black Grouse Action Plan (2017)
- Southern Uplands Partnership conducted a scoping exercise: 'Black Grouse Recovery Project - Undoing the Silence of the Uplands' (2022)
- Southern Uplands Partnership lead the current development phase, 'Undoing the Silence of the Southern Uplands', outlined in this document

Documents can be found at <https://sup.org.uk/projects/black-grouse-recovery-project/>

How this project supports the NRF Transforming Nature - Priorities for Action:

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) five direct drivers are:

- Land and sea-use change
- Direct exploitation of organisms
- Climate change and its impacts
- Pollution
- Invasive non-native species (INNS)

Within the NatureScot Transforming Nature five priority themes to help tackle these drivers, this project delivers against:

- **Habitat and species restoration**
- **Freshwater restoration**
- **Control of invasive non-native species (INNS)**

Aims of the Delivery Project:

To address the health of our uplands and its totemic species and positively contribute to addressing the climate emergency through the protection of habitats which play a key role in carbon sequestration

- Return the sound of bubbling blackcock and curlew, drumming snipe and other totemic species to the upland landscape
- Use black grouse as an indicator species to reflect landscape scale ambition for the health of the uplands across its range
- Create, restore, and improve habitats including blanket bog, heathland, acid grassland, native broadleaf trees and upland shrubs at both site level and landscape scale for black grouse and other upland species across southern Scotland.

- Work in partnership with communities and landowners/managers in support of project objectives through awareness generation, focused conservation action, and collaborative working
- Support communities in an understanding of their role in the protection of the upland landscape and empower their action in its recovery, especially in relation to tree production
- Implement a surveying and monitoring plan to confirm our understanding of the status of black grouse and other key species in Focus Areas and to monitor populations in response to the actions of the project

NRF timings:

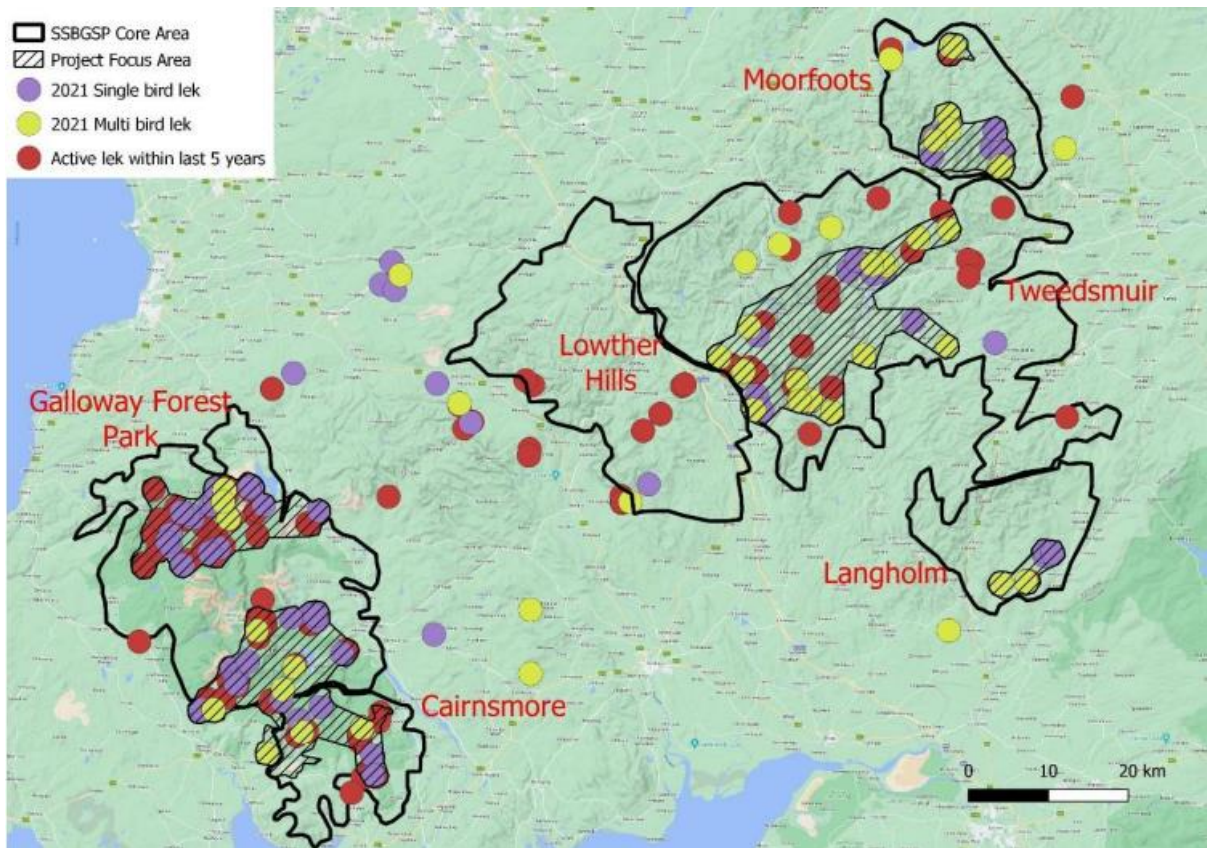
Project development phase:	4 th January - 30 th June 2023
Project delivery funding application:	14 th July 2023
Project delivery:	Start Autumn 2023, NRF element funded to 31 st March 2026 Aiming to develop a 5-year project

Locations/venues:

A number of southern Scotland core and focus areas were identified during the 2016 NatureScot commissioned GWCT: 'Black grouse conservation in southern Scotland - Phase 2 development. These areas were further refined by SUP's scoping exercise in liaison with partners and stakeholders in order to define target areas for this project. From west to east, these are:

- Area 1: Galloway Forest Park and Cairnsmore (Dumfries & Galloway/South and East Ayrshire)
- Area 2: Lowther Hills (Dumfries & Galloway & South Lanarkshire)
- Area 3: Langholm (Dumfries & Galloway)
- Area 4: Tweedsmuir Hills (Scottish Borders)
- Area 5: Moorfoot Hills (Scottish Borders)

These areas cover more than 100,000ha and the project will deliver tangible habitat restoration within these areas, while also engaging with landowners and communities outwith but with geographical connectivity to these areas.



Location of the project's five areas

Detailed breakdown of project's key elements:

The following are the key NRF project strands

1. Habitat restoration and management across five areas
2. Formulation of landowner cluster groups and development of wider participants
3. Species and habitat surveying and monitoring (status/condition relating to project activities)
4. Community engagement
 - a. Volunteering
 - b. Tree provenance and nurseries
5. Proposed Delivery Structure

The following are linked project strands but delivered and funded separately from this NRF project (see appendix):

1. Community engagement
 - a. Tree champions
 - b. Black Grouse Community Place Plans
 - c. Community awareness and education
2. Cultural Soundscape and Arts

These project strands bring together practical upland habitat actions along with engagement with and ownership by the resident upland communities through a mix of direct land-based works, outreach work and cultural activities.

Funding and eligibility:

The tasks will be funded through a mix of Nature Recovery Fund, match-funding from partners and other funding sources being explored, such as Heritage Lottery, Esmée Fairburn and Community Funds. All included works have been checked and discounted for eligibility within other NatureScot and Scottish Rural Development Programme (SRDP) funding including AECS, Peatland ACTION, Forestry Grant Scheme. See the Funding section below, and, where applicable, in the below table of works, for more detail.

Permissions and Consents:

Landowner Declaration: The NRF requirement of a signed Landowner Declaration form covering work permission and the maintenance compliance period will be undertaken if the delivery funding application is successful and prior to any works starting. This requirement has been discussed with the landowners during the development phase.

Site of Special Scientific Interest (SSSI): An 'Operations Requiring Consent' form will be submitted to NatureScot prior to any works commencing on SSSI sites. Stakeholders with works happening on their SSSI sites have contacted their NatureScot project officer to inform them of this project and NRF application.

Maintenance compliance and evaluation of habitat works:

Lead by the Uplands Project Officer during the life of this project in conjunction with the landowners and latterly solely by the landowners, the habitat works will be evaluated and adhere to the conditions within the NRF funding offer.

1. Habitat restoration and management

Requirement: The protection, enhancement, restoration and creation of biodiverse habitat across an ever more fragmented landscape is key to upland recovery and its associated species.

The project will directly support an improved and a nature-rich state within and adjacent to the five focus areas forming habitat corridors in relation to existing and/or planned restoration works across sites. These will often be complementary works alongside existing or wider habitat management that partners have planned. Detailed below are the identified habitat management works and mapped areas across the project areas for each of the current landowners/stakeholders.

See Appendix for summary table of site locations and evidence

The project will concurrently run delivery of the identified habitat actions funded through NRF while also identifying further practical actions on adjacent upland areas during the life of the project through match funding. Habitat management across sites are mostly planned to a level that allows for immediate implementation, however, some works will require final ground truthing to confirm final detail and costings.

Summary of Habitat management:

a. Low density native broadleaf tree planting/montane planting (443 hectares)

This work will include low density small-leaved native broadleaf species including alder, willow, birch, rowan and hawthorn in order to provide foraging habitat for black grouse as well as providing benefit to wider upland habitat through the introduction of species diversity, foraging and nesting habitat. This prescription will be carried out in three of our target areas at Tarras Valley Nature reserve, John Muir Trust's Glenlude and NatureScot's NNR at Cairnsmore of Fleet. The planting of upland and montane species will be targeted at higher altitudes on land at Borders Forest Trust and National Trust for Scotland. The tree stock will be delivered through a mix of purchasing from known tree nurseries offering the required provenance, and seed collection from the focus areas by a network of volunteers with propagation and growing on at a specialist tree nursery in Haddington.

b. Removal of non-native regeneration (Sitka spruce) and re-wetting (316 hectares)

The removal of Sitka spruce non-native regeneration will be carried out on FLS estate across four areas on their Galloway Forest estate that have been identified as being suitable for the creation of brood rearing habitat for black grouse and on Buccleuch estate at Bowhills where upland dry heathland and acid grassland is being compromised.

c. Bracken control (9 hectares)

Bracken control will take place on upland slopes in preparation for low density native broadleaf tree planting and opening up of hill side landscape on JMT estate at Glenlude. A Swedish designed Haaglund BV 206 All terrain off road vehicles with powered tracked trailing units and main drive cab will be used to access these often difficult to reach sites and crush and weaken the bracken. The vehicle is very stable on steep ground and has a low ground pressure. This work has been previously challenging to carry out with standard hand tools and volunteers due to the terrain. This management will directly support the establishment of low-density native broadleaves funded through NRF.

d. Upland re-wetting (over 75ha)

Currently funding programmes, primarily Peatland Action, focus on large scale (greater than 10ha) projects, to deliver maximum benefits for carbon. This means that important and environmentally beneficial restoration techniques presently fall through the criteria of the larger scale funding options. This project will undertake the following smaller, localised moorland management actions:

- Create small ponds that will increase invertebrate value
- Expand wet flushes to increase habitat diversity and brood rearing habitat for black grouse

e. Molinia control

Within the Galloway Forest Park focus area we will set up an innovative project focusing on Airds estate on the Airie Hills SSSI. This will involve one land owner primarily but will allow for wider landowner participation involved in the management of a SSSI for both farming and nature biodiversity.

The Crichton Carbon Centre will lead on are-wetting management to manage *Molinia* dominated peatlands at a micro-scale using enhanced restoration techniques and private finance as mechanisms to integrate with farming and wider policy objectives (Climate Plan, Nature Networks, 30x30).

This work will include the establishment of a long-term monitoring strategy and used as part of this upland project's showcase events as a demonstration site for other landowners / stakeholders involved with similar habitat pressures.

f. No Fence Collar (NFC) grazing

Below is an overview of the NRF development phase research and NRF delivery phase actions. The complexity of this research is too detailed to include here, please see the following separately provided documents for the full details of this work:

- Research outcomes and costing document (all sites) - *NRF_Dev_Phase_NoFenceCollar_research_master.xls*
- Research outcomes and costing document (going forward to NRF delivery phase) - *NoFenceCollar - Research outcomes and NRF 3 year budget.xls*
- Maps and GIS data
- Monitoring forms

Linked documents provided within the appendix of this document:

- Full consultancy brief – See Appendix
- NFC justification document – See Appendix

Note: the consultant, Connicks, is happy to Teams meet with NatureScot to talk through the detail of this research and next steps, if required.

The NRF development phase included desk- and field-based research exploring the viability of using NFC technology as part of a suite of habitat restoration techniques. The desk-based element focused on exploring latest technology, methodologies animal welfare alongside habitat features. The Development Phase 1 field-based activity focused on three areas within three different focus areas that had either been previously identified as having the potential for this technology and/or the landowner was open to exploring this further.

1. Tweedsmuir Hills which included NGO landowners BFT and NTS and private landowners and tenant farmers including Wemyss and Marches estate.
2. Lowther Hills which includes the Buccleuch Queensberry estate.
3. Airs Estate encompassing Airie Hill SSSI in Galloway including neighbouring farms

The following suitable sites have now been identified. Further detail is included in the appropriate geographical section below and within the NRF delivery phase application:

- Airie Hills (Laughenghie and Airie Hills SSSI), Galloway
- Glenim, Buccleuch Queensberry Estate, Lowther Hills
- Corehead and Ericstane, Borders Forest Trust, Moffat/Tweedsmuir Hills
- Megget, various tenant farms, Wemyss & March Estate, Tweedsmuir Hills

Phase 2 of NFC use is the practical set up of grazing areas, including baseline monitoring and reporting, acquisition of No Fence collars, deployment, facilitation of training including set up and support. Six sites across the three Focus areas are now at this stage and have been included within the costings and fall into three main categories:

1. Areas of land that require livestock reduction or tighter movement restrictions and planning to reduce current negative impacts of grazing and improve the habitat matrix and biodiversity.
2. Areas which will use cattle to promote grazing to mimic low density grazing and light browsing to stimulate regeneration/mosaic of habitat types.
3. Areas that presently have limited or no grazing and are experiencing the negative impacts of dominant species on protected sites eg Molinia grass dominated habitat.

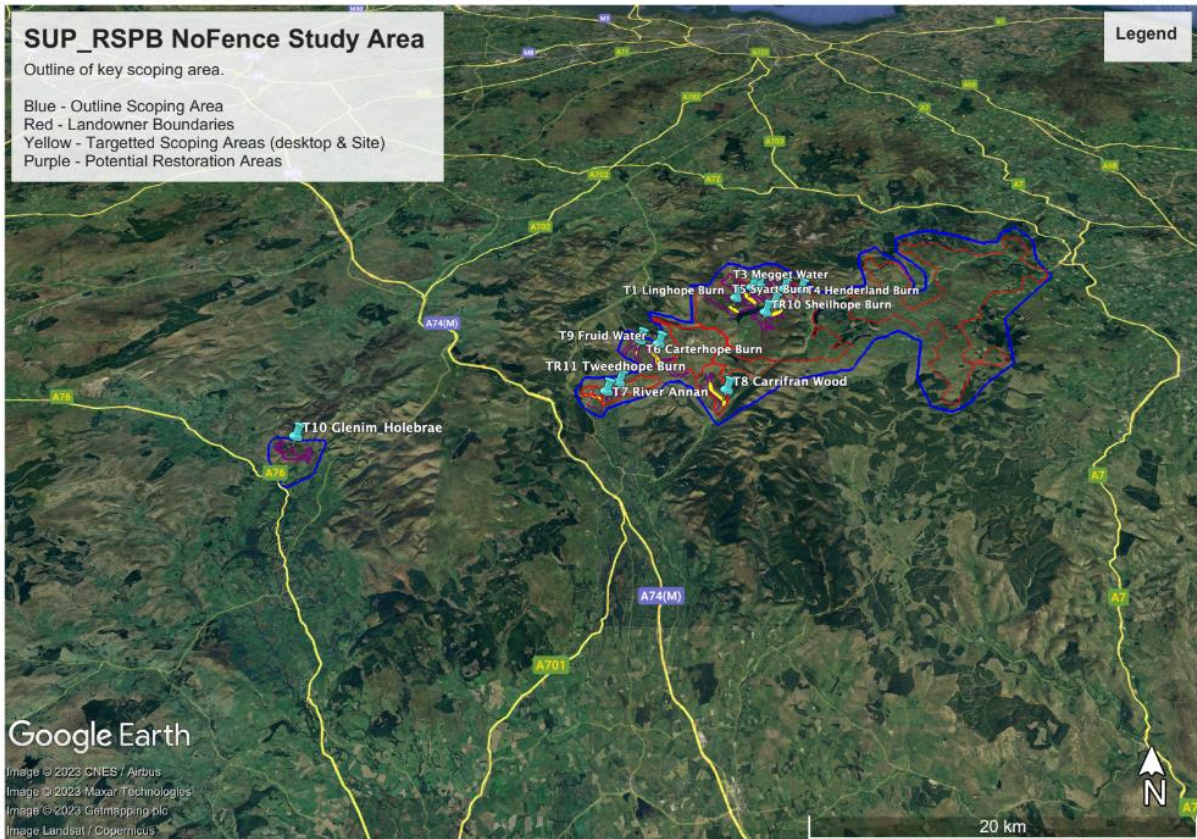
Monitoring: The monitoring aspect will be developed between the project officer, consultant and landowner/farmer using the Holistic Land Management Practices (HLMP), as developed and practices by the Savory Institute, through the holistic framework. Broadly this will include:

- Basic ecological monitoring undertaken over the transects fixed in stage 01 Planning
- Drone - fixed flightpath and Arial images
- General chat with farmer on how the system is working and anything that needs changing or what works well
- Throughout this will be recorded using the HLMP forms eg Ecological monitoring Data - Basic, Ecological Monitoring Analysis - Basic.

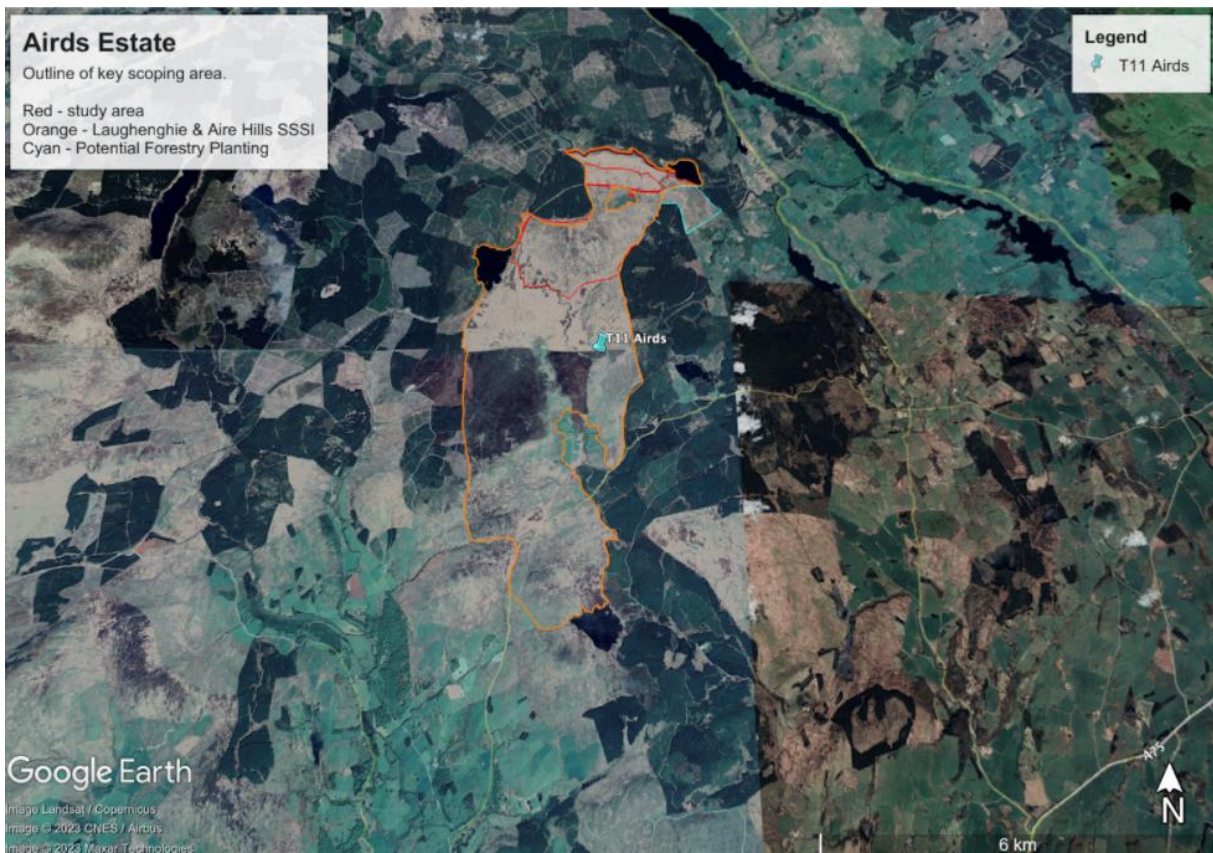
For the Airies SSSI site the Crichton Carbon Centre will also partner the project to build in trialling techniques such as experimenting with grazing timing and habitat responses.

