



Black Mount Estate

Cattle Grazing Project

2024

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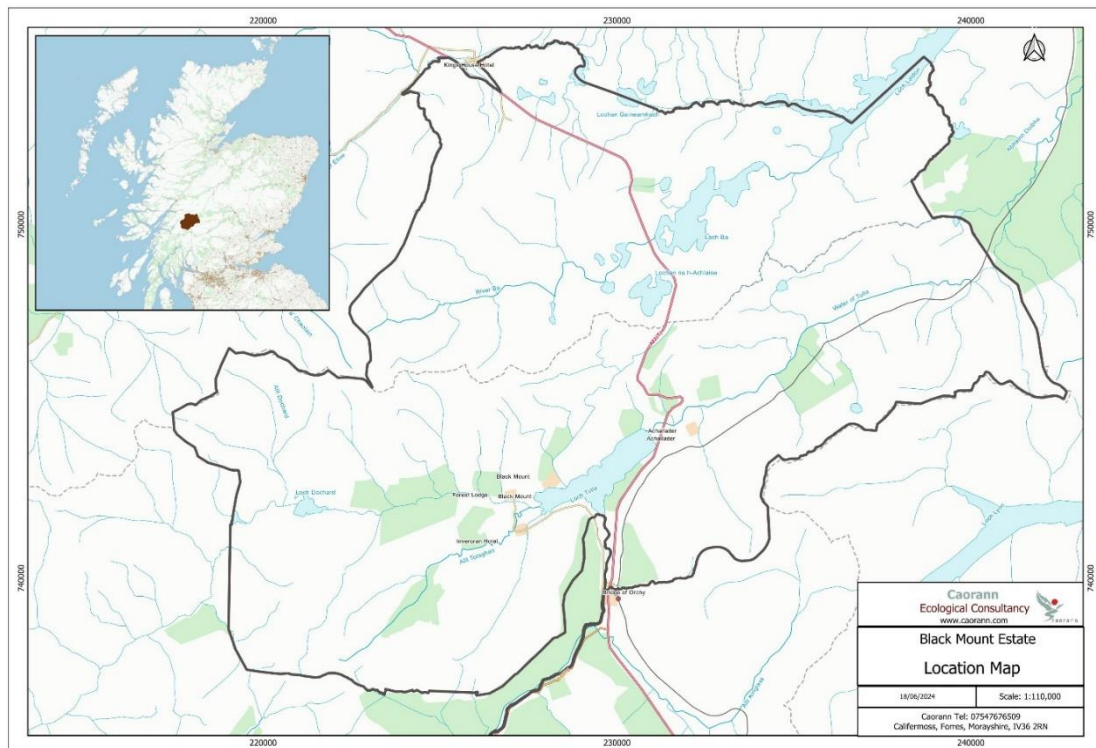
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Section 1: Project Background

1.1 Black Mount Estate

Black Mount Estate is located in Argyll and covers an area of approximately **25,760** ha (*Figure 1*). It climbs from around 200 m AOD to the summit of Meall a'Bhuridh (1,108 m). The Estate incorporates a diverse range of habitats including a network of river systems (Allt Tolaghan and the River Ba) and lochs (Loch Tulla, Loch Ba and Lochan na h-Achlaise) improved agricultural ground, woodlands and upland heath and montane habitats, including considerable areas of ecologically important and internationally important blanket bog. To the east of the of the Estate is Rannoch Moor and to the west of Loch Tulla, two main glens run east to west, one towards Loch Dochard and the other known as Glen Fuar.

Figure 1: Estate Location



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Historically deer have been an important element of the Estate's land management objectives. The Estate is a member of the wider Black Mount Deer Management Group and along with deer stalking, land management objectives also include conservation and livestock production.

Up to 2,000 ewes would have grazed mainly at the eastern end east of the estate above the A82, although numbers were reduced significantly around 20 years ago. As is typical of many estates in the west of Scotland, a legacy of historically high sheep grazing regimes may have altered the structure and composition of upland habitats, resulting in a transition from heathland to grassland, often dominated by *Molinia* and *Nardus* grassland.