Best practice sharing: All findings from the development phase research are included here for wider use by interested parties. Learnings from the monitoring of the NFC grazing will be shared with stakeholders. Part of the project deliverables will be to host site-based showcase events for landowners / stakeholder to visits the upland site pre/post restoration, improve their N-F Collar awareness, and discuss best practice in a broad range of key topics eg animal husbandry, welfare, business impact and habitat biodiversity.

Further research: During the pilot research undertaken in the NRF development phase a number of other sites were identified as potentially suitable for NFC grazing and have been included for ground-truthing during the NRF delivery phase: Tarras Valley, Glenlude, Carcant Estate. Phase 2 works that fallout of this will be included as part of the match funding and project growth application to National Lottery Heritage Fund.



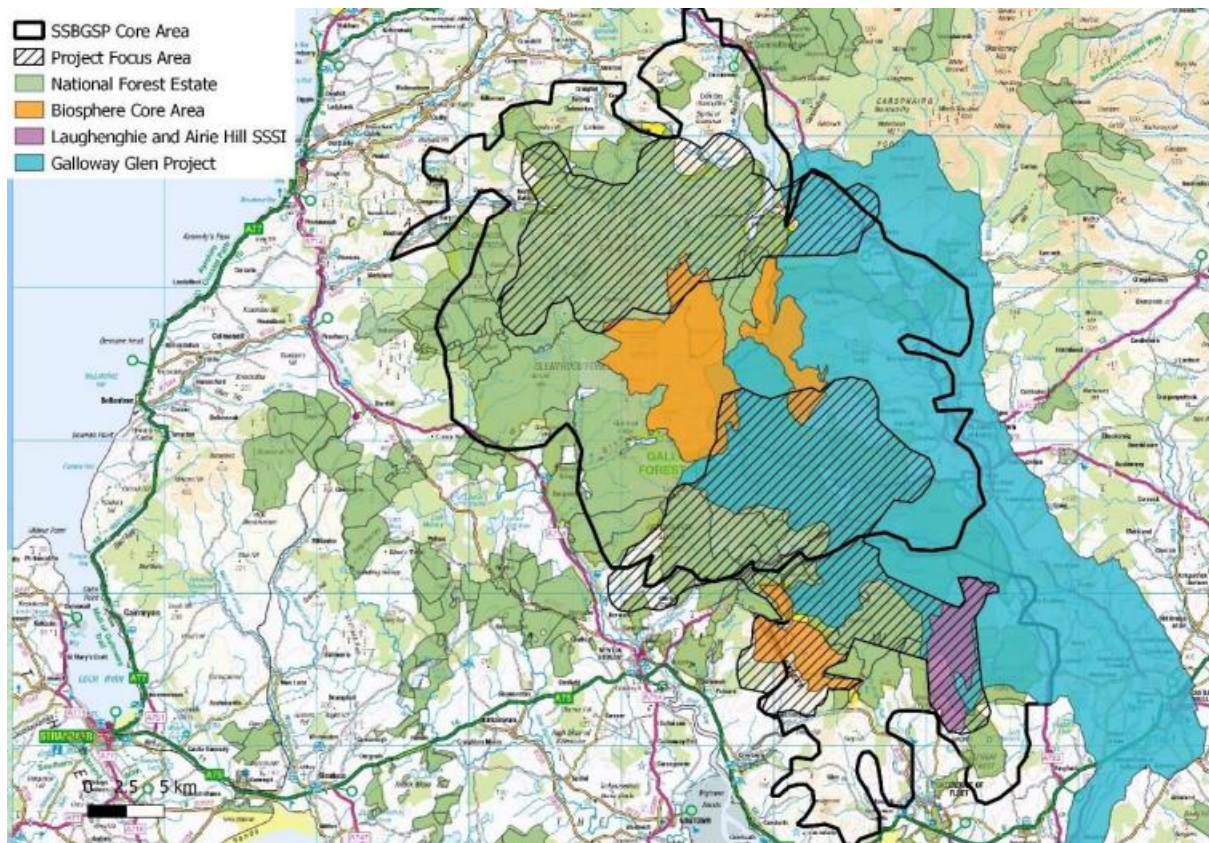
Sites in the Lowther Hills and Tweedsmuir Hills



Galloway Forest Park site location

Area 1: Galloway Forest Park and Cairnsmore (Dumfries & Galloway/South & East Ayrshire)

The Galloway Forest Park includes Forestry and Land Scotland estate and NatureScot's NNR at Cairnsmore and falls within the Galloway and Southern Ayrshire Biosphere. It is the core area for black grouse population in the west.



Map: Galloway Forest Park and Cairnsmore focus area with landholdings

The development phase has identified and developed a suite of habitat actions with Forestry & Land Scotland, NS's Cairnsmore NNR and Airds Estate as outlined below:

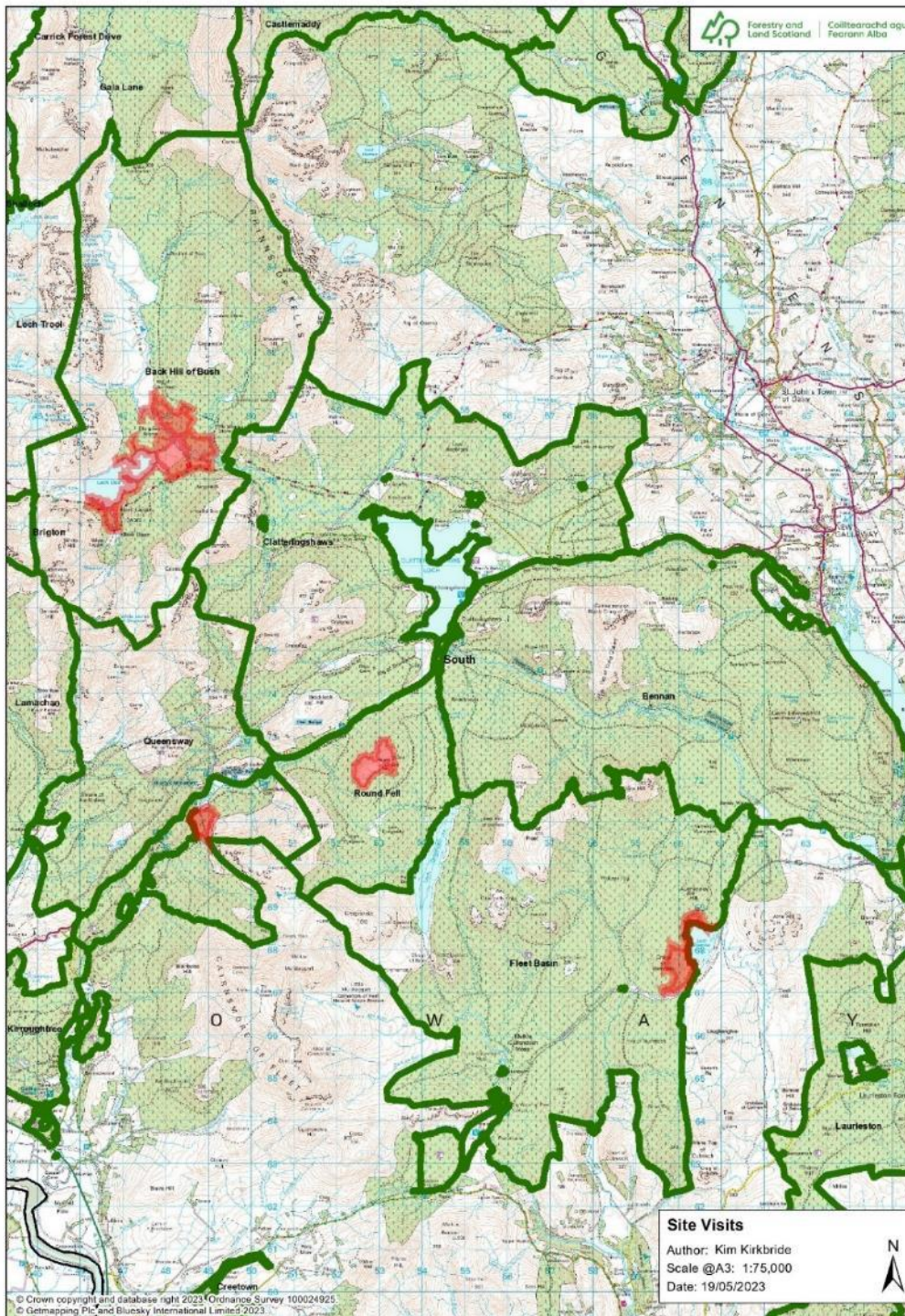
Forestry & Land Scotland:

NatureScot priority theme/s met: **Habitat and species restoration**

FLS estate in the Galloway Forest Park is within the core area for black grouse populations in the west and as such the implementation of targeted management in support of this population is a key objective of this project. This work includes the management of non-native Sitka spruce regen through removal on key areas of habitat currently or historically supporting black grouse. This will enhance existing habitat conditions through the protection of foraging/nesting and brood rearing habitat. A summary of this work which has been identified and agreed between project and FLS staff is as follows:

- Loch Skerrow. Removal of non-native Sitka spruce regen in area identified for potential black grouse brood rearing habitat. The felling whole tree with machinery to be followed-up by chainsaw of smaller trees for 'fell to waste'.

- Roundfell. Removal of non-native Sitka spruce regen requiring respacing through 'fell and chip' or 'hand cut fell to waste'.
- Clugie Linn waterfall, south of Murray's Monument / Craignarget. Removal of Sitka spruce non-native regen. Roadside chip and 'fell to waste' over wider site, leaving brash corridors so birds can move in.
- Adjacent to Ellergower Moss SSSI. Removal of non-native Sitka spruce regen along a corridor strip along the eastern boundary of one coupe. Additional coupes with between 5 to 15% regen have been identified for clearance. A NatureScot 'Operations Requiring Consent' form will be completed, if required, prior to any works commencing.



Airds Estate:

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration, Control of invasive non-native species (INNS)**

The following actions have been identified as a result of stakeholder meetings and follow-up discussions during the development stage. The focus of these works will be on the Laughenghie and Airie Hills SSSI at Airds Estate, located south-west of Stroan Loch. The site suffered a recent extensive fire and the proliferation of Molinia grass in subsequent years remains a key issue. Funding through NRF will support the estate in its ability to implement cattle grazing across the site in future and to encourage the re-wetting of peat habitat at a local scale through capital works. The estate had to decline a recent successful application to AECS which included the measure to manage habitat through cattle grazing due to the uncertainty of its ability to honour agreed stocking levels over a five-year period. However, the Estate remains committed to fulfilling its ambition to introduce cattle grazing to the Airie hill alongside improvement of habitats and wider biodiversity and to reduce future fire risk through management and the improvement in stock handling facilities will support this ambition.

Livestock infrastructure

The practicalities of grazing this site requires improvements to the handling facilities. The best place for the handling facilities is not too far from where the current 'handling area' is, which is on the former railway line at the Airie. Improvement to the turning facility beyond, as well as some capital work on the fencing and gates would allow for an improved handling facility for loading and unloading cattle. A moveable cattle crush would make working with cattle on site easier. The input of Batemans (or a similar handling facility sales company) would be sought to assist with the design and highlight any constraints, which may result in a slight change of specification and location.



Grazing management No Fence Collars

The Airie site was assessed for no-fence collar suitability during the development phase by Connicks consultancy. The current grazing has been extensive cattle grazing, with most of the non inbye land not currently grazed and focused to a narrow area around the farm, partly because of livestock management logistics and partly the wider area has poor condition stock fencing and/or lack of. The wider area key habitat characteristics are in advanced decline, with large areas evidencing past sheep overgrazing and bracken present in clusters. Agriculturally improved acid grassland dominates, with the *Molinia* spp present. The research concluded that the SSSI was suitable for using cattle with no-fence collar technology to promote positive habitat management and in support of designated sites condition.

The use of no-fence collar technology will alleviate the need for extensive fencing works across the SSSI and remove a potential black grouse flight strike hazard. An initial herd of cattle and grazer has been identified to manage the site using this technology. to be implemented in year two of the NRF project. During this delivery phase, the project officer, working with the support of a NFC expert and NS' local officer, will liaise with the landowner, stock owner and stakeholders to set up the trial areas, including baseline monitoring and reporting, training, set up and support.

Airies SSSI – Restoration and Demonstration (*Molinia* suppression/re-wetting peatland):

Within the Galloway Forest Park focus area we will set up an innovative project focusing on Airies estate on the Airie Hills SSSI. This will involve one land owner primarily but will allow for wider landowner participation involved in the management of a SSSI for both farming and nature biodiversity.

The Crichton Carbon Centre will lead on are-wetting management to manage Molinia dominated peatlands at a micro-scale using enhanced restoration techniques and private finance as mechanisms to integrate with farming and wider policy objectives (Climate Plan, Nature Networks, 30x30).

This work will include the establishment of a long-term monitoring strategy and used as part of this upland project's showcase events as a demonstration site for other landowners / stakeholders involved with similar habitat pressures.

This work will be used as part of an upland project's showcase events as a demonstration site for other landowners / stakeholders involved with similar habitat pressures.

NatureScot 'Operations Requiring Consent' form will be completed prior to any works commencing. NatureScot have been kept informed of discussions over the Development period and the local NS Officer will be invited to feed into the detail of any planned grazing management.

Naturescot - Cairnsmore National Nature Reserve:

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration, Control of invasive non-native species (INNS)**

Like many upland sites this has seen a steady increase in the spread of purple-moor grass, with accompanying loss of heather and blanket bog plants. Peatland restoration work carried out on the site over the past 8 years has helped to address water loss issues and put areas of the hill into recovery; sheep were removed in 2019 to mitigate the impact of overgrazing on plant diversity.

Up until 2012 there were small but steady records of black grouse on the site although there has been none in recent year. The proposed NRF work offers an opportunity to improve diversity of habitat for black grouse through the planting of small-leaved native broadleaves which in turn will benefit other species. The planting of native trees on this 14ha section of land will further help mitigate water loss issues with positive benefits for the water quality in the adjacent burns that flow into the Big Water of Fleet; In and of itself this is a small area of restoration, but habitat management on adjacent land on FLS estate for the removal of Sitka regen compliments this work.

geo.View map



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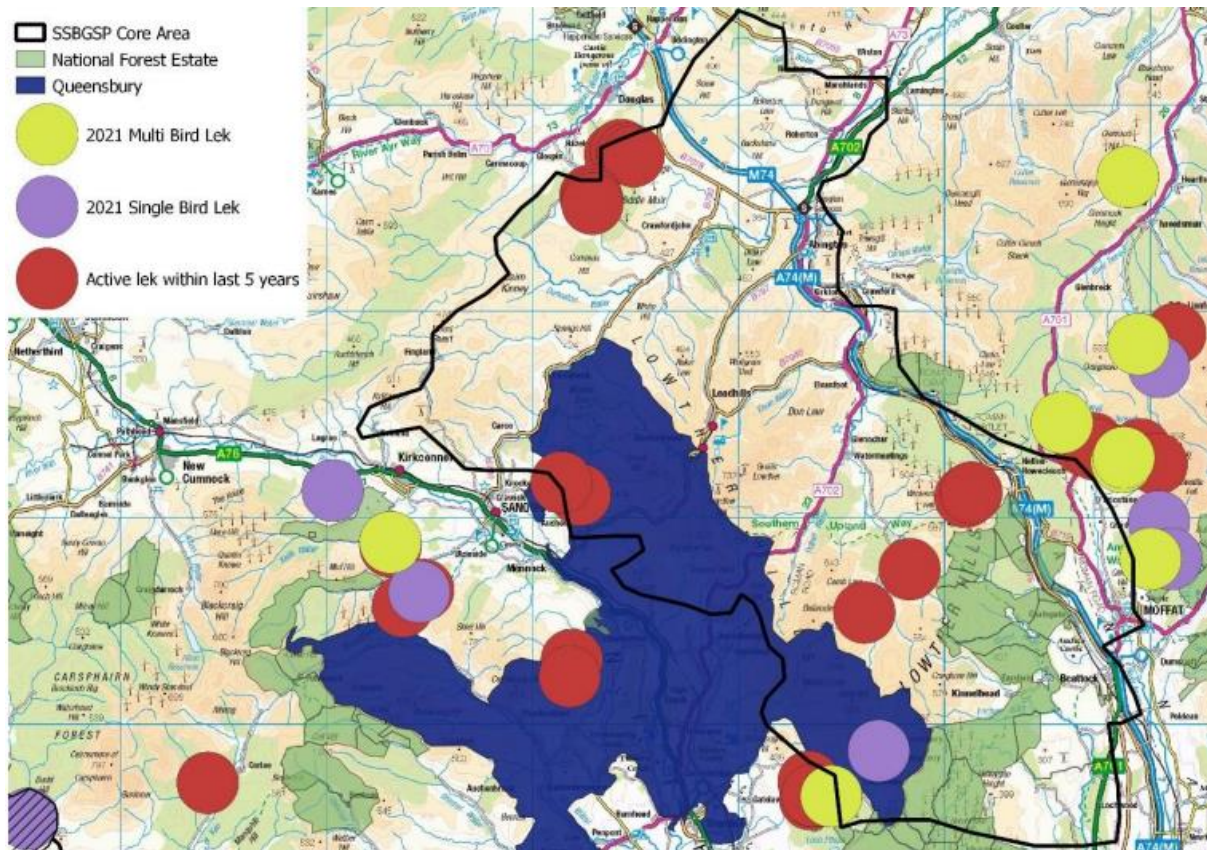


Area 1: Galloway Forest Park and Cairnsmore (Dumfries & Galloway)

	Key Actions					By whom?			Other details
	Low density native broadleaf planting	Bracken control	No-fence collar grazing	Removal/re-spacing of non-native trees	other	Landowner staff / vols	Contractor: Landowner to source	Contractor: Project staff to source	
Landowner/stakeholder									
Airds Estate			✓		Grazing infrastructure. Molinia management		✓	✓	Actions delivered by a mix of landowner and project staff
Forestry & Land Scotland				✓ Up to 294ha				✓	
NatureScot – Cairnsmore NNR	✓ 14ha				Blocking of minor ditches	✓			Below min density requirements for FGS
Crichton Carbon Centre					Molinia management				CCC to source in partnership

Area 2: Lowther Hills (Dumfries & Galloway & South Lanarkshire)

The Lowther Hills supports the most northerly range of black grouse in the southern uplands although our understanding of current status is largely based on records from existing or pending developments in particular wind farms. A key landowner outside of existing / pending wind farms is Buccleuch estate where works have been identified to be included in this project.



Map: Lowther Hill management zone showing leks and landholdings within it

This development phase has identified management on Buccleuch estate as outlined below:

Buccleuch:

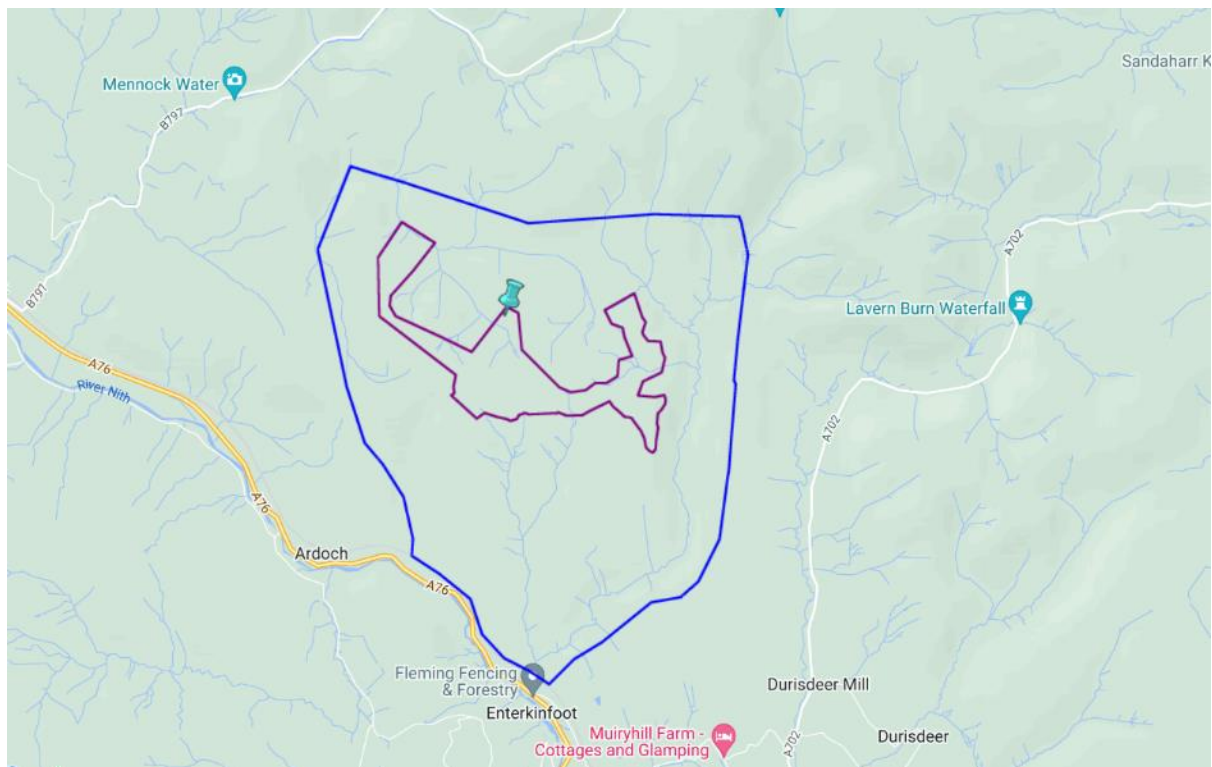
NatureScot priority theme/s met: **Habitat and species restoration**

During the development phase Glenim, on the Buccleuch Queensberry Estate, was identified as having potential to be grazed through the use of no-fence collar technology and the ground-truthing concluded that the site is suitable.

This area is within 3km of historical black grouse lek sites and is a key area for breeding waders including and in particular, red listed breeding Curlew. The site visit found evidence of past and recent heavy sheep grazing, with key habitat characteristics well in decline and large areas evidencing overgrazing and bracken present in clusters. The site is a former upland sheep farm now taken back in hand by Buccleuch and being re-structured with commercial forestry, native broadleaf woodland and open hill.

During the delivery phase, the project officer, working with the support of a NFC expert, will liaise with the landowner, stockowner and stakeholders on the practical set up of grazing areas, including baseline monitoring and reporting, acquisition of No Fence collars, deployment, facilitation of training including set up and support.

The site will be grazed using Buccleuch's own cattle over-wintered at Langholm. The development stage also identified additional grazing potential on an adjacent landholding to Buccleuch at Mitchellslacks. However, following a discussion led by Buccleuch the landowner isn't currently able to take this idea further while they are considering wider land management options and so it will be revisited during the project delivery phase



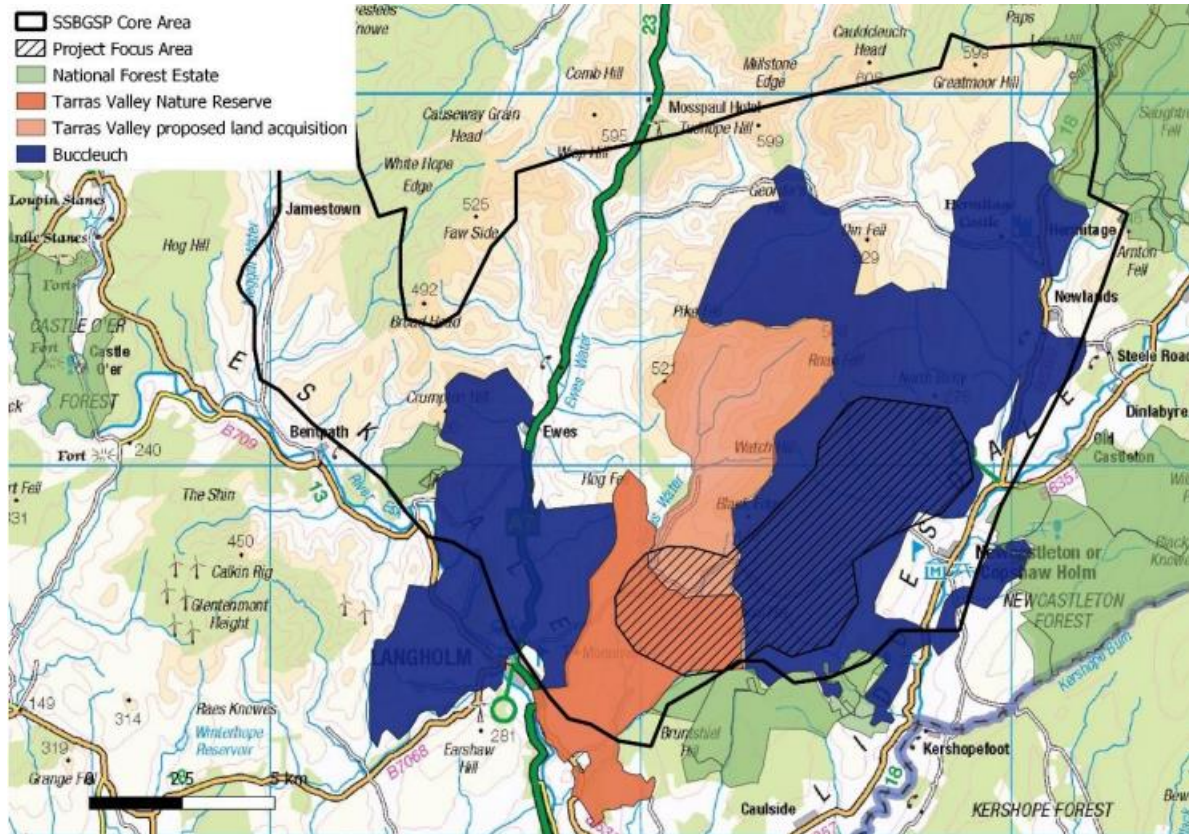
Blue = Outline scoping area
Purple = wider observed suitable area

Area 2: Lowther Hills (Dumfries & Galloway & South Lanarkshire)

	Key Actions					By whom?			
Landowner/stakeholder	Low density native broadleaf planting	Bracken control	No-fence collar grazing	Removal/re-spacing of non-native trees	other	Landowner staff / vols	Contractor: Landowner to source	Contractor: Project staff to source	
Buccleuch			✓			✓	✓	✓	

Area 3: Langholm Moor (Dumfries & Galloway and Scottish Borders)

The Langholm population is at risk of isolation from populations to the north and east and south in England. However, it holds robust lek sites, and it is important that this project supports the current population thereby increasing the potential for its connectivity with wider populations both in the Borders and Dumfries and Galloway.



Map: Langholm focus area and landholdings within it

Tarras Valley Nature Reserve:

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration**

This development phase has identified and developed a suite of native woodland/scrub creation at Tarras Valley Nature Reserve, in partnership with Woodland Trust. This will include the establishment of low density native broadleaved species within vicinity of core lek sites near the Perter burn. Perterburn Hill hosts 3 established black grouse leks and in the wider area some suitable feeding and breeding habitat but the diversity in vegetation structure which benefits many species is missing. The area has been historically heavily grazed with some burning which has now ceased, meaning that it is dominated by thick *Molinia* grasses. This current habitat offers little ecological diversity for black grouse and other species which benefit most from a diverse habitat mosaic and makes conditions for natural regeneration of trees and plants very difficult.

Specifically, this project proposes to enhance habitat connectivity in the area of the Tarras Water catchment within the vicinity of known black grouse leks through the provision of foraging habitat. A number of techniques will be employed, with the aim of creating a habitat mosaic which will include shrub habitat, riparian woodland

habitat, open-grown upland trees and small exclosures of native broadleaves over 273 hectares.

1. Riparian trees are already present on the lower banks of the watercourses identified for this project. Project funding would allow the expansion of this habitat and include tree species preferable to black grouse including Downy birch, Rowan, native willow species, Hawthorn and Alder. 1.2m plastic free tubes and stakes will be used to protect these trees as they establish. The steep banks make these areas less accessible to herbivores
2. This project has an emphasis on trialling different options for establishing trees in upland environment where there are grazing pressures including wild goats. All protection proposed is plastic-free.
 - This includes low density native broadleaf planting in small exclosures which will protect from wild herbivore grazing pressure and provide a future seed source over time. .
 - Dense thorny scrub planting in matts with minimal protection will also contribute to future woodland planning on TVNR. Complete success is not expected for all these plants but the dense clumps that form will allow other species to establish over time by protecting them from herbivore pressures. Adding more scrub species into the area will also add to the diversity of habitats. Planting tubes can't be used for some of these species nor used to create the desired dense mat habitat, therefore stock fencing with anti-flight strike marking will be used.
 - Upland open-grown trees will further contribute to habitat variation and will be mostly Downy birch and Rowan with some Hawthorn and willow in places, in keeping with the ground conditions and what is likely to grow there naturally. Cactus tree guards will allow the continued use of the area for livestock grazing and the potential for farm diversification in future to include larger grazers.
 - Grazing management is an ambition of the TVNR project team. Using the methodology from the no-fence collar grazing research undertaken during the NRF development phase, the project will undertake consultant site-based assessments, grazing infrastructure, welfare, stock numbers, training, grazing plan etc.

For further information on how this work sits in the wider context of habitat works at the Tarras Valley Nature Reserve see Appendix

TVNR Contractor Map Black grouse NRF project

Legend

- Individual trees in 1.2m tubes with cactus guards
- 3.5m sq. enclosures (20 trees each, mixed protection)

TYPE

- High density clump planting of thorny shrubs
- Riparian planting
- Sparse individual tree planting

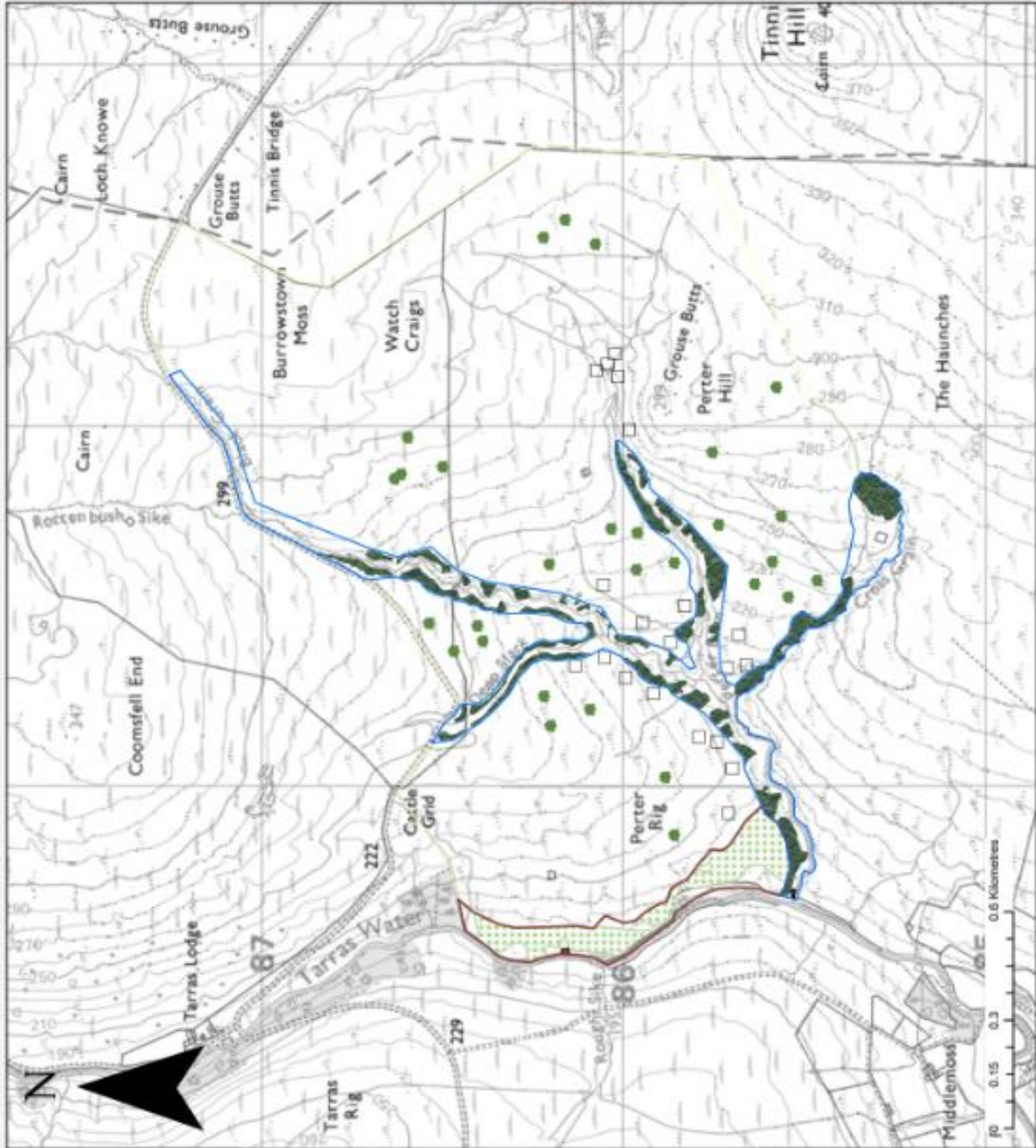
Subtype

- NR enclosures
- 1.2m tubes @ 1000/ha
- Open ground
- Harlequin/blackthorn @ 3000/ha (half with vole guards, half without)



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Buccleuch:

Following discussions with Buccleuch their landholdings are significantly diminished since selling to TVNR and Oxygen Conservation and none of the remain sites are suitable for upland actions.

Oxygen Conservation:

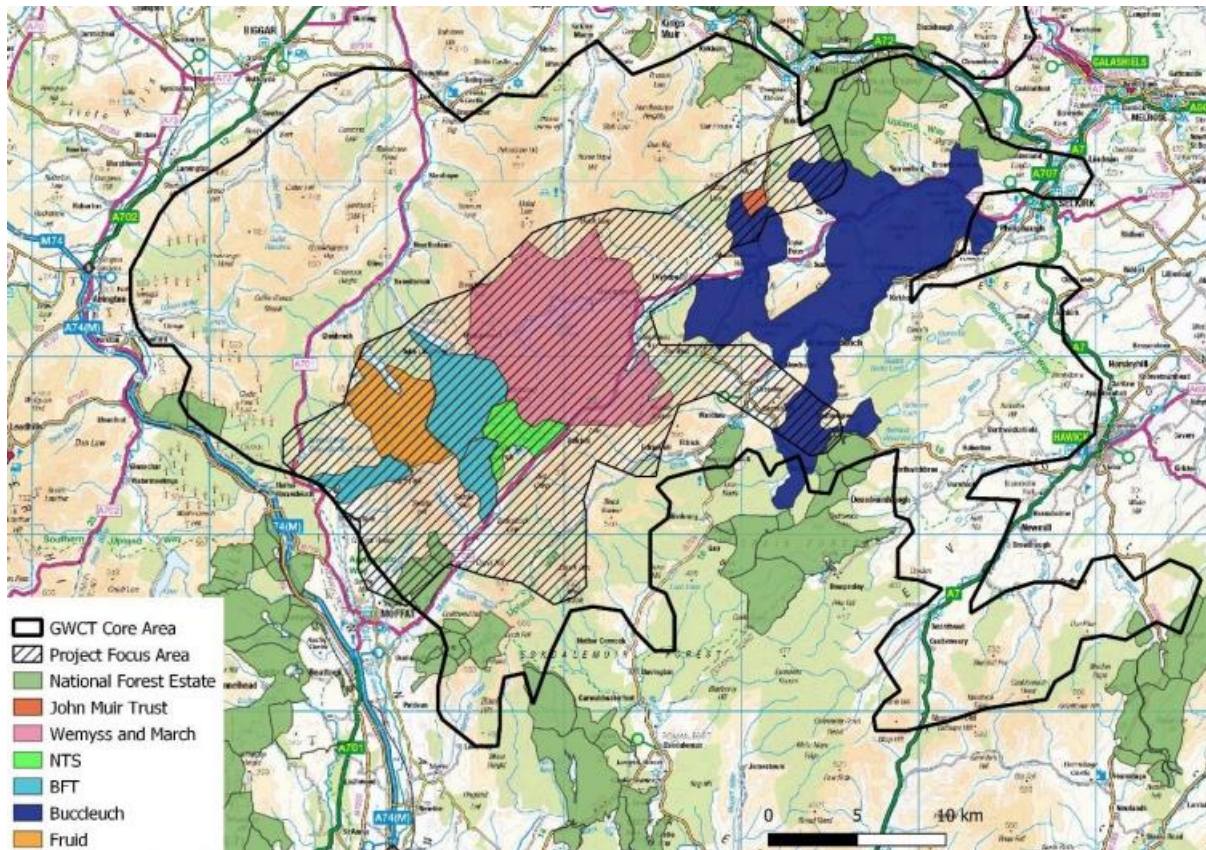
Following the recent purchase of 4599 hectares of Langholm Moor from Buccleuch the company is currently in the process of recruiting an estate manager. This wasn't completed during the development phase of this project and has been detailed below as an action to follow up during the delivery stage as part of the cluster groups and wider participants.

Area 3: Langholm Moor (Dumfries & Galloway and Scottish Borders)

	Key Actions					By whom?			
Landowner/stakeholder	Low density native broadleaf planting	Bracken control	No-fence collar grazing	Removal/re-spacing of non-native trees	other	Landowner staff / vols	Contractor: Landowner to source	Contractor: Project staff to source	
Tarras Valley Nature Reserve	✓ 273ha		✓		Stock fencing	✓	✓		

Area 4: Tweedsmuir Hills (Dumfriesshire and Scottish Borders)

This area is made up of a number of estates and private land that support lekking black grouse and breeding waders and the area is strategically important for linking populations to the west and east. This area also supports some of the most robust lek sites in Dumfriesshire.



Map: Tweedsmuir Focus Area and landholdings within it

This development phase has identified and developed a suite of habitat actions with Borders Forest Trust, John Muir Trust and National Trust for Scotland which is summarised below.

Borders Forest Trust:

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration**

The South of Scotland has one of the lowest amounts of native woodland in Scotland and just small fragments of montane scrub remain, clinging to inaccessible slopes. Lost are the native woodlands and montane scrub and lost is the diverse range of woodland species that these habitats support. Borders Forest Trust works to address this loss and has been restoring native woodlands and montane scrub within the south of Scotland for over 25 years. Once again, these habitats are beginning to flourish in this area and the associated wildlife is returning. BFT's work is predominantly carried out on its own landholdings known collectively as the Wild Heart of Southern Scotland. The 4 sites, Carrifran Wildwood, Talla & Gameshope, Corehead and Ericstane, cover over 3250ha of the Central Southern Uplands hills.

900 ha of new woodland and scrub are being established in this area and there is potential for more and the expansion of a connected and complete woodland ecosystem. This area holds at least 4 active lek sites.

Through this NRF project, BFT aims extend the woodland network at Talla & Gameshope with the planting of 132ha of suitable upland areas around and above 500m as with a range of appropriate native broadleaved and montane scrub species. The proposed planting of 68,000 trees across 132ha comprises: -

- 25ha (25,000 trees) of upland native broadleaved by volunteers
- 47ha (19,000 trees) of montane scrub by volunteers
- 60ha (24,000 trees) of upland native/montane scrub by contractors

The proposed planting will be at higher altitude than conventional woodland and will be planted at low density in clumps/pockets on suitable soils and habitats. The planting will build on previous activity supported by NRF funding to establish montane scrub habitats on suitable areas of the Talla & Gameshope and Corehead sites. A survey is being undertaken to identify suitable high elevation planting ground on Talla & Gameshope and enable the development of a strategic 5-year planting plan which will largely be delivered through this proposal.