Whilst deer and sheep have traditionally been an integral part of Black Mount's management, the Estate is looking to diversify and is currently exploring opportunities to expand the present Luing cattle herd. Over the last 15 years the Estate have gradually built up a herd of about 150 Luing cattle with the intention of increasing the herd to around 200.

As well as providing an economic resource, the Estate increasingly recognises the range of ecological benefits that correctly managed cattle grazing can bring to moorland habitats and potentially to a range of associated species.

In 2021, Caorann was appointed to support the Estate in implementing a Cattle Grazing Project, specifically to optimise the grazing potential of the upland hill ground not just for the benefit of the cattle, but for the deer and for wider biodiversity.

1.2. Cattle Grazing Project Aims

The aim of this project is to implement a bespoke programme of monitoring to identify and capture the full range of ecological assets, and the benefits and outcomes that could be derived from well managed upland cattle grazing.

These include:

Improvements in the structural diversity of the sward, important for biodiversity generally and for example ground nesting birds;

Heterogeneity in sward height and floristic diversity which will not only be attractive to deer but can also benefit other species such as invertebrates;

- Reduced cover and biomass of *Molinia* and *Nardus*;
- Benefits to Heather (*Calluna*): appropriate stocking discourages scrub development, keeps grasses in check and may promote regeneration and establishment from seed through trampling disturbance;
- Benefits to invertebrates through dunging.

Specifically, this project will aim to:

- **Promote sustainable habitat management practices in line with livestock production;**
- **Manage habitats for optimum biodiversity and ecological resilience.**



As well as outcomes that contribute to futureproofing the ecological capability of the Estate, there may also be further scope to explore the role of cattle grazing in delivering ecosystem services, as well as the role of wider herbivore management in enhancing the natural capital potential of the Estate. The case for a natural capital approach is gaining strength given that there is a need to account nationally for not just market output and infrastructure but also for the ecosystems and landscapes that provide a range of non-economic benefits.

Land use activities undertaken or facilitated across the catchment include:

- Mitigating climate change by improving the health of carbon-rich habitats including peatland restoration and natural regeneration of woodland and scrub;
- Supporting ecosystem function and natural capital benefits: helping contribute to clean, cool water and flood prevention measures;
- Biodiversity restoration through the management of Designated Sites, riparian habitats and wider ecosystem management;
- Agriculture; livestock production (cattle) and food production (venison);
- Timber production mainly through regular thinning and small clear-fell coupes;
- Contributing to the rural economy through salmon fishing and deer stalking;
- Enabling access for all through waymarking and signage of paths and tracks (West Highland Way);
- Renewable energy schemes?;

Many of these activities are undertaken as private enterprises providing direct and indirect substantial public benefits to the area. Underpinning all these activities is a need to balance the sustainability of three elements: environment, economy and local community.

1.3 Grazing Project Objectives

The project is designed with the aim of carrying out summer moorland grazing of cattle to protect and enhance carbon-rich habitats, upland soils and biodiversity.

Black Mount recognises the range of positive benefits that cattle grazing may bring to moorland habitats and potentially to other species such as moorland bird assemblages through influencing the structure and composition of moorland vegetation. Selective grazing as well as disturbance created through lying and rolling can increase the structural diversity of the sward creating a mosaic of different sward lengths and micro habitats. This is important for ground nesting birds like lapwing and snipe that need a varied sward structure to successfully rear their young.

Cattle grazing can also help reduce cover and biomass of *Molinia* and *Nardus*, as well as increase *Agrostis* and *Festuca* creating heterogeneity in sward height and floristic diversity which will not only be attractive to deer and encourage them to graze away from sensitive habitats but can also benefit other species such as invertebrates. Trampling can encourage heather regeneration and establishment from seed through disturbance and dunging also encourages invertebrates.

The project will focus on identifying an appropriate grazing regime for red deer and cattle to complement and support habitat restoration activities and species management, in order to deliver a range of environmental benefits.