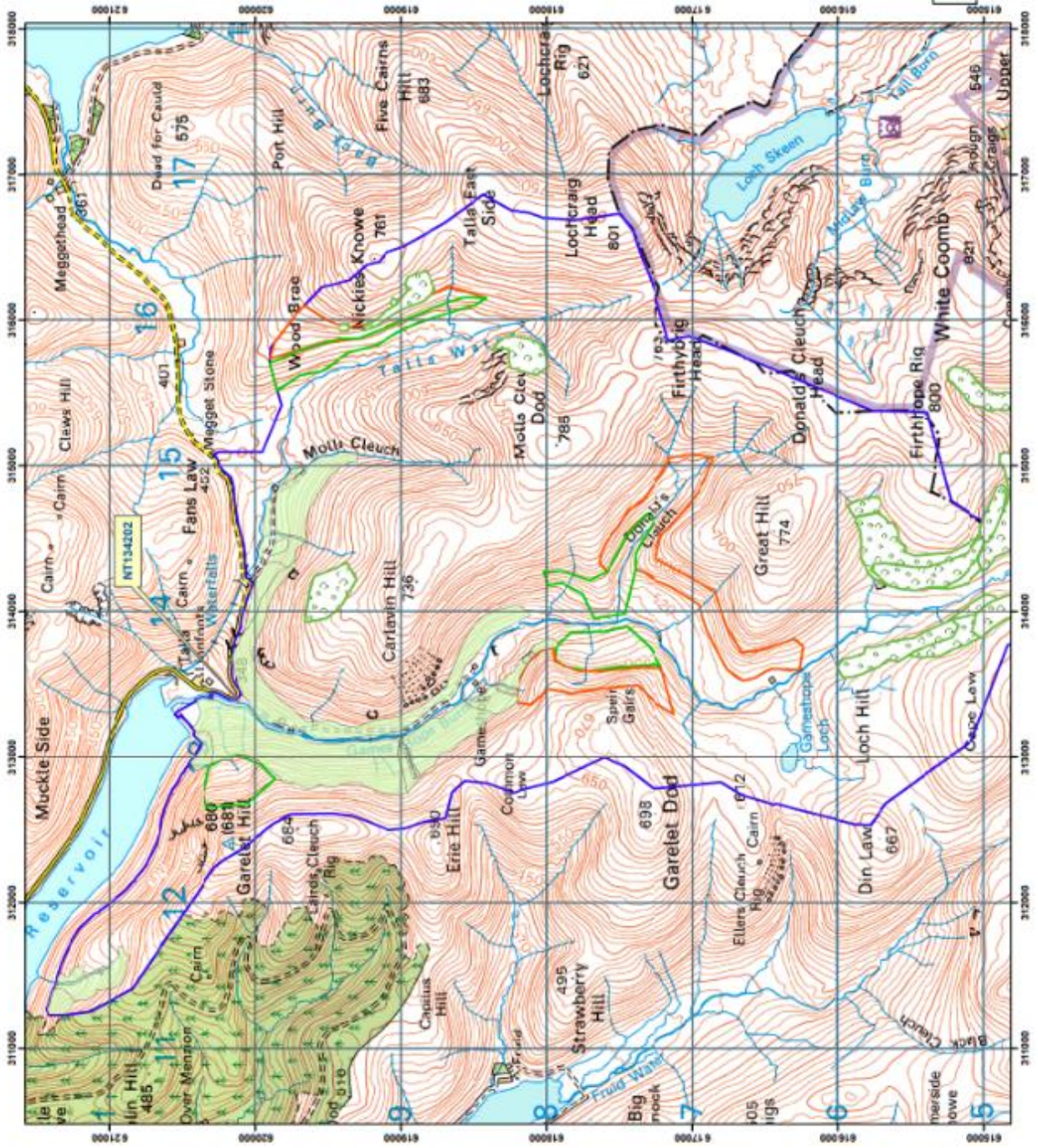
The planting will comprise a range of species suited to growing at altitude including rowan downy birch, grown from high altitude seed sources, aspen, hawthorn, eared and goat willow. The montane scrub planting will consist of montane willows including downy willow, and juniper, both of which are Biodiversity Priority Plan UK Action Species, and dwarf birch. The planting will create higher altitude native woodland and montane scrub habitats that will be of benefit to a range of upland species including Black grouse. The nature of the planting will create an abundance of woodland edges ideal for this species which occupies transition zones of different habitats.

A key part of the planting activity is to involve people, including from the local community. It is intended to plant some 44,000 of the trees with volunteers over the duration of the project and they will be trained on how to plant trees and to identify appropriate locations for planting. Engaging people in this activity, helps to connect them to the environment and enables them to make a positive contribution to its management and the restoration of valuable habitats including nationally rare montane scrub. The planting will provide other benefits to the wider community in terms of ecosystem services. Talla and Gameshope valleys are within a Drinking Water Protected Area as they feed the Talla Reservoir, a major drinking supply for Edinburgh. Planting can help to stabilise the soils in a very dynamic environment, reducing wash off into the water and aiding water quality. The planting will also sequester carbon from the atmosphere, helping to mitigate the impact of climate change.



Talla & Gameshope
Phase 3 planting
Montane Scrub & Upland Broadleaved

- Legend**
- Talla and Gameshope Freehold
 - Wildheart Montane planting
 - T&G Planting 2017-22
- Proposed planting area**
- <550 planting area
 - >550 planting area



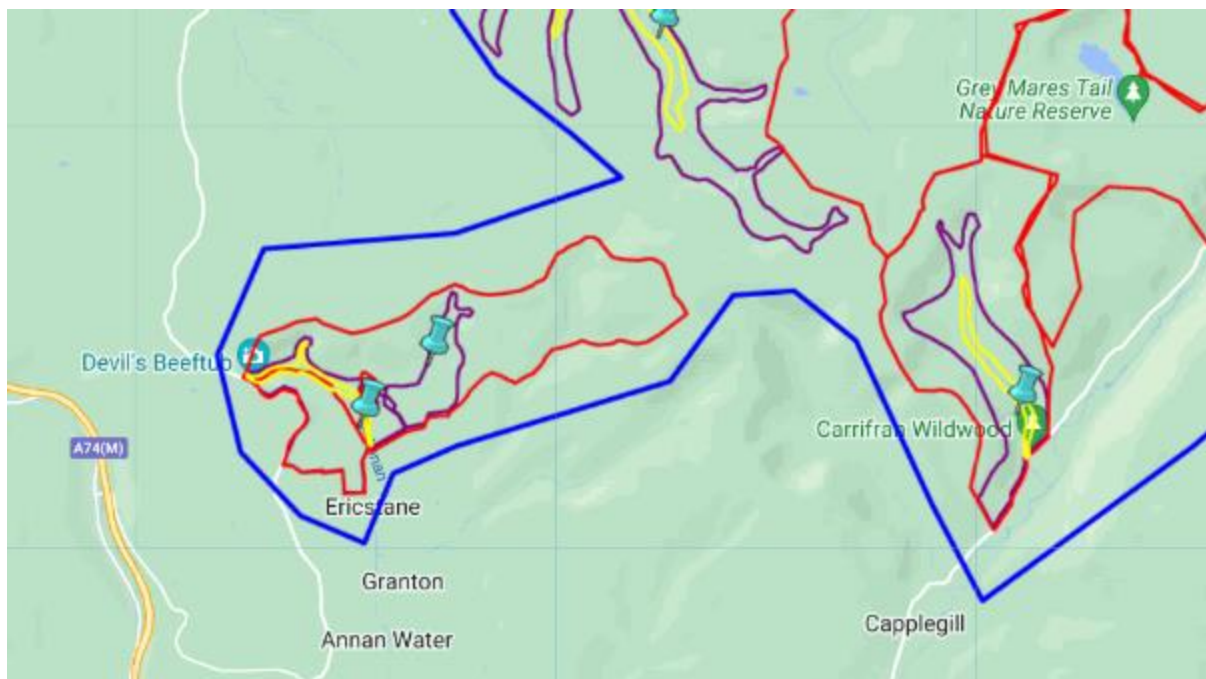
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No-Fence Collar

The Ericstane, Corehead and Carrifran sites were assessed for No-fence collar suitability during the development phase by Connicks consultancy, who undertook assessments on habitat condition, terrain, grazing infrastructure, stock availability, and grazing plans. This concluded that the areas are suitable for using cattle to promote low density grazing and light browsing to stimulate the regeneration and mosaic of habitat types.

During the delivery phase, the project officer, working with the support of a NFC expert, will liaise with the landowner, stockowner and stakeholders on the practical set up of grazing areas, including baseline monitoring and reporting, acquisition of No Fence collars, deployment, facilitation of training including set up and support.



Blue = Outline scoping area
Red = Landowner boundary
Yellow = area walked
Purple = wider observed suitable area

John Muir Trust:

NatureScot priority theme/s met: **Habitat and species restoration, Control of invasive non-native species (INNS)**

Glenlude covers 149 hectares and are currently in a 20-year plan to restore this former sheep farm and conifer plantation to a mosaic of native habitats. The site has recorded through casual observations male and female grouse and has direct connectivity to adjacent land which supports an active lek site. The area is also proven for its breeding wader population including red data breeding Curlew as recorded through recent survey work.

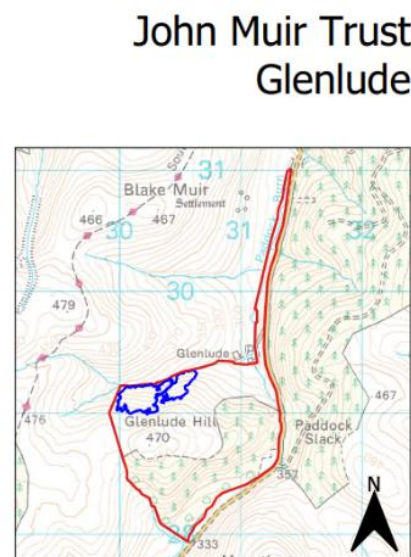
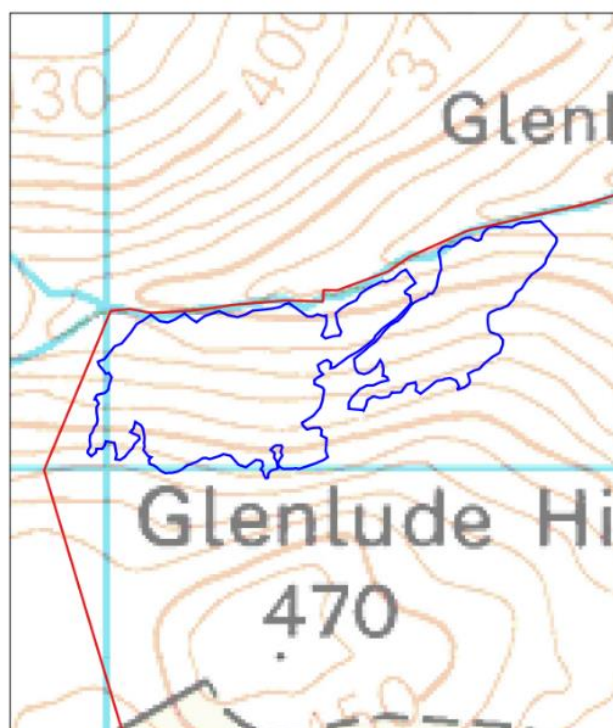
Glenlude Hill itself is a mosaic of acid grassland, heathland and bracken habitats covering 9 hectares and management will focus in this area as described below:

Bracken control: The initial action for the site is for bracken control using a tracked all-terrain vehicle such as a Haaglund BV 206. This would be carried out late May/June, following site checks for breeding birds, when the bracken is still at the brittle stage to gain maximum damage to the plant. This technique has been used by other project partners through <https://jdmwoodland.co.uk/> and hiring from Murrays of Beattock using a vehicle for approximately 2-3 ha per day, depending on slope conditions it is the most efficient and carbon friendly method to manage bracken.

Tree planting: 4000 small-leaved native broadleaf trees will be planted at low densities across the area connecting into the existing woodland. Contractors will move materials up the hill, plant the site and protect the trees with 60cm biodegradable tree guards; after which the Trust's volunteers will put mesh tops on to further protect the trees up to 1.2m – the mesh works better for the trees letting air circulate but lessening the windage of the taller tubes.

No-fence collar: Grazing management is an ambition of the Glenlude project team. Using the methodology from the no-fence collar grazing research undertaken during the NRF development phase, the project will undertake consultant site-based assessments on habitat condition, terrain, grazing infrastructure, stock availability, and grazing plans.

Neighbouring lands: There are opportunities to explore working with adjacent land owners, Traquair Estate to the north and George Irvine, the Buccleuch tenant farmer to the west. This will be explored further by the project officer during the delivery phase.



Project Area
Glenlude Boundary ▭
Project Area: 8.98ha ▭

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National Trust for Scotland:

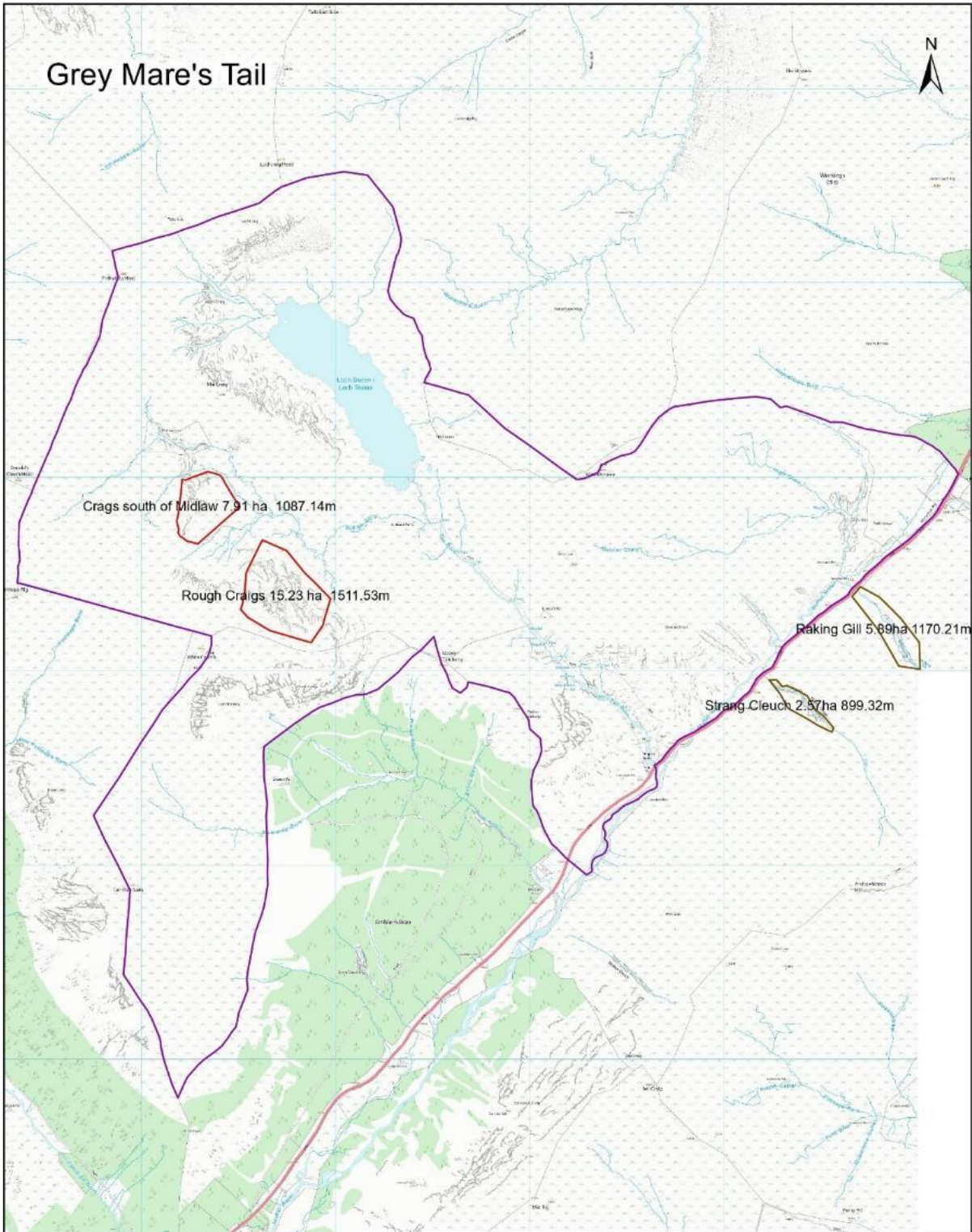
NatureScot priority theme/s met: **Habitat and species restoration**

The Grey Mare's Tail reserve extends to 922 hectares and is characterised by its waterfall (the 5th highest in the UK), upland loch and White Coomb peak, one of the highest hills in Southern Scotland. The reserve also supports lekking black grouse although numbers have been in decline over the past 5-10 years. The following habitat management was identified during stakeholder meetings and during the development phase:

The protection and expansion of Downy Willow *Salix lapponum* population on Rough Craigs, on the northeast-facing slope of White Coomb at an altitude of 580 – 760m. An area of 15.23 ha would be stock fenced, within which is most of the downy willow on White Coomb. This is one of the most important locations for this species south of the Highlands. Other uncommon plants are present, including a reintroduced population of Oblong Woodsia *liponym ilvensis*, which is Endangered within Great Britain. A fenced enclosure is necessary to protect the willows as NTS does not control the sheep grazing, with the rights being owned by a heritable grazier who has his own tenant. The enclosure would provide the opportunity to increase the willow population, as currently they are only found on crags which provide some protection from sheep and feral goats. Even so, most of the willows suffer from browsing which suppresses the number of catkins produced. Protection from grazing would also benefit dry heath and tall herb communities, both of which are features within the Moffat Hills SAC.




Fence materials would need to be helicoptered in due to the difficulty of the terrain. A previous smaller enclosure was damaged beyond repair by avalanche, but this one has been planned to avoid the area most likely to be affected.

Previous discussions regarding grazing management and the possible use of no-fence collars were discounted at this stage due to the site steepness and new sheep grazing tenant.



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Date: 24/09/2021
 Scale: 1:25,000 at A4

-  Fencelines
-  Proposed Closure
-  NTS Property Boundary

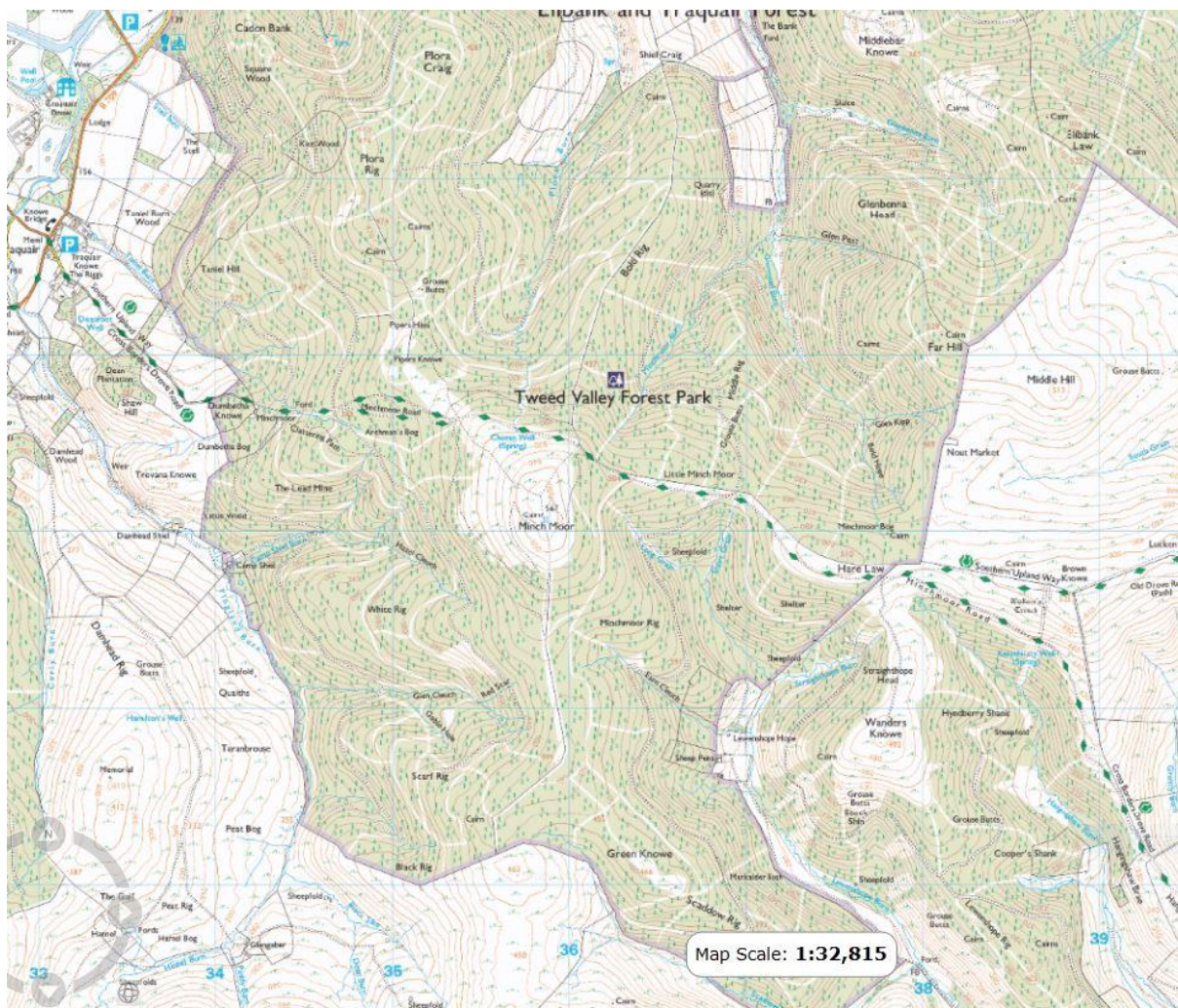


Forestry & Land Scotland:

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration**

This site is in a strategic location with six lek sites within <1km to 4km of its boundary. As such, management of open habitat under NRF will provide potential foraging/nesting/brood rearing habitat for black grouse. This will happen at Elibank at Minchmoor across approximately 7ha to include:

- Heather swiping – to create different stage heather sward
- Small pond creation – to increase invertebrate value
- Expansion of wet flushes – to increase habitat diversity/brood rearing habitat for black grouse



Minchmoor location map

Wemyss & March Estate:

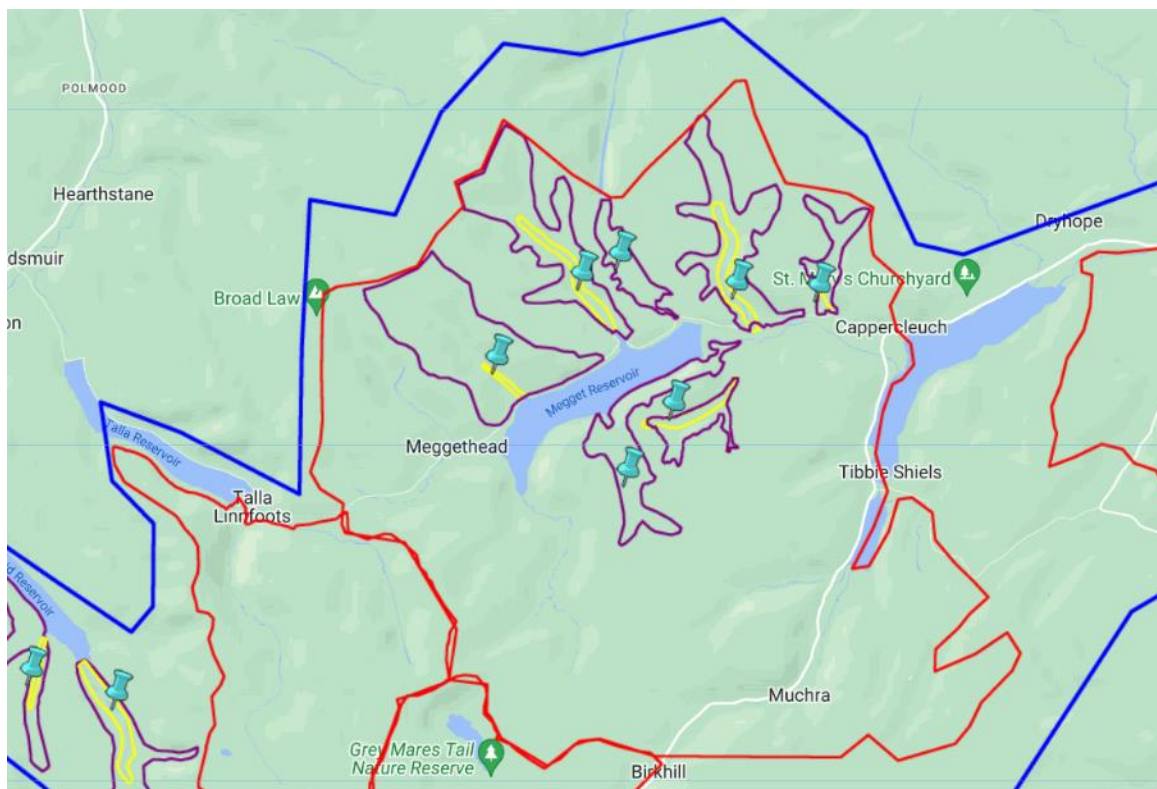
NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration**

Wemyss and March manage 25,000 acres within the Tweedsmuir focus area and the site is an important area for connectivity between black grouse leks in the east and west of the Tweedsmuir focus area.

Grazing Management No-Fence Collar

Numerous sites across the Estate's holding were assessed for no-fence collar suitability during the development phase by Connicks consultancy, who undertook assessments on habitat condition, terrain, grazing infrastructure, stock availability, and grazing plans. Across the sites there is evidence of past and current sheep grazing, with key habitat characteristics well in decline and large areas evidencing overgrazing. There is also historic muir burn and bracken present in clusters, while birch and willow scrub are sporadically established in clusters. The research concluded that the areas around Megget Water were suitable for cattle and sheep no-fence collar grazing.

During the delivery phase, the project officer, working with the support of a NFC expert, will liaise with the Estate, tenant farmers, stockowner and stakeholders to pin down the exact chosen sites and stocking rates of the numerous locations assessed. There wasn't enough time during the NRF development phase to narrow down the five researched sites to the budgeted two locations. Once completed this will lead to the practical set up of grazing areas, including baseline monitoring and reporting, acquisition of No Fence collars, deployment, facilitation of training including set up and support.



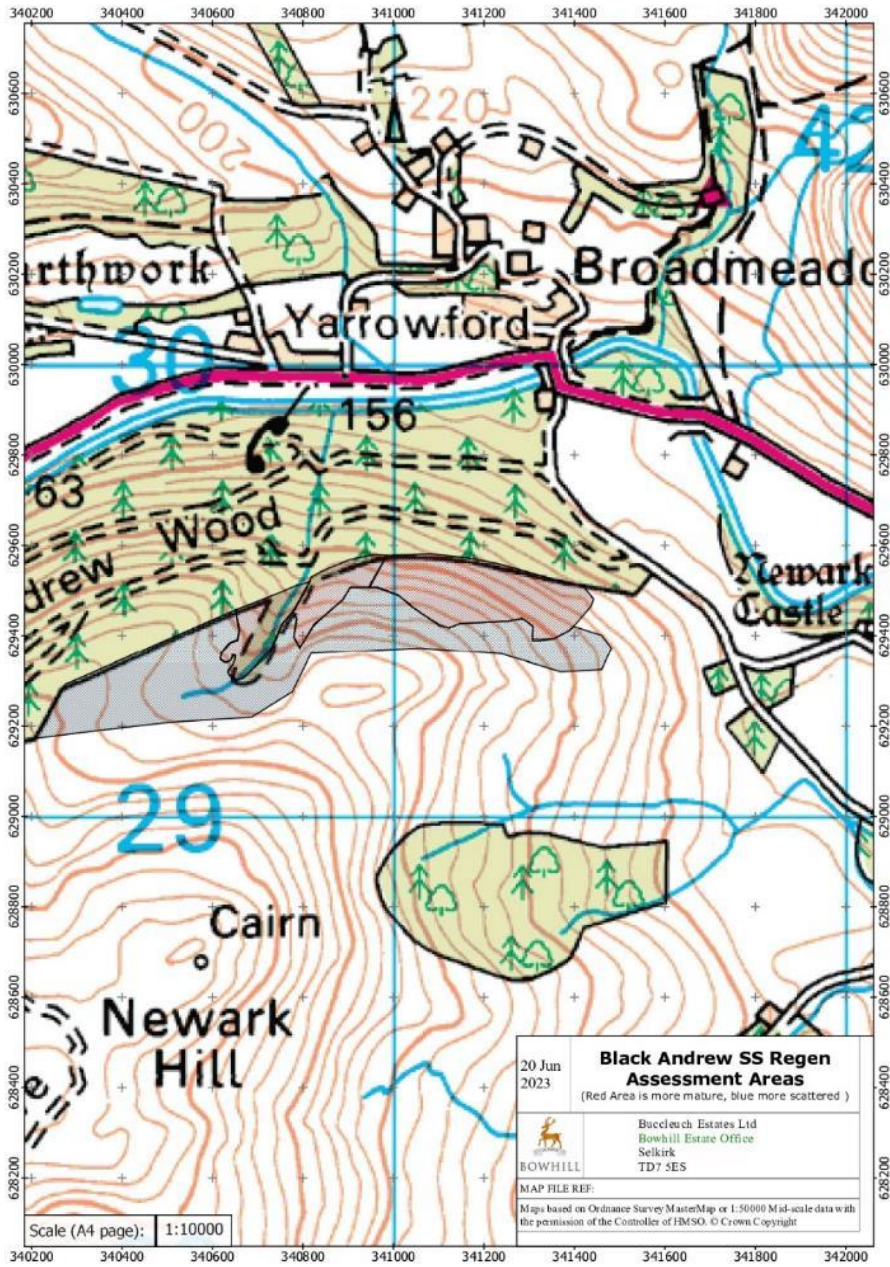
Blue = Outline scoping area
Red = Landowner boundary
Yellow = area walked
Purple = wider observed suitable area

Buccleuch – Bowhill

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration**

The clearance of regenerating Sitka spruce onto heather moorland at Buccleuch's Bowhill estate will improve habitat condition in support of black grouse and wider upland species. The work would cover an area of approximately 22ha where Sitka has established itself in varying densities. Across this area much of the regen is sporadic with stems between 0.6 to 1.8m. However, closer to and within 500m of the edge of the standing plantation this growth has reached canopy stage with some specimens reaching 20m in height. The denser material covers approximately 6-8ha of the site and given its establishment would require unconditional felling licence. This area would be funded by Buccleuch as match funding contributions. The remaining 16ha would be funded under NRF.

The area is within the Tweedsmuir Hills core area as defined by GWCT (unhatched) and is a key linkage location for black grouse with lek sites recorded between 3-4km to the west and the north. The management of this area will result in improvement in the quality and expanse of heather moorland habitat which will provide valuable foraging and potentially nesting habitat for black grouse as well as extending an area of BAP habitat. The site has direct connectivity with tributaries of the adjacent Yarrow water and this management will improve water quality through a reduction in the potential source of acidification.

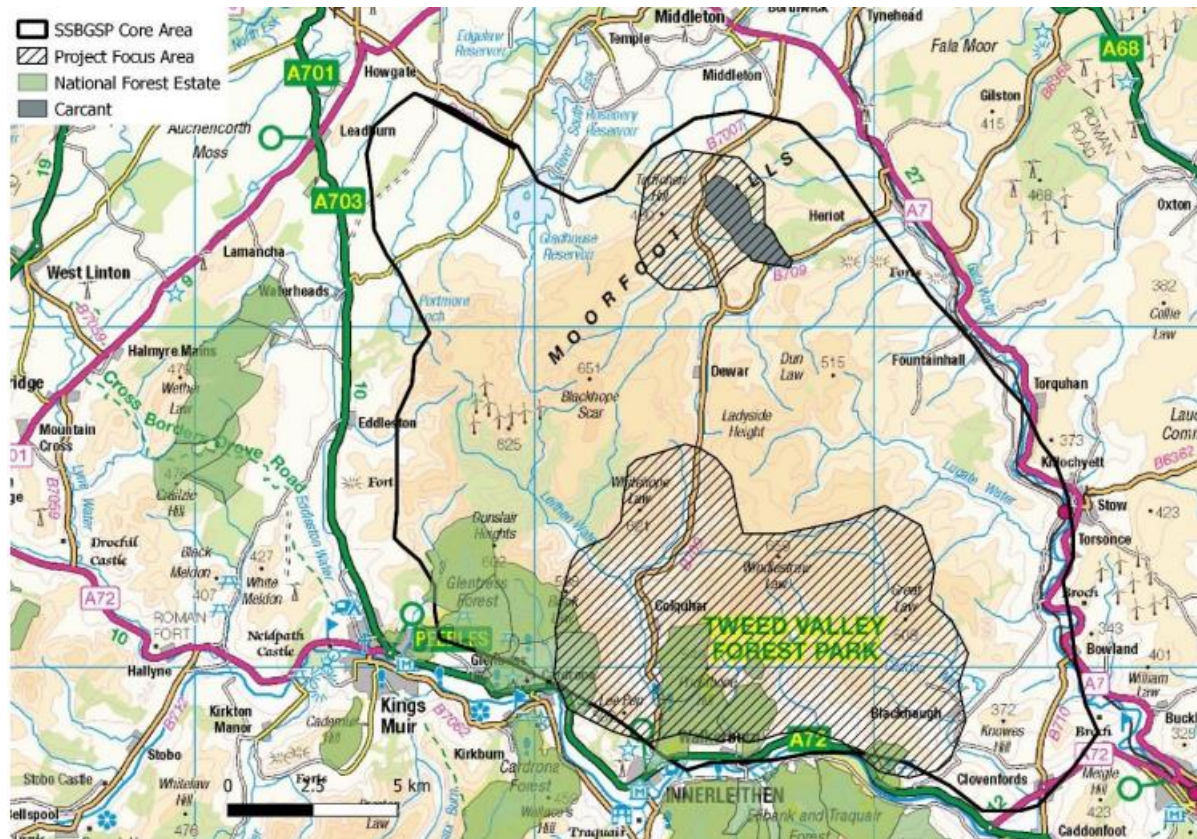


Area 4: Tweedsmuir Hills (Dumfriesshire and Scottish Borders)

	Key Actions					By whom?			
	Low density native broadleaf planting	Bracken control	No-fence collar grazing	Removal/re-spacing of non-native trees	other	Landowner staff / vols	Contractor: Landowner to source	Contractor: Project staff to source	
Borders Forest Trust	✓ 132ha		✓			✓	✓	✓	
John Muir Trust	✓ 9ha	✓ 9ha	✓			✓		✓	
National Trust for Scotland	✓ 15.23ha				fencing	✓		✓	
Wemyss & March Estate			✓				✓	✓	
Buccleuch - Bowhill				✓ 22ha			✓		
Forestry & Land Scotland					Heather swiping, small pond creation and expansion of wet flushes		✓		

Area 5: Moorfoot Hills (Scottish Borders)

The Moorfoot Hills have lost the line of black grouse leks that once linked the leks in the southern Moorfoot focus area with the Carcant lek in the northern focus area. Commercial forestry is limited to Glentress due to the SSSI for the moorland of the Moorfoots.



Map. Moorfoot Hill focus area with landholdings

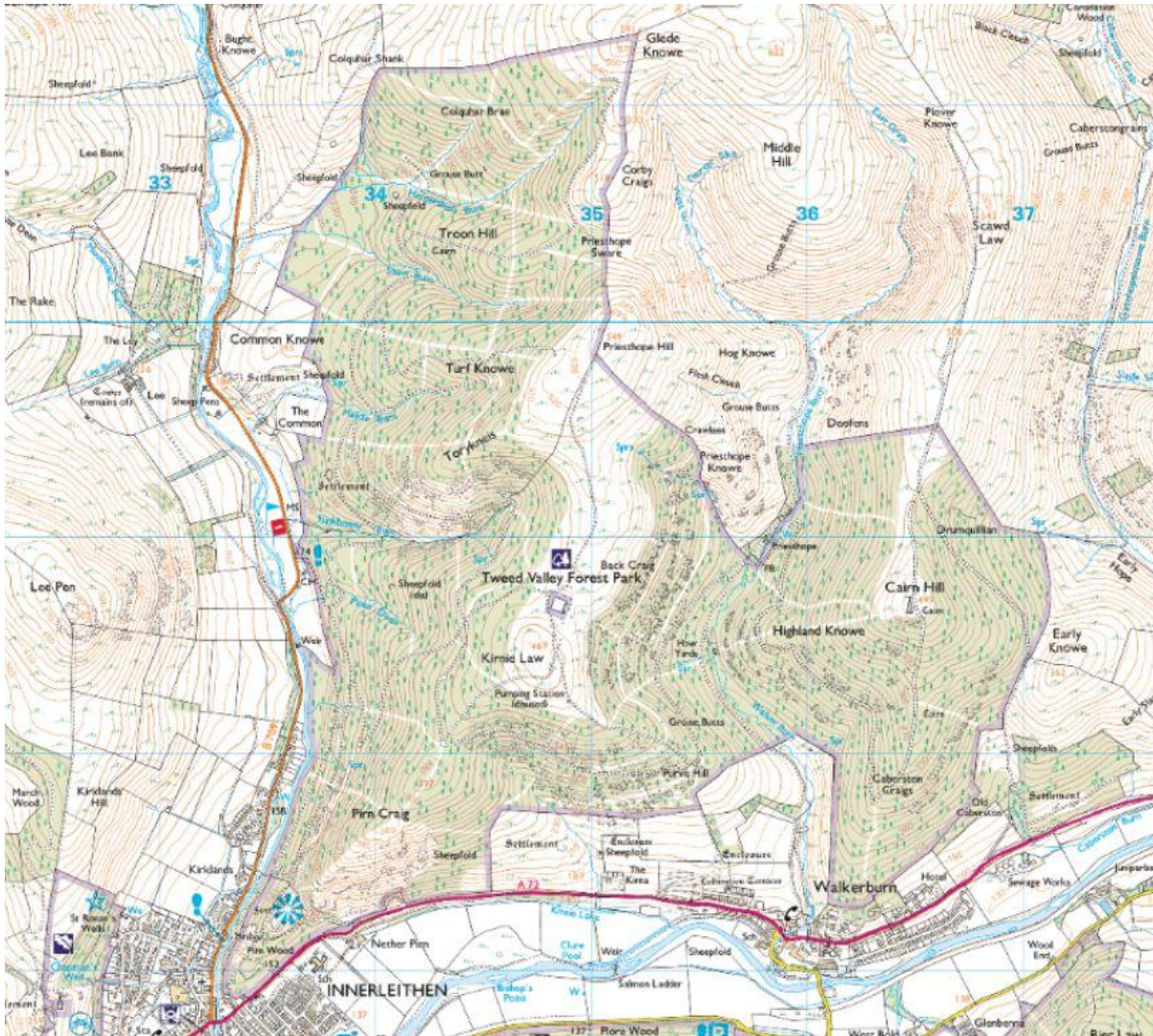
This development phase has identified and developed habitat actions with Forestry & Land Scotland to be completed as match funding.

Forestry & Land Scotland

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration.**

Caberston Forest moorland work. This site is in a strategic location with six lek sites within <1km to 4km of its boundary. As such, management of open habitat under NRF will provide potential foraging/nesting/brood rearing habitat for black grouse. This will include:

- 83ha upland moorland management; heather swiping; creation of wetlands; Low density broadleaf planting and wider biodiversity.



Caberston location map

Carcant Estate

NatureScot priority theme/s met: **Habitat and species restoration**

Carcant Estate have an 800-acre hill farm going up to 1350ft in Moorfoot Hills with a robust multi bird lek. They have recently planted 3ha of mixed broadleaf woodland to suit black grouse and has recently signed an AECS agreement. Discussions during the development stage did not identify any habitat management to be delivered through NRF but the Estate is potentially interested in exploring the use of no-fence collar technology to manage grazing.

No-fence collar: Grazing management is an ambition of the estate. Using the methodology from the no-fence collar grazing research undertaken during the NRF development phase, the project will undertake consultant site-based assessments, grazing infrastructure, welfare, stock numbers, training, grazing plan etc.

The site potentially offers the project an opportunity for the community engagement elements.

Area 5: Moorfoot Hills (Scottish Borders)

	Key Actions					By whom?			
Landowner/stakeholder	Low density native broadleaf planting	Bracken control	No-fence collar grazing	Removal/re-spacing of non-native trees	other	Landowner staff / vols	Contractor: Landowner source	Contractor: Project staff source	
Forestry & Land Scotland					Heather swiping, wetland creation		✓		
Carcant Estate			✓ tbc					✓	

2. Landowner cluster groups and wider participation

Requirement: To support landowners and managers with upland environmental and land management actions in the Focus Areas and facilitate the growth of participation among landowners from adjacent land.

A number of key landowners/stakeholders proposing to deliver management under NRF have been involved in conservation projects supporting upland species and habitats over the past decade and are already part of the core delivery group.

Engagement with existing Landowner groups within the Focus Areas already identified will be led by the NRF funded project officer, in support of the delivery of habitat restoration. This will be done in tandem of growing the membership of these groups in liaison with neighbouring landowners. These cluster groups will represent interest in and the coordination of conservation management of upland habitat for black grouse populations and wider upland species and habitats.

All of these existing partners and a figure for identified potential partners have been detailed in the table below.

Research and Learning Cluster - Restoration and Demonstration (Molinia suppression/re-wetting peatland):

Within the Galloway Forest Park focus area we will set up an innovative project focusing on Airds estate on the Airie Hills SSSI. This will focus on Airds estate and its neighbours to allow wider landowner participation involved in the management of a SSSI for both farming and nature biodiversity.