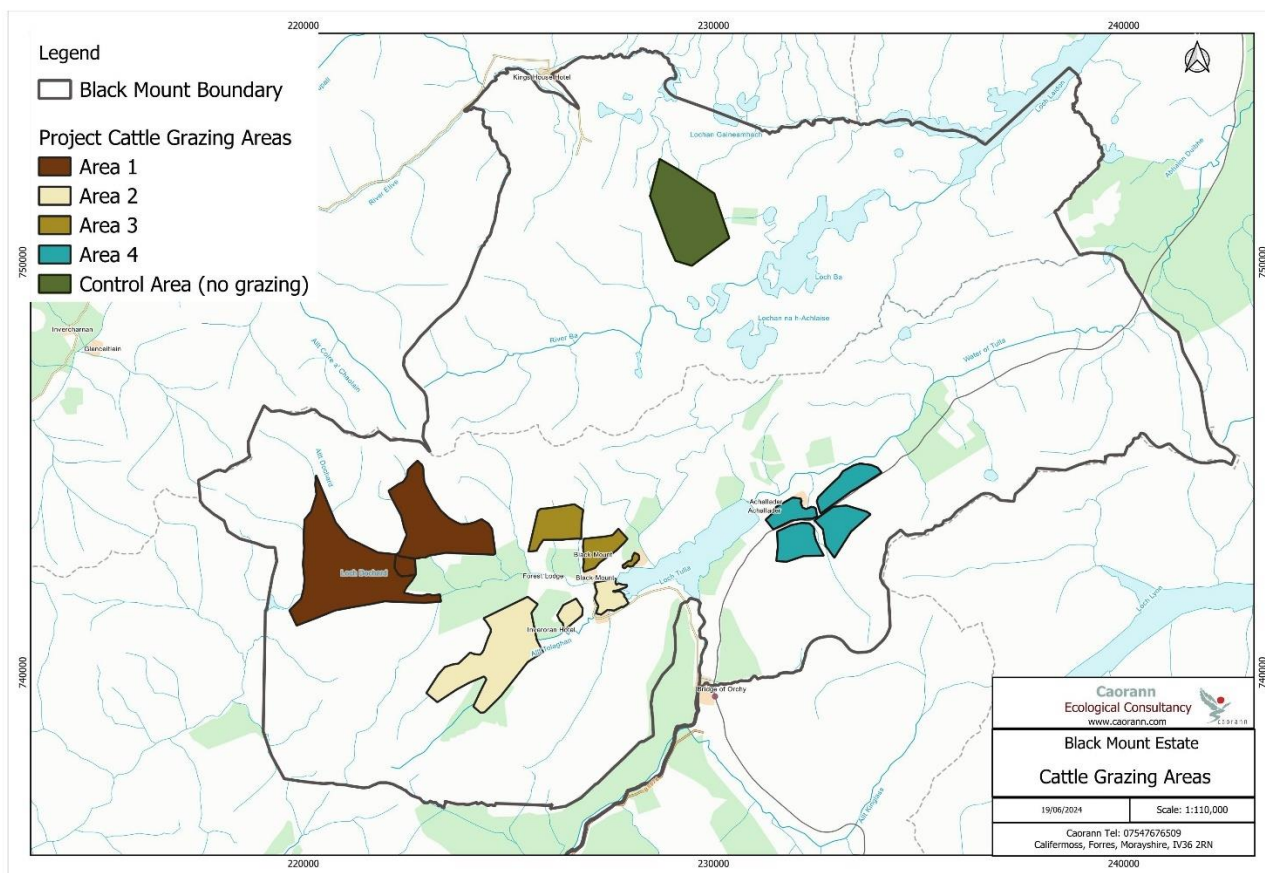
To be able to measure the success of the wider project, this Project will comprise of four initial stages:

- **Stage 1: Determining an ecological baseline** of existing habitat extent and condition. This will incorporate all available data including commissioned survey work:
 - Open-source data on soils, existing habitats;
 - Habitat Impact Assessment data;
 - Specialised **Peatland**, Botanical and Biodiversity surveys;
- **Stage 2:** Understanding **current carrying capacity** of available habitats including information on current deer and cattle management.
- **Stage 3:** Determining future **Grazing Management Options**.
- **Stage 4:** Outline programme of **Survey and Monitoring**.