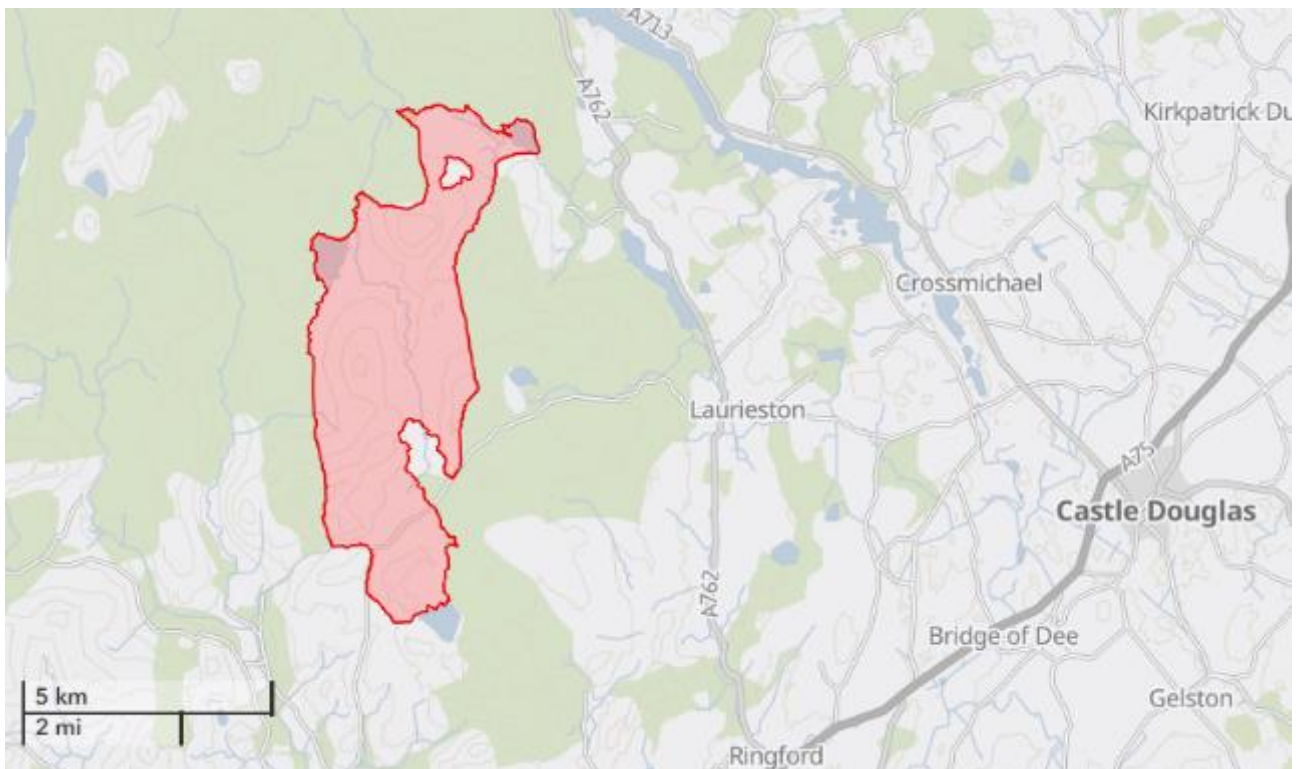
In partnership with the Crichton Carbon Centre and in liaison with NS this will deliver:

- Based on condition monitoring standards, national Peatland Action peatland monitoring strategy, Peatland Code assessment protocol and carbon accounting, design and implement a monitoring scheme to assess current and changing peatland condition in key areas across the SSSI and wider area. Examine the area where cattle grazing has already been used on a Molinia dominated area.
- Develop a trial Molinia suppression and peatland re-wetting management to deliver maximum biodiversity benefits across the site which supports, and works with, a grazing management plan in order to reduce Molinia dominance and reduce fire risk. Identify areas for capital works throughout the area. Undertake all procedural requirements (including PDR, stakeholder engagement, permissions, mapping, procurement) for restoration project.
- Work with land owner/manager on registering and validating the demonstration project as a Peatland Code project building on the work of tasks Year 1 - 1 and Year 1 - 2 to generate carbon calculator, mapping, project design document, project cost analysis, stakeholder engagement, monitoring plan.
- Hold discussions with all land owners/managers to establish barriers, opportunities and mechanisms for scaling up peatland restoration and management across the area exploring the role of private finance (Peatland

Code, using the demonstration restoration site as an example), future agricultural support regimes, Nature Networks and 30x30.

- Trial how restoration techniques can be used to help improve biodiversity, reduce dominance of *Molinia* and conifer encroachment, support grazing (for further habitat improvements) and integrate with a farm business.
- Hold discussion events with land owners/managers and NatureScot/ScotGov/Peatland Action to discuss the trial works and consider how it could be upscaled to other areas.

NatureScot priority theme/s met: **Habitat and species restoration, Freshwater restoration, Control of invasive non-native species (INNS)**



Laughenghie and Airie Hills SSSI location

Galloway Forest Park and Cairnsmore	Lowther Hills
Participating in the project	Participating in the project
Forestry & Land Scotland	Buccleuch
NatureScot - Cairnsmore NNR	
James Ingall, Airds Estate	
Identified potential further participants: 4	Identified potential further participants: 3
Langholm	Tweedsmuir Hills
Participating in the project	Participating in the project
Tarras Valley Nature Reserve	Borders Forest Trust
Woodland Trust	National Trust for Scotland
	Glenlude, John Muir Trust
	Wemyss & March Estate
	Buccleuch
	Forestry & Land Scotland
Identified potential further participants: 2	Identified potential further participants: 4
Moorfoot Hills	
Participating in the project	
Forestry & Land Scotland	
Carcant Estate	

3. Surveying, research and monitoring

Requirement: Throughout the life of the project there will be a need for monitoring to record the delivery and legacy of the project elements.

All project management outputs will be measured and reported on including hectare restored; area planted; alongside species response (black grouse status/flora indicators) as appropriate. This will include the following specific monitoring measures:

1. Lek surveying

- Annual evaluation of lek status within the project focus areas and related to habitat works to measure population response although it should be acknowledged that the time-line for NRF delivery will not allow an immediate measure of this response. Future annual survey work and in line with any compliance will enable a longer-term measure of population response.
- Annual surveying of 5km x 5km squares of suitable lek habitat in and adjacent to the project focus areas to assess baseline and measure population expansion although it should be acknowledged that the time-line for NRF delivery will not allow an immediate measure of any expansion. Future annual survey work and in line with any compliance will enable a longer-term measure of range expansion.

2. No-fence collar (N-FC) grazing

During the NRF development phase both desk-based and on the ground phase 1 field-based N-FC research was undertaken, which has informed the project delivery stage by identifying suitable sites in the Galloway Forest, Lowther Hills and Tweedsmuir Hills Focus Areas (see 'Habitat restoration and management' section above).

This phase 1 process will be rolled out further across the focus areas during delivery phase at a number of identified locations. The following sites have been identified as having potential for N-FC grazing and requiring ground truthing during the delivery phase:

- Glenlude, Tweedsmuir Hills
- Tarras Valley, Langholm Hills
- Carcant Estate, Moorfoot Hills (TBC)

Phase 2 N-FC Delivery

For those sites assessed and passed for No-fence collar suitability, the project officer, working with the support of a NFC expert, will liaise with the landowners, stock owner and stakeholders to set up the grazing areas, including baseline monitoring and reporting, acquisition and deployment of No Fence collars, facilitation of training including set up and support.

N-FC monitoring will be developed between the project officer, consultant and landowner/farmer using the Holistic Land Management Practices (HLMP), as developed and practices by the Savory Institute, through the holistic framework. Broadly this will include:

- Basic ecological monitoring undertaken over the transects fixed in stage 01 Planning
- Drone - fixed flightpath and Arial images
- Liaison with the landowner/farmer on how the system is working to identify if anything needs changing or what works well
- Throughout this will be recorded using the HLMP forms eg Ecological monitoring Data - Basic, Ecological Monitoring Analysis - Basic.

For the Airies SSSI site the Crichton Carbon Centre will set-up a monitoring programme for re-wetting habitat management timings.

Best practice sharing: Learnings from the monitoring of the NFC grazing will be shared with stakeholders. Part of the project deliverables is to host site-based showcase events for landowners / stakeholder to visits the upland site pre/post restoration, improve their N-F Collar awareness, and discuss best practice in a broad range of key topics including animal husbandry/welfare, business impact and habitat biodiversity impact.

3. Research and Learning Cluster - Restoration and Demonstration (Molinia suppression/re-wetting peatland):

Within the Galloway Forest Park focus area we will set up an innovative project focusing on Airds estate on the Airie Hills SSSI. This will focus on Airds estate and its neighbours to allow wider landowner participation involved in the management of a SSSI for both farming and nature biodiversity.

- Based on condition monitoring standards, national Peatland Action peatland monitoring strategy, Peatland Code assessment protocol and carbon accounting, design and implement a monitoring scheme to assess current and changing peatland condition in key areas across the SSSI and wider area. Examine the area where cattle grazing has already been used on a Molinia dominated area.
- Develop a trial Molinia suppression and peatland re-wetting management to deliver maximum biodiversity benefits across the site which supports, and works with, a grazing management plan in order to reduce Molinia dominance and reduce fire risk. Identify areas for capital works throughout the area. Undertake all procedural requirements (including PDR, stakeholder engagement, permissions, mapping, procurement) for restoration project.
- Work with land owner/manager on registering and validating the demonstration project as a Peatland Code project building on the work of tasks Year 1 - 1 and Year 1 - 2 to generate carbon calculator, mapping, project design document, project cost analysis, stakeholder engagement, monitoring plan.
- Hold discussions with all land owners/managers to establish barriers, opportunities and mechanisms for scaling up peatland restoration and management across the area exploring the role of private finance (Peatland Code, using the demonstration restoration site as an example), future agricultural support regimes, Nature Networks and 30x30.
- Manage the restoration project which will trial how restoration techniques can be used to help improve biodiversity, reduce dominance of Molinia and conifer

encroachment, support grazing (for further habitat improvements) and integrate with a farm business.

- Hold discussion events with land owners/managers and NatureScot/ScotGov/Peatland Action to discuss the trial works and consider how it could be upscaled to other areas.

4. Community engagement

Requirement: The health of our uplands and the biodiversity it supports is dependent on the actions of the communities who own and work the land. Without this connection its recovery is unsustainable. This project will embed the involvement of the community in the delivery of objectives to restore the uplands, including direct conservation measures through land management, monitoring work to assess change and through a programme of awareness raising and interpretative activities.

Key actions:

- a. Volunteering
- b. Tree provenance and nurseries

Volunteering

The project will build on and support a southern Scotland volunteer task force to support the project objectives through various tasks including spring lek surveys, seed collection, tree champions and habitat management.

Tree provenance and nurseries

Creating the right sort of upland habitat mix of open areas and tree cover, coupled with the correct management approach is vital for key upland species conservation. In the right areas, upland tree cover of small leaved native species is essential for successful black grouse populations, and it would additionally create habitats that will benefit a broad range of other species. This requires the right tree species, of the right provenance to be planted in the right place and at the appropriate density, requirements which are not easy to meet through existing grant scheme regulations. At present the availability of planting stock of the correct provenance (especially of some tree species) is in short supply. In association with a professional tree nursery the project will undertake an annual seed collection in each of the five focus areas, propagate the seed and grow on within strict biosecurity and Forestry Reproductive Material (FRM) processes. Some of these propagated and grown on seed will return to existing tree nursery initiatives and community tree champion projects within the project's core areas.

See Appendix for further details regarding the wider community / cultural strands to be funded from non-NRF sources

5. Delivery

Requirement: The successful delivery of the project will require a committed team of staff, volunteers and interns to own and lead all aspects of the project delivery.

Project Officers

The vision is to employ two full-time project officers for the 5-year life of the project, subject to funding, but initially one post for the NRF period through to 31st March 2026.

The post holders will have the following remit:

- Oversee, manage or support Implementation of habitat works
- Supplier tendering and management of works where appropriate eg no-fence collar, tree nursery seed propagation, tree requirements, contractor
- Provision of support to and liaison with landowner cluster groups
- Provision of expert advice to landowners including the development of a volunteer task force in support of management outputs
- Oversee species and habitat monitoring in relation to species/habitat status and condition across Focus Areas and in relation to management outputs.
- Coordination of training and demonstration events across the five Focus Areas.
- Deliver community engagement and cultural activities

See Appendix for Job Description and Specification

Environmental Intern (HLF funded - tbc)

The project will annually recruit a young person as an intern based in southern Scotland who is studying or has an interest in environmental science and management. The role will:

- Support and work alongside the project team and other south Scotland environmental groups.
- Gain knowledge and experience of upland habitats and species, and the wider environment matrix of Southern Uplands.
- Assist with the evaluation and monitoring of the project's habitat works.

Volunteering

The project will require a network of volunteers, developed by the project officers, to undertake a number of key tasks, including tree seed collection and lek surveys.

Outsourcing and Supplier requirements:

The delivery of the practical habitat works will be through a mix of landowner staff/volunteer capacity and outsourcing, The outsourcing will be led by a combination of project staff and the individual landowners - see the 'Habitat restoration and management' section above for the breakdown. NatureScot procurement purchasing thresholds will be adhered to for those areas led by the project:

Purchasing threshold - including any VAT that may be payable	Requirement
£1,000 & below	x 2 Quotes – to ensure value for money
£1,000 to £25,000	x 3 Quotes – a minimum of 3 suppliers to be invited to quote Justification required if single tender Justification required if Other Than Lowest Quote
£25,000 to £50,000	x 5 Quotes - a minimum of 5 suppliers to be invited to quote Justification required if 5 suppliers not invited to quote Justification required if Other Than Lowest Quote
£50,000 and above	- advertise and full procurement tendering exercise Where an Applicant plans to do the restoration work on their own land, personally or through their business operations, we will require additional evidence to ensure fair and open competition and value for money. Please email NRF@nature.scot for more information.

Budgets & Funding:

See separate budget spreadsheet for the full breakdown of costs. Document name: **502229 - NRF 2022 – SUP budget – final.xls**

The NRF maximum intervention rate is 90%, with a minimum of 10% match funding. The match funding for this project is **14%**.

The funding sources for the NRF project areas through to the 31st March 2026 are detailed in the below table:

PROJECT AREA	FUNDING		
	NRF	Match funds	In-kind
Habitat management and restoration	✓	✓	✓
Cluster groups and wider participants	✓		✓
Surveying and monitoring	✓	✓	✓

Delivery	✓		✓
Community engagement: <ul style="list-style-type: none"> • Volunteering • Tree provenance and nurseries 	✓ ✓		✓

Non-eligible Grant Schemes:

The following three non-eligible grant schemes have been considered during the practical habitat work discussions and the works eligibility within these schemes has been discounted:

- Agri-Environment Climate Scheme (AECS)
- Forestry Grant Scheme (FGS)
- Peatland Action (PA)

The primary reasons for their ineligibility are:

- Density of native broadleaf planting at sites where this is occurring is too low to meet criteria for FGS and Montane planting is not funded under FGS.
- Management falls outside of current grant criteria, either due to scale of implementation in line with prioritisation of funding (PA) or temporarily due to budget pressures e.g. treatment of bracken / heather/ Molinia (AECS). Or on FLS land (not eligible for AECS).

Where AECS/FGS/PA schemes have been either in place or being considered by the landowner this project development has sought to compliment habitat restoration management through linking or enhancing adjacent ground that fall outside of those grant schemes.

Specifically, regarding the **Restoration and Demonstration (Molinia suppression/re-wetting peatland)** the following outlines why this falls outside both Peatland Action and AECS funding:

Crichton Carbon Centre has carried out preliminary work to assess the extent of Molinia dominated peatlands in the Dumfries and Galloway. Through experience of designing peatland restoration scheme Molinia dominated peatlands, often suffering considerable encroachment by conifers, is a common peatland type in the region. Estimates based on the Carbon and Peatland Map 2016 suggest that up to 64,000ha of Molinia/Nardus dominated peatland can be found in the region. Of concern is when there is a lack of opportunity to bring about a major change in hydrology, through conventional peatland restoration techniques, to rewet and suppress Molina and conifer growth. In these instances, we would like to trial using experimental techniques, which can work with grazing regimes, to improve the condition for these areas.

The project is seeking funding for this work through NRF as the restoration technique we wish to use, artificial ditch blocking, is not eligible for Peatland Action funding as it falls under SRDP-AECS scheme options. However, due to the need to trial and experiment with the technique this would not meet the prescriptive criteria of an

AECS funded ditch blocking plan. In addition, the scale of the trial area means it would not be a priority for Peatland Action which would prioritise larger scale projects to meet restoration targets. The Crichton Carbon Centre has been scoping these potential restoration funding opportunities for this area for a number of years without success, which has led to our conclusion that this project needs a more bespoke project. Through CCC's experience, the Peatland Code would not necessarily work for a project at this scale. However, a key objective of this project would be to look at the how the Code could be used to draw down private finance if this approach could be scaled up.

Appendix

- Black Grouse – RSPB advisory sheet
- Summary of site locations and evidence
- Tarras Valley Nature Reserve – Wider Context
- No-Fence Collar Grazing Research Brief
- No-Fence Collar Grazing Use – Justification
- Project Officer – Sample Job Description/Specification
- Wider Project Strands – Community Engagement and Cultural

Black Grouse – RSPB advisory sheet



Black grouse Habitats and land management



Black grouse are found on moorland, rough grazings, young conifer plantations and suitable native woodlands in upland areas of Britain, from Wales to Northern Scotland. Arable fields (stubbles) and inbye grasslands at the moorland edge may also be used.

Black grouse is one of the fastest declining species in the UK. The most recent survey revealed an overall decline of 29% in Scotland between 1995 and 2005, with populations in the south of the country experiencing the steepest declines. The range of black grouse in Britain contracted by 28% between two major bird distribution surveys (1968–72 and 1988–91). This is a big contraction, undoubtedly associated with the population decline.

WHAT DO BLACK GROUSE NEED?

Black grouse need a mosaic of habitats

Throughout the year, black grouse will use a wide range of habitats for nesting, feeding, lekking (displaying), chick-rearing, cover and shelter. Farmers, foresters, moorland managers and gamekeepers all play a vital role in safeguarding these habitats in the parts of Scotland where black grouse remain.

Long vegetation for nesting

Black grouse require long heather or areas of tall vegetation (>40 cm) for nesting and cover.

A range of food types throughout the year

Heather and blaeberry are important foods for adult black grouse throughout the year. In the autumn and winter, they will take buds from trees such as birch, and berries from rowan and hawthorn. At other times of the year, grasses, sedges, rushes and herbs might be eaten depending on local availability. Adult females benefit from eating protein-rich foods such as larch buds and cotton grass buds in the spring as this helps them to get into good breeding condition. Insects, including caterpillars and sawfly larvae, are an important food source for chicks (see back page for further details).

MANAGING HABITATS FOR BLACK GROUSE

Habitat management for black grouse should focus within an area of up to 700ha around lek sites (1.5km radius from the lek). As black grouse require suitable habitat at a large scale, management across neighbouring land holdings could be crucial. Management carried out beyond this area could help connect lek populations and promote range expansion. The best way to manage for black grouse on your land is to walk the ground with an adviser and discuss options for management. This will help to establish the probable limiting factors for black grouse on your holding, therefore enabling management for black grouse to be prioritised.



Hard edges of forestry like this can be "softened" by thinning or by low density tree planting along the edge.

Woodland

Conifer plantations

Pre-thicket conifer plantations can suit black grouse – the absence of grazing animals can allow good ground cover to develop for nesting, feeding and chick rearing. As plantations mature, the canopy closes, shading out ground vegetation and making the plantation unsuitable for black grouse. The following measures can be carried out to maximise the value of conifer plantations for black grouse:

- Restructure or thin edges of forests on the moorland edge or plant these areas at a lower density to give areas of scattered trees rather than a "hard edge"
- Establish larch and native tree species along forest edges using species such as birch, alder, willow, rowan, hawthorn, juniper and Scots pine.
- Widen rides and create open ground within plantations, and use open ground and planting to connect black grouse habitats.
- To prolong the value of new conifer plantations, plant some areas at a low density, and/ or leave large gaps between blocks.
- After clear-felling, clear brash and delay or stagger restocking to encourage ground vegetation recovery.
- Restructure plantations to create age-class diversity – black grouse will use blocks up to 10–15 years old.
- Carry out deer management to encourage regeneration of the field layer.
- Swipe strips or patches in open areas to create a mosaic of heather within plantations.
- Create damp flushes in open ground, which can become rich in invertebrates for chicks.
- Safeguard lek sites in clearings and on tracks.



New native woodland schemes can provide high quality habitat for black grouse. Areas of internal open space help to soften their value.

Native woodlands

Semi-natural woodland and scrub on moorland fringes and along burns can provide habitat for black grouse. When creating and managing native woodlands:

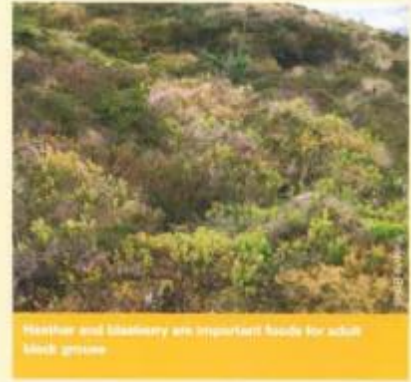
- Plant some areas at low density, especially on the outer edges of the woodland, and maximise areas of open ground in new planting.
- Use species such as birch, alder, willow, rowan, hawthorn, juniper and Scots pine.
- Manage livestock grazing to avoid damage to native woodlands.
- Avoid using for pheasant shoots that may disturb black grouse.

Moorland/farmland

Black grouse use heather moorland and inbye habitats on hill farms, often lekking on permanent pasture at the moorland edge. Hill arable fields may provide shelter plus grain and/or wood seeds in autumn and winter.

- Use maiburns/swiping to create a mosaic of long and short heather. The Maiburn Code should be adhered to if burning is carried out.
- Manage livestock and deer grazing levels to help maintain a varied structural mosaic of heather and rough grass.
- Manage boggy/marshy ground to provide feeding areas for black grouse. Cotton grass is an important food for hens in early spring and invertebrate-rich wet flushes provide important chick-rearing habitats in summer. Retain and lightly graze existing wet areas and create new ones by, for example, grip blocking.

- Species-rich grasslands provide year-round food, supporting key food plants in autumn/winter and high invertebrate densities for chick-rearing in summer. Retain or create such grassland areas, and manage them to allow flowers to set seed.
- Many black grouse nest and rear their young in the grass/rush/sedge mosaic found on the "white hill" of the moorland edge. Lightly graze areas of white hill to give some areas over 30 cm in height.
- Adverse effects of bad weather on chick survival may worsen in tall, dense vegetation. Providing a mosaic of shorter and longer vegetation could lessen the effects of wet and cold weather in late May and June.
- Sow unharvested crops and retain arable stubbles. Spring cereals and weedy turnip crops may be particularly good.



Heather and blackberry are important foods for adult black grouse.



Marking fences can lower collision risk

Other management

Predator control

Ensuring the availability of good cover will reduce predation risk for black grouse. Co-ordinated and targeted legal predator control can improve breeding success and possibly adult survival.

Deer fences and stock fences

Fence collisions can be a cause of black grouse mortality. Deer fences should only be erected, maintained or renewed where there is no other viable means of deer control, and only after proper assessment of the risks. In addition:

- Remove redundant fences.
- Site new fences and mark existing fences (where continued use is considered essential) according to current best practice. See FCS Guidance Note 11: "Deer and Fencing".
- Position stock fences clear of flight lines to and from leks and important feeding areas.

Lek sites

Patches of semi-improved grassland on open hills, and permanent pastures on the inbye can provide lek sites for black grouse.

- Avoid disturbing lekking areas between March and May.
- Ideal leks have an open aspect and are often grazed short. Aim to keep vegetation short at known lek sites.
- Avoid planting trees within 100 m, supplementary stock feeding, or erecting stock or deer fences near to lek sites.

(Continued on back page)

BLACK GROUSE - DIVERSITY OF FOOD TYPES

FOOD TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Heather												
Blackberry wood												
Blackberry berries												
Lark food												
Bush buds												
Grass seeds												
Grass seed in crop stubble												
Scots pine pollen												
Insects & spiders												
Grain/wood seeds												

(Continued from previous page)

Lek viewing

Care should be taken not to disturb lekking black grouse and never approach displaying birds on foot. Leks can be viewed from cars parked more than 300m away, if you set up before daybreak and do not disturb the birds by starting the engine or opening doors. When walking in areas that are used by black grouse, keep to footpaths and keep dogs on a lead. The full Code of Conduct can be found at www.blackgrouse.info/forbirdwatchers/code.htm

The RSPB Corrimony reserve in the Highlands offers black grouse viewing each spring – see the RSPB website for further details.

Shooting

- Avoid shooting black grouse.
- Brief guns on driven red grouse and pheasant days not to shoot black grouse.
- Given the current plight of black grouse, many grouse moor owners operate a voluntary ban. Some estates impose fines for accidental shooting.



RSPB Scotland gratefully acknowledges Scottish Natural Heritage funding under the Species Action Framework for the production of this leaflet.

KEY POINTS

- Help to maintain a mosaic of suitable habitats in the landscape and manage grazing levels to provide a varied vegetation structure.
- Create and expand native woodland and look for management opportunities within existing forestry plantations.
- Remove or mark high-risk fences.
- Manage predation risk and consider targeted predator control to improve breeding success.
- Seek advice on what management to undertake on your holding and how to fund it.

Further information:

RSPB Scotland advisory sheets on: Heather moorland management; Moorland grazing; Grip blocking.

BAP website www.blackgrouse.info

RSPB website www.rspb.org.uk

GWCT website www.gwt.org.uk

Scottish Government SRDP website www.scotland.gov.uk/topics/rural-SRDP

The Royal Society for the Protection of Birds (RSPB) is a registered charity. England and Wales no. 207076, Scotland no. SC023654 719 1256 08 29

You can get further information on this and other ways of managing your land for wildlife from:



Advisory Manager, RSPB Scotland, Conservation House, Durnedin House, 26 Ravenshoe Terrace, Edinburgh EH4 3TF Tel: 0131 311 8600 www.rspb.org.uk



Game & Wildlife Conservation Trust, Scottish HQ, Couston, Newryle PH12 8UT Tel: 01828 650643 www.gwt.org.uk



Forestry Commission Scotland, Silvan House, 231 Conastorphine Road, Edinburgh EH12 7AT Tel: 0131 204 0300 www.forestry.gov.uk



Scottish Agricultural College, King's Buildings, West Mains Road, Edinburgh EH9 3J5 Tel: 0131 535 4000 www.sac.ac.uk



Scottish Natural Heritage, Great Glen House, Leachlan Road, Inverness IV3 8NW Tel: 01463 725000 www.snh.org.uk



NFU Scotland, Head Office, Rural Centre - West Mains, Ingliston, Midlothian EH28 8LT Tel: 0131 472 4000 www.nfu.org.uk

Summary of Site Locations and Evidence

Area 1: Galloway Forest Park and Cairnsmore (Dumfries & Galloway)						
Landowner/ stakeholder	Key Actions			Removal of non-native trees	Other	Condition & evidence
	Low density native broadleaf planting	Bracken control	No-fence collar grazing (N-FC)			
Airds Estate			✓		Grazing infrastructure, Molinia upland management, Demonstration project	<p>It has been a long-term ambition for the landowner, NatureScot and Crichton Carbon Centre, among other partners, to actively manage the Airds SSSI through grazing management. Airds Hills has been ungrazed and Molinia has been an ongoing issue which was recently exasperated by fire across the hill since when the growth has become more established. Although heather has shown signs of regrowth since the fire its suppression by Molinia is ongoing (evidence NS/Jamie Ingall Landowner).</p> <p>The site was assessed for N-FC suitability by Connicks Consultancy during the development phase and was given a 'High' suitability rating - Really good suitable site with good terrain and shelter for both Cows and Sheep, little steep or wet boggy ground, adequate GPS and Mobile reception, 4x4 access roads maybe present on site.</p>
Forestry & Land Scotland Loch Skerrow Roundfell Clugie Linn Adjacent to Ellergower Moss SSSI				✓		<p>Four areas of Sitka spruce non-native tree regeneration were identified by FLS staff and further ground-truthed with RSPB Scotland and SUP staff. The condition of habitats at these sites is being negatively impacted by this growth. All sites have been identified as having potential foraging and brood rearing habitat for black grouse (RSPB Scotland). Ellergower Moss (SSSI) is one of the few remaining examples of an intact upland raised bog in D&G and is a Priority Action habitat in the D&G Local Biodiversity Partnership.</p>
NatureScot – Cairnsmore NNR	✓				Blocking of drainage ditches	<p>The site was assessed by NatureScot reserve and RSPB Scotland and SUP staff and further ground-truthed by NS staff to confirm site suitability for management. The site has seen a steady increase in the spread of purple-moor grass, with accompanying loss of heather and blanket bog plants. Peatland restoration work carried out on the site over the past 8 years has helped to address water loss issues and put areas of the hill into recovery; sheep were removed in 2019 to mitigate the impact of overgrazing on plant diversity. Up until 2012 there were small but steady records of black grouse on the site although there has been none in recent year. Evidence NS Cairnsmore NNR Staff/MP.</p>
Area 2: Lowther Hills (Dumfries & Galloway)						

Landowner/ stakeholder	Low density native broadleaf planting	Bracken control	No- fence collar grazing (N-FC)	Remova l of non- native trees	Other	Condition & evidence
Buccleuch - Queensberry Estate Glenim			✓			<p>This area is within 3km of historical black grouse lek sites and is a key area for breeding waders including and in particular, red listed breeding Curlew confirmed through recent bird survey work carried out by the estate and follow-up visit by RSPB Scotland.</p> <p>The site was assessed for N-FC suitability by Connicks Consultancy during the development phase and was given a 'Med' suitability rating - Suitable site requiring more in-depth planning as has some steeper/rocky/boggy terrain, good GPS coverage but patchy in parts, fewer 4x4 access roads.</p>
Area 3: Langholm Moor (Dumfries & Galloway)						
Landowner/ stakeholder	Low density native broadleaf planting	Bracken control	No- fence collar grazing (N-FC)	Remova l of non- native trees	Other	Condition & evidence
Tarras Valley Nature Reserve Perter Burn	✓		✓		Stock fencing	<p>The site was assessed on a number of occasions by TVNR, Woodland Trust and RSPB Scotland staff, which identified a suite of native broadleaf/scrub creation management within vicinity of 3 lek sites near the Perter burn (evidence SUP Black grouse survey). The area has been historically heavily grazed with some burning, which has now ceased, leading to a domination of Molinia grasses (evidence pers comm TVNR). The management area is being looked at as one system to include the establishment and enhancement of low density scattered native trees and scrub, maintenance of open mixed grasslands and wetland bog habitat to enhance habitat connectivity in the Tarras Water catchment.</p>
Area 4: Tweedsmuir Hills (Dumfriesshire and Scottish Borders)						
Landowner/ stakeholder	Low density native broadleaf planting	Bracken control	No- fence collar grazing (N-FC)	Remova l of non- native trees	Other	Condition & evidence

Borders Forest Trust Talla Gameshope Corehead	✓		✓			<p>The site was assessed by Borders Forest Trust staff. This area holds at least 4 active lek sites (evidence RSPB Scotland lek survey/SUP lek survey data). The management is to enhance current higher altitude habitat by the introduction of Biodiversity Priority Plan UK Action Species. Evidence BFT survey/MP.</p> <p>The sites were assessed for N-FC suitability by Connicks Consultancy during the development phase and were given a mix of 'High' and 'Medium' suitability ratings. High = Really good suitable site with good terrain and shelter for both Cows and Sheep, little steep or wet boggy ground, adequate GPS and Mobile reception, 4x4 access roads maybe present on site. Medium = Suitable site requiring more in-depth planning as has some steeper/rocky/boggy terrain, good GPS coverage but patchy in parts, fewer 4x4 access roads.</p>
John Muir Trust Glenuide Hill	✓	✓	✓			<p>The site was assessed by John Muir Trust staff and further ground-truthed with RSPB Scotland and SUP staff. The site is currently in a 20-year plan to restore this former 149ha sheep farm and conifer plantation to a mosaic of native habitats. The site has recorded observations of male and female black grouse and has direct connectivity to adjacent land which supports an active lek site (evidence SUP lek survey data). The area is also proven for its breeding wader population including red data breeding Curlew as recorded through recent survey work. The current management will enhance an area dominated by bracken and improve the mosaic of habitats on a bare hillside.</p>
National Trust for Scotland White Coomb	✓				stock fencing	<p>The site is one of the most important locations for downy willow south of the Highlands, a Biodiversity Priority Plan UK Action Species, but it is currently only found on crags which provide some protection from sheep and feral goats browsing. The reserve also supports lekking black grouse although numbers have been in decline over the past 5-10 years (evidence RSPB Scotland lek survey data).</p>
Wemyss & March Estate Megget Water			✓			<p>The sites across the Estate were assessed for N-FC suitability by Connicks Consultancy during the development phase and were given a mix of 'High' and 'Medium' suitability ratings. Actions on the sheep grazed landholdings around Megget Water were concluded to offer the maximum benefits for upland species, habitats and water quality in to the Megget Water reservoir (drinking water). High = Really good suitable site with good terrain and shelter for both Cows and Sheep, little steep or wet boggy ground, adequate GPS and Mobile reception, 4x4 access roads maybe present on site. Medium = Suitable site requiring more in-depth planning as has some steeper/rocky/boggy terrain, good GPS coverage but patchy in parts, fewer 4x4 access roads.</p>

Buccleuch Bowhill				✓		The site was assessed by the Buccleuch Forest Manager and Estate Manager. An area of heather moorland is impacted by varying density of Sitka spruce regen at sporadic and closed canopy density. The site is a key geographical location linking black grouse lek sites recorded between 3-4km to the west and the north. The works will improve the quality and expanse of heather moorland habitat which will provide valuable foraging and potentially nesting habitat for black grouse as well as extending an area of BAP habitat.
Forestry & Land Scotland Elybank at Minchmoor					Heather swiping, small pond creation and expansion of wet flushes	Suitable locations for habitat management to improve upland habitats on FLS estate (Scottish Borders) were identified by FLS. The condition of habitat on site includes open ground habitat including heather moorland which has been identified for enhancement through varying sward and increasing habitat availability for invertebrates and black grouse brood rearing habitat.
Area 5: Moorfoot Hills (Scottish Borders)						
Landowner/ stakeholder	Low density native broadleaf planting	Bracken control	No- fence collar grazing (N-FC)	Remova l of non- native trees	Other	Condition & evidence
Forestry & Land Scotland Caberston Forest	✓				Heather swiping, wetland creation	Suitable locations for habitat management to improve upland habitats on FLS estate (Scottish Borders) were identified by FLS. The condition of habitat on site includes open ground habitat including heather moorland which has been identified for enhancement through varying sward and increasing habitat availability for invertebrates and black grouse brood rearing habitat.

Tarra Valley Nature Reserve – Wider Context Information

Restoration Approach

- The restoration approach is about full system recovery with restoration of ecological building blocks and structural habitat. By restoring habitat mosaics we will be providing optimum conditions for threatened species to thrive such as black grouse.
- The Tarras Valley is a catchment which is almost entirely community owned. Anything done across the landscape to help restore natural hydrology, natural processes and encourage diversity in structural native vegetation helps to build natural climate resilience in wetter warmer winters and hotter drier summers.
- Re-establishing structural vegetation and habitat will support soil health, structure and recovery in this area and support ongoing resilience of the landscape.
- One of the key drivers behind the community buy out of Tarras Valley was to help support community regeneration through a nature-based approach. We hope that restoring nature and increasing the biodiversity across the Valley will boost eco-tourism in the area and support wider nature-based enterprises on the community land.
- People are at the heart of our community owned nature reserve and social benefits are core to the delivery of our aspirations. Social benefits for this project are very important this includes more opportunities to see wildlife on the doorstep and through visiting the area, volunteering on the land, learning through the outdoor classroom and community empowerment by helping to shape what happens through collaborative planning as proposals develop.

Wider added value

- **Peatland Restoration** - This project is directly adjacent to the Haunches which is currently being surveyed by Crighton Carbon Centre as part of Scotland's Peatland Action Fund for extensive ditch blocking and rewetting on areas of deep peat. This is a significant area of large inter-connected drains which have altered the nearby hillside hydrology for a significant time. Rewetting will create significant areas of wetland habitat and increasing the ecological diversity of the area enabling it to support a wider diversity of species including for black grouse.
- **Native Woodland Creation** - The adjoining area on Cronksbank Hill is currently being developed as a low density native woodland creation scheme in partnership with Woodland Trust Scotland. The scheme also adjoins the
- **Investing in Nature Ready Scotland** - We are also in the development phase of funding through INRS to scope eco-tourism and nature-based enterprises across the empty properties on the reserve. This aims to bring in economic benefits to the area which helps to generate further revenue to restore nature. One of the properties (Cronksbank Farm) currently being scoped for opportunities is very close to the NRF project area and any restoration in the wider area will complement the overall aims of this funding.

These adjoining areas of ecological restoration and development for community and economic benefit will be complemented by these Nature Restoration Fund actions, maximising the impact of investment for people, nature and climate.

Long Term Sustainability

The Tarras Valley is owned by the community of Langholm in perpetuity, it is a forever project. The proposals which have been collaboratively developed will form part of the long-term restoration of the site under community ownership. Once the capital works have been delivered on site, they will be embedded into the operational plans for the reserve which includes any ongoing maintenance by dedicated groups of volunteers.

No-Fence Collar Grazing Research Brief



Upland Restoration Project: No-Fence Collar and Ground Truthing Research Requirements

The Southern Uplands Partnership, in conjunction with numerous partners, landowners and stakeholder, is developing a 5-year uplands landscape restoration and community engagement project. Aimed at improving habitats for a broad range of species, the project is using black grouse as the primary indicator species to drive this work across five core areas in southern Scotland.

From west to east, these were:

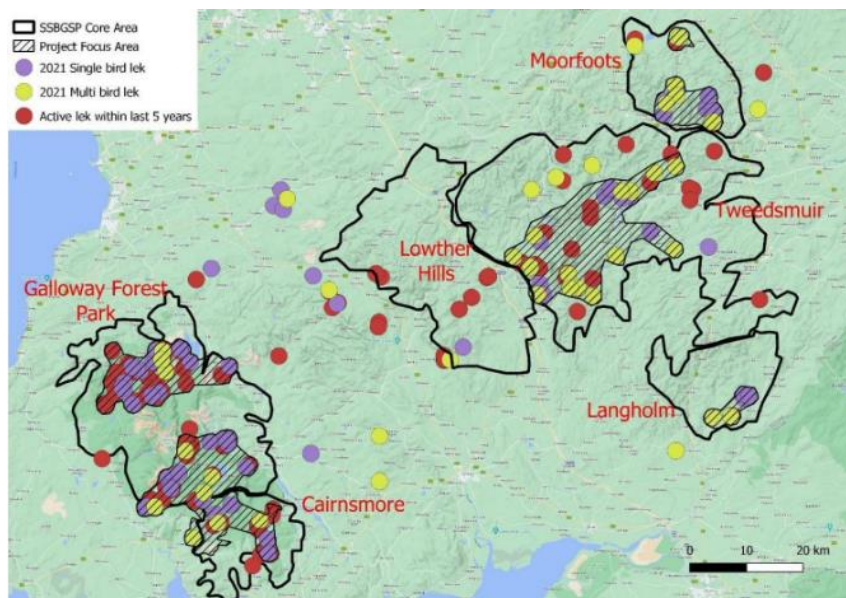
- Galloway Forest Park and Cairnsmore (Dumfries & Galloway/East Ayrshire)
- Lowther Hills (Dumfries & Galloway & South Lanarkshire)
- Langholm (Dumfries & Galloway)
- Tweedsmuir Hills (Scottish Borders)
- Moorfoot Hills (Scottish Borders)

These focus areas cover an area of more than 100,000ha. The project will deliver tangible habitat restoration within these focus areas, while engaging with communities both within and surrounding these locations.

NatureScot Nature Restoration Fund Development Funding

In January 2023 the project received development stage funding from NatureScot to work up and cost the project actions. Part of this funding included fees for research and ground-truthing potential works

Locations:



Research Requirements

No-fence technology is potentially one of a suite of habitat restoration methods for this project. To inform the development plan's actions and costings we require the following further information about this method.

Desk-based Research:

- To identify key technology players in the market, operating requirements and equipment costs.
- To confirm current capacity requirements for running with no fence technology to include use of cattle or sheep, best stock to use, infrastructure (access, water troughs etc), habitat/location issues (gradient, temperatures, terrain etc), training requirements for both stock and owner, and any other logistical considerations
- Methodologies for running with this method to turn habitats around to more favourable habitat or maintenance of existing conditions.
- Outline how it would be facilitated across an area (Landowner buy-in / demo / logistics of technology loan and management)
- How we would monitor the results over short-term and long.
- Examples of upland locations where technology has been used for similar goals and contact details, if available.
- Any other areas that you view as key - to be discussed and confirmed prior to starting work

Site-based Research:

We would like you to include site specific factors as part of your feasibility study in one of the Focus Areas as shown above. To assist you in this process we have identified areas where this may be more easily enabled:

4. Tweedsmuir Hills which includes NGO landowners BFT and NTS and private landowners and tenant farmers including Wemyss and Marches estate.
5. Lowther Hills which includes the Buccleuch Queensberry estate and adjacent land at Mitchellsacks (located SW of Queensberry Hill) and the potential to use Buccleuch cattle from Langholm.
6. Airie SSSI in Galloway which has multiple private landowners with tenant farmers

To include but not limited to:

- Locational logistical factors such as terrain, access, climate, animal welfare e.g. flies and other pests, access to water
- Infrastructure e.g. water troughs, 4G/technology
- Potential sources of local native stock
- Any other areas that you view as key - to be discussed and confirmed prior to starting work

Any wider benefits or tie ins:

Are there any linked projects or issues to consider and/or include in this project eg appraisal of Molinia issues across the uplands being undertaken by the Crichton Carbon Centre

Timings:

Work completed: ideally by early May

We have estimated this at 15 days' work.