1.4 Study Areas

The Estate has identified 5 study areas totalling an area of around **1,630 ha** across the property (*Figure 2 and Table 1*). Four areas (Areas 1 to 4) are used for cattle grazing and Area 4 was identified as a control area, where no livestock grazing will take place and the only impacts are from red deer.

Figure 2: Cattle Grazing Areas



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Table 1: Cattle Grazing Areas

Name	Sub Area	Area ha	Current Grazing Prescription
Area 1	Stob Gour	289	
	Enclosure	22	
	Loch Dochard	482	
		793	
Area 2	Glen Fuar	328	Includes old exclosure (33 ha)
	Morrissey	6	
	Lochside	58	Includes Inveroran Field (5 ha)
		392	
Area 3	School House Park	98	Cattle Introduced 2022
	Forest Lodge	58	Cattle Introduced 2023
	Pony Park	6	
		162	
Area 4	3a	49	Close to Achallader Farm. This has traditionally been heavily grazed by sheep in the past, but with sheep now largely removed, this area represents an area where cattle grazing will be novel.
	3b	83	
	3c	74	
	3d	77	
		283	
Area 5	Control	300	Ungrazed moorland
		300	
Total Cattle Grazing Area		1,630	

1.5 Cattle Numbers

The herd of Luing cattle is currently split into smaller herds, each comprising up to 20 – 25 breeding cows, associated calves and a bull. These smaller herds are rotated around grazing areas within Project Areas at different times of the year according to the availability of grazing. Cattle generally graze the hill areas between May to December but confined to smaller wintering/calving areas, where they are supplementary fed during the winter months.

1.6 Deer Utilisation

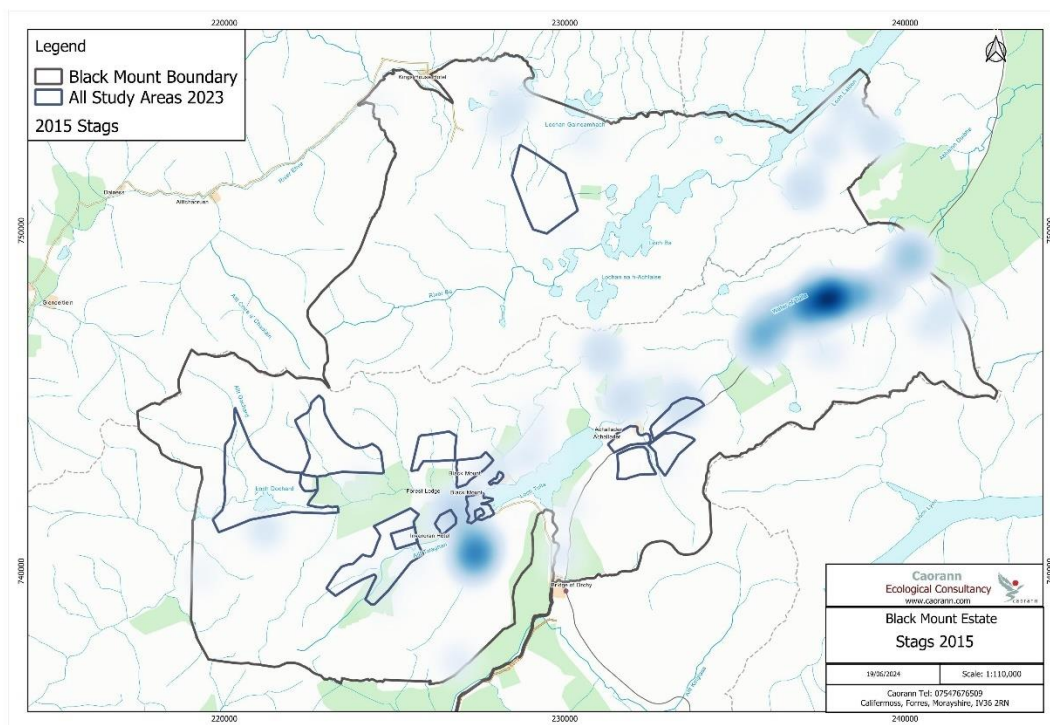
Red deer (*Cervus elaphus*) are the only other herbivore grazing the moorland and have free range over most of the estate.

The last helicopter count of the Estate, counted a total of 2,517 deer representing a density of 9.8 deer per km². A foot count in 2018 counted 1,321 deer a density of 5.1 deer per km² (*Table 2*). Figures 3 & 4 show the distribution of stags and hinds from the 2015 count. It should be noted that the counts represent a snap show in time and are usually carried out at a time of white ground during winter.

Table 2: Red Deer Population Census

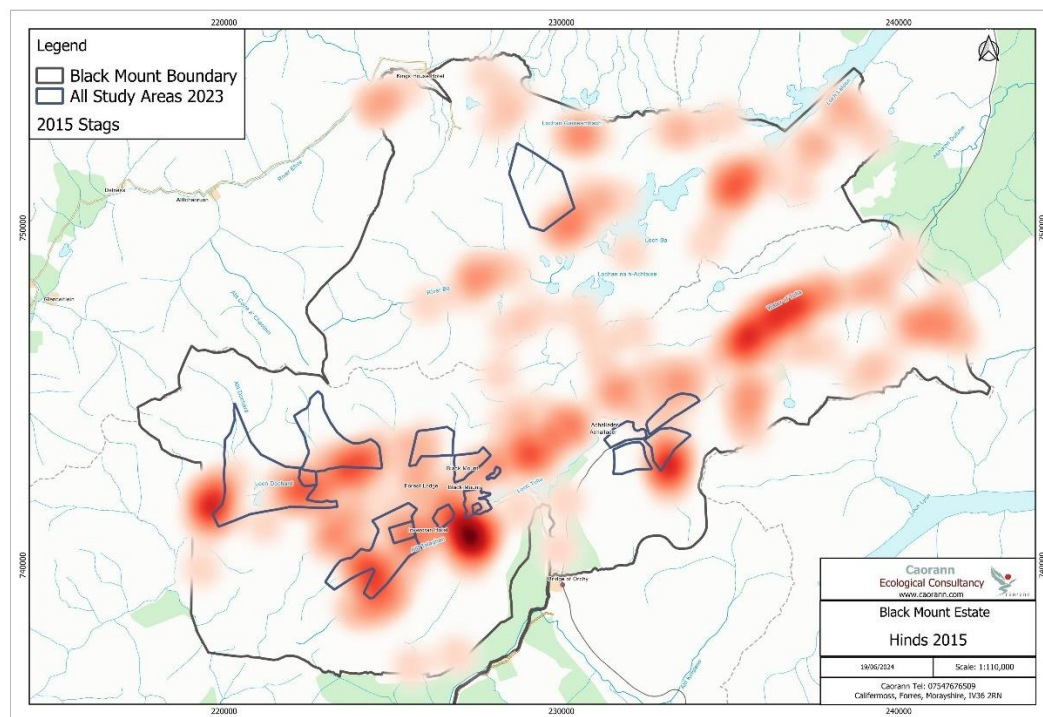
Year	Stags	Hinds	Calves	Total	Density
2015	459	1,286	472	2,517	9.8
2018	375	743	203	1,321	5.1

Figure 3: Stag Distribution Heat Map from 2015 Count



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Figure 3: Hind Distribution Heat Map from 2015 Count



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Section 2: Ecological Baseline

2.1 Wider Habitats

Black Mount Estate comprises a rich mosaic of habitat types from bogs, grasslands, temperate shrub heathland and woodland (mainly coniferous).

The Space Intelligence habitat mapping layer¹ (Scotland Habitat and Land cover Map, 2020) provides detailed information across 23 EUNIS Habitat types (*Table 2 and Figure 3*).

The dominant habitat type on Black Mount is blanket bog which accounts for around **50%** of the land area. The largest area of peatland is found in the northwest of the Estate Rannoch Moor and is designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC).