Contact:

Darren@sup.org.uk

Julia.gallagher@rspb.org.uk

No-Fence Collar Grazing Use Justification

It's well known and documented that our upland habitats on the whole have been subjected to overgrazing, chiefly in part to set-stocked sheep grazing. Set-stocking is where a relatively fixed number of livestock freely roam over a given area of land for long-periods of time. An example of this is where hefted hill flocks are put onto hill ground and remain there for 90% of the year, only heading back to the in-bye of lower fields for key events such as tugging, clipping, routine worming and maybe lambing.

This pattern of historic grazing is unnatural and has imbalanced ecosystems and degraded habitats. This has led to whole functioning upland ecosystems, flora and fauna being reduced to remnants of their historic forms and entire species collapse(s).

This project is not about the total removal of sheep (sheep in large part make up the majority of the herbivores in the study area), but by working towards a more balanced presence and overall stocking rates and grazing densities. The upland hefted sheep system has been around for a longtime and it's something which Scotland is well known for, so when it comes to looking how to allow these flocks to function in a way that respects their heritage, but at the same time tackles the fundamental issue of too many sheep doing what they want over large areas, is a challenge. The biggest challenge (one asked in Holistic Planned Grazing) is how to get "the right animals to the right place at the right time with the right behaviour". This question is a broad question, but fundamentally is designed to make one pause and think about the landscape or ground you're about to graze, the way it's grazed, with what animal, how many, for how long and to what effect and so on. This thinking is well practiced and carried through in holistic land management and specifically holistic planned grazing by livestock grazing practitioners (farmers, ranchers, shepherds, etc) and students of Holistic Land Management across the globe and is helping to regenerate lands (close to 16 million hectares to date) on a global scale.

One of the key insights and practices of regenerating land and keeping it regenerative (livestock context here) lies in the relationship between the herbivores that graze it and the overall land area and its habitat characteristics. Two key points in the context of our projects aims are to:-

1. Halt and reverse the loss of key habitats and ecosystems, to support and promote species recovery.
2. Balance grazing by predominantly sheep, but also cattle in a way that still underpins the hill farm way of life and ecosystem balance.

What's been obvious in our research target areas, considering points 1 & 2 above, is the lack of hard or physical boundaries to contain livestock. Where hard boundaries such as fences or river/burns or rock faces are, they are usually on in-bye lands or on March/boundaries. Many of the fenced areas on the higher hills are huge in size (i.e. 100's of acres in size) which encourage set-stocked practice, which in turn has the downwards effect of livestock free-roaming over a given area doing what they want, when they want and wherever they want.

As mentioned previously this unchecked grazing behaviour is problematic in unbalancing rest and recovery of land and overgrazing habitats. See pic below from one of the sites which illustrates set-stocking on the left-hand side and on the right-hand side the native heather cover where sheep have been excluded for 20 years or more.



The only thing which has stopped sheep from grazing the heather inside the fence is the actual fence, if it was not there, then the heather would be grazed and the ground would look like the vegetation on the left.

This brings us to the point and one of the main aims of this project is how do we regulate and manage livestock grazing over the study areas?

This work included site-based assessments on habitat condition, terrain, grazing infrastructure, stock availability, and grazing plans. The following scenarios were considered:

1. Increase existing fence capacity to reduce grazing pressures and safeguard key habitats by exclusion plots.
2. Increase herdsman capacity to manage flocks/herds to manage grazing levels as is practiced in the European steps by nomadic shepherds.
3. Removal of livestock from the hills or substantially reduce their numbers.
4. Seasonally graze.
5. Deploy Holistic planned grazing with No Fence GPS virtual boundary collars

Out of this research a number of conclusions were reached:

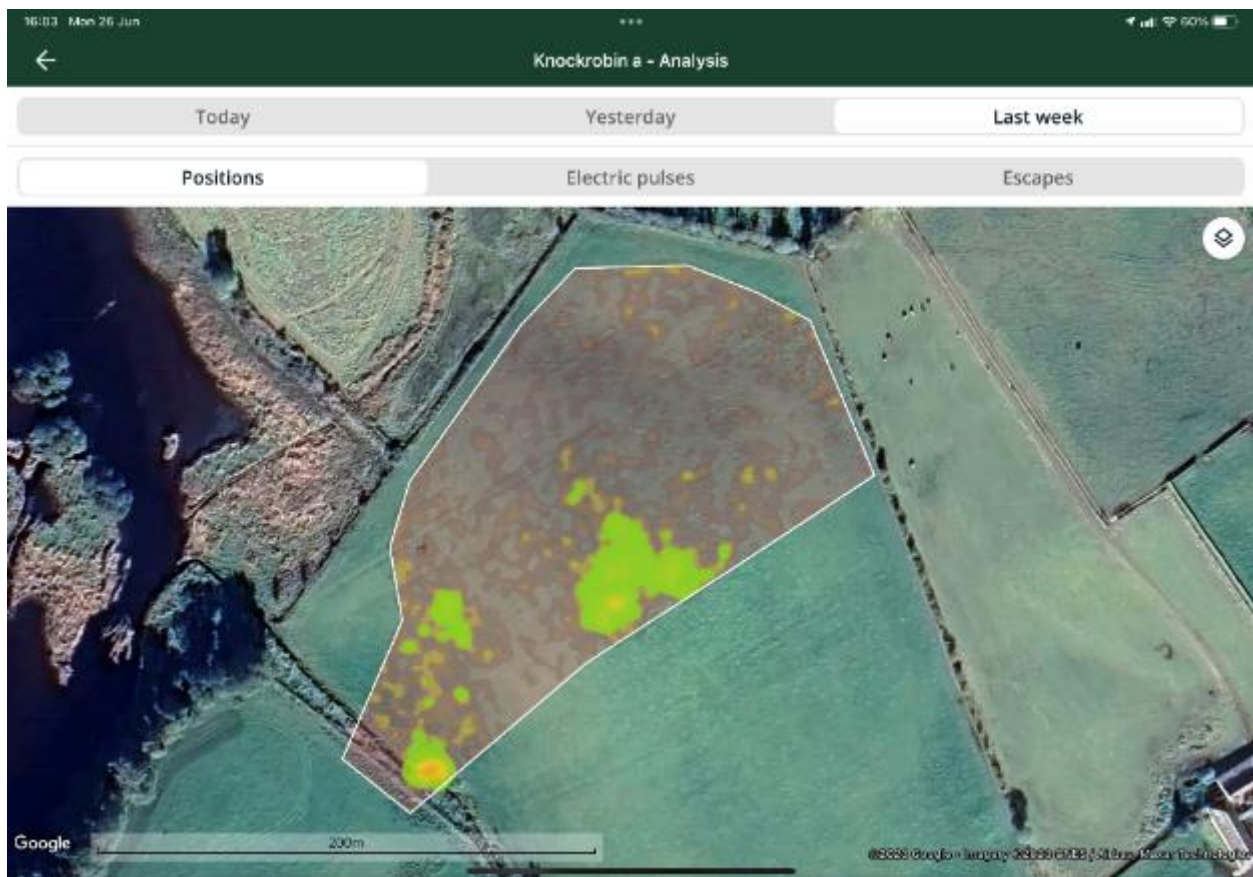
- **Option 1** is viable, but very expensive at the scale and ambition the project is aiming for and fences have a negative visual impact in this scenic landscape and pose a flight strike risk to black grouse.
- **Options 2 & 4** are options, but would involve significant manoeuvring and dialogue around Single Farm Payment (SFP), Basic Payment Scheme (BPS) and require prolonged discussion between Farmer / tenant, landlord.
- **Option 2** has pretty much died out in the UK, for a number of reasons, resources and staffing/shepherds being one of them. Many hill farms now just rely on family support to look after livestock on the hills and struggle to keep up at the best of times.
- **Option 3** is only viable in very rare situations eg. Where tenant/farmer livelihood isn't at stake or where an organisation purchases the land solely for environmental purposes.
- **Option 5** is an option which is realistic and deliverable. The advent of No Fence GPS collar technology has been a game changer in how livestock and livestock grazing can be managed across not just grazing pastures but integrated in landscape and ecosystem restoration.

Integrating No Fence technology with holistic planned grazing will allow farmers and in the target areas to be able to:

1. Plan their grazing in a way that considers the impact on the land in a way that they have likely never done before.
2. Match grazing density to landscape capability/limitations/restoration aims.
3. Create grazing paddocks (or cells) to facilitate the right stocking densities.
4. Reduce overgrazing by planned grazing, which in turn promotes land recovery and rest.
5. Reduce and in cases eliminate the need for physical stock fences.

6. Promote the flexibility and adaptability to set up grazing and non-grazing areas in the most beneficial way to landforms and natural features, which physical fences could never deliver to terrain limitations such as Steep ground or rocky outcrops, etc.
7. Allow the ability to mix up livestock such as sheep and cows together.
8. The ability to use the No Fence App to assess heat maps of grazing patterns.
9. Provide a clear location of each individual sheep/Cow and its movement status - this is a great feature for peace of mind and ensuring livestock remain in allocated paddocks or grazing areas.
10. The ability to move cattle and/or sheep remotely to new pastures.
11. Much more informed decision making by setting grazing patterns with short- and long-term ecological monitoring.

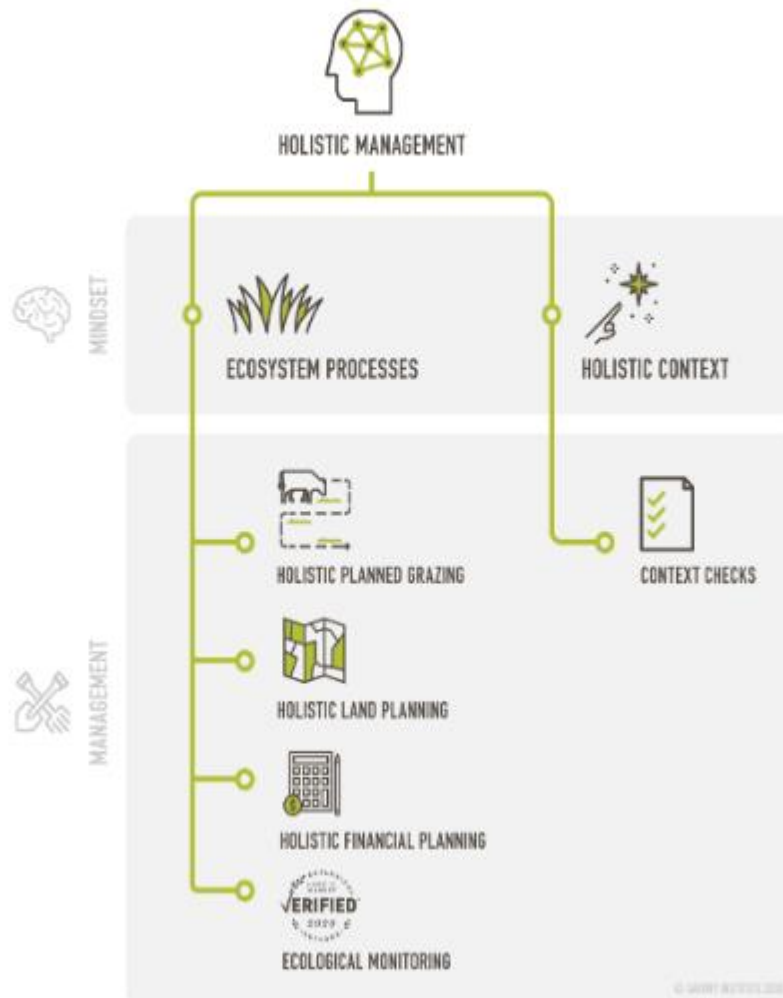
The below infographic shows an example heat map for cattle grazing a paddock on NTS Threave project. These heat maps are invaluable in providing insights and trends/patterns on animal grazing behaviour - the green represents intense grazing by the herd of 15 cows over 7 days. This info can be overlaid with phase 1 phase 2 habitat maps and ecological monitoring data to look at relationships in habitat improvements over time.



Connicks who have undertaken the initial feasibility for NoFence technology in the trail areas have successfully designed and integrated the technology with holistic planned grazing into other projects for NTS (National Trust for Scotland) with both cattle and sheep and have taken time to consider the study areas meet not only the objectives of the project, but also the safe functionality of the technology and animal welfare.

The below infographic outlines the simple ethos of holistic land management and its processes. Something we would hope to follow and implement on this project.

All together, Holistic Management equips us to understand the “whole” we are managing (not controlling) and make decisions that bring forth abundant outcomes, regenerating life for all involved.



Whilst we have chiefly talked about areas of land that require livestock reduction or tighter movement restrictions and planning, we do have areas of the project such as Corehead and Ericstane (belonging to BFT) which will involve NoFence technology for use with cattle to promote grazing (herbivory) on a scale and frequency to mimic natural grazing and light browsing to stimulate regeneration and mosaic of habitat types. This includes open hill, in-bye ground, wood pasture and regenerating uplands/planting

Project Officer Sample Job description

Post Title	Uplands Project Officer
Base	x
Responsible To	x
Gross Salary	x
Pension Contribution	x%, only applicable if employed
Contract Period	x
Contract Hours	It may occasionally be necessary to attend meetings outwith normal working hours (evenings and weekends - for which time off in lieu will be given). Consideration will be given to job share options.
Leave	If employed: x days per annum for full-time employees and x public holidays. Not applicable to freelance contracts

Background

Over the last half century southern Scotland has experienced unprecedented change and pressure to its upland habitats, biodiversity, land use and the communities that reside here. Taking the totemic species of black grouse to illustrate these changes, this once abundant upland bird has declined in southern Scotland by up to 69% between the 1990s and 2005. Their gurgling calls were once common in our soundscape, while the spectacle of strutting males gathering on mass at lek sites is a sight few will see today. Add to this the calls of other signature species such as curlew and snipe, this diminished wildlife spectacular is emblematic of the wider biodiversity loss. The recovery of black grouse would strongly indicate a rebounding landscape, one intrinsically linked to the wider health of our uplands; and the people and communities who live, value and manage this land. Following extensive research and project development over the last decade the 'Undoing the Silence of the Southern Uplands' project was born in 2023 with funding from NatureScot's Nature Restoration Fund.

You

You will be interested in working with landowners and communities to make positive changes towards achieving the goal of a more biodiverse upland landscape. One where, among other species, black grouse, curlew and lapwing are no longer the scarcity they are today. You will have the confidence to lead practical steps towards this goal, manage contractors and develop community/volunteer networks. You will have appropriate qualifications in an environmental field and/or relevant employment experience and be interested in the people, the environment and rural life of this area. You will be a good communicator (both written and verbal) and experience of delivering planned project, developing elements, completing grant applications and seeing projects through to successful completion. A valid driving licence and access to a vehicle is required.

Job Purpose

The postholder will be responsible for working with landowners and communities across five focus areas in southern Scotland: Galloway Forest, Lowther Hills, Langholm Moor, Tweedsmuir Hills and Moorfoot Hills. The post will be leading on a suite of practical habitat works, development of upland cluster groups, and

volunteer/community engagement as identified in the recent 'Undoing the Silence of the Southern Uplands' development project.

Principal Duties

- To lead on all habitat restoration/enhancement aspects of project with identified partners, stakeholders and communities.
- To establish and grow local upland cluster groups in each of the five project focus areas.
- Lead the process of sourcing third party contractors and consultants required for the delivery of the project's habitat works
- To manage third party contractor work delivery.
- To manage the project's budgets and report to the project steering group and to funders as required.
- To keep all stakeholders and partners informed of project developments and promote the project to a wider audience through social media, newsletters and other opportunities as they arise.
- To network with any other relevant agencies in undertaking the duties of the post.

No Job Description can be entirely comprehensive and the post holder will be expected to carry out other duties from time to time that are commensurate with the above responsibilities and determined by the Board.

Application process

To apply for this position, please download and complete the Application Form from [www.](#) or email x for an Application Pack. Applications should be submitted to x by email to x, by 9.00 am on x.

Interviews will take place on x, in person in x.

UPLANDS PROJECT OFFICER

PERSON SPECIFICATION

1. Education and Training	
Appropriate environmental qualification and/or relevant experience	Essential
2. Experience	
Working with landowners and key stakeholders to deliver projects	Essential
Experience of delivering practical habitat restoration and management works	Essential
Working to deadlines and fixed budgets	Essential
Sourcing quotes and running tendering process for sourcing third parties and contractors	Essential
Managing third parties and contractors	Desirable
Development and delivery of community consultation and engagement	Desirable
3. Skills and Abilities	
Able to work collaboratively with landowners, agencies, partners and key stakeholders	Essential
Knowledge of Microsoft Office packages	Essential
Able to safely work remotely and alone	Essential
Good written and verbal communication skills	Essential
Record keeping / organisational skills	Essential
4. Knowledge	
Practical knowledge of habitat restoration and land management	Essential
Practical knowledge of upland habitats and species	Essential
Practical knowledge of upland land management and key issues affecting it	Essential
Awareness of Sustainability issues	Desirable
5. Personality Factors	
Self-motivated and self-starter	Essential
Confident and outgoing	Essential
6. Other Requirements	
Flexible approach to work duties	Essential
Driving License and access to a vehicle	Essential
Observe requirements for confidentiality	Essential
Work well independently and as part of a team	Essential

Wider project strands: Community Engagement and Cultural

The following are linked project strands but delivered and funded separately from this NRF project:

1. Community engagement
 - a. Tree champions
 - b. Black Grouse Community Place Plans
 - c. Community awareness
2. Cultural Soundscape and Arts

Community Engagement

Tree Champions

The project will develop a network of tree champion outlets in each of the five focus areas. These could be primary schools, residential homes, allotment associations etc, that have a spare patch of land. Educational and engaging activities will be undertaken, such as 'Trees in Classrooms', linking into class lesson plans and outdoor learning, the project officer will lead the creation of mini tree nurseries within the school grounds, planting and tree care sessions and culminating in an uplands class trip to plant them out. This will be delivered in partnership with the Crichton Carbon Centre.

Black Grouse Community Place Plans

Taking a three stage approach the project will engage with communities in and adjacent to the five focus areas to ultimately develop a sense of upland species and habitat ownership and engagement culminating in a practical, usable and living Black Grouse Community Place Plan. The plans will aim to engage with the diverse breadth of these communities and span the range of interest eg practical habitat works, volunteering, event, arts and culture etc

Stage 1: Defining the cause.

Why do the uplands and their species matter to the community? The project will identify the key interest groups and leaders in the community and listen to them to identify the issues and themes at play related to upland conservation.

Stage 2: Identifying how the community feels about the cause

This stage is about identifying how the community feels about the cause by identifying the views held in the wider community, how widespread those views are and where the common ground is.

Stage 3: Enabling the community to take action for the cause

This stage is about enabling the community to take action for the cause using the data and analysis from Stage 2 and helping the community plan how to monitor and evaluate the actions they deliver in response.

Community Awareness and education

As well as working with landowners the project will engage with the wider community through a variety of methods. This will include the Place planning process, along with information events, guided walks, development and promotion of a code of conduct for walkers/photographers in support of viewing lek sites, creation of a series of 'Leks' info points in each of the focus area, webcam, online/social media, talks and visits to groups etc.

The project will also have an educational element with the annual intake of a young person as an upland and environmental intern, working alongside the project officers and the local environmental records centre.

Cultural Soundscape and the Arts

Requirement: The soundscape of the uplands is a direct reflection of its health and this project will support and encourage initiatives that capture this soundscape through dance, art, music and mapping. This work will support the promotion of community ownership of its landscape and an awareness of its preservation through imaginative interpretation.

A cultural plan will be developed as part of the Upland Community Place Plans and could include:

- Sound and visual project exploring upland bird call and density changes over time with schools/communities recording Upland sound.
- Upland artist in residence operating out of a hillside bothy / tent
- Commission a music/dance work inspired by the biodiversity of the uplands and species such as the black grouse. The result to be performed or exhibited locally eg at schools and art festivals.
- Sound/music project based on recording upland bird song and classroom interpretation
- Potential technical Civtech challenge project to utilise remote field recordings to monitor species densities.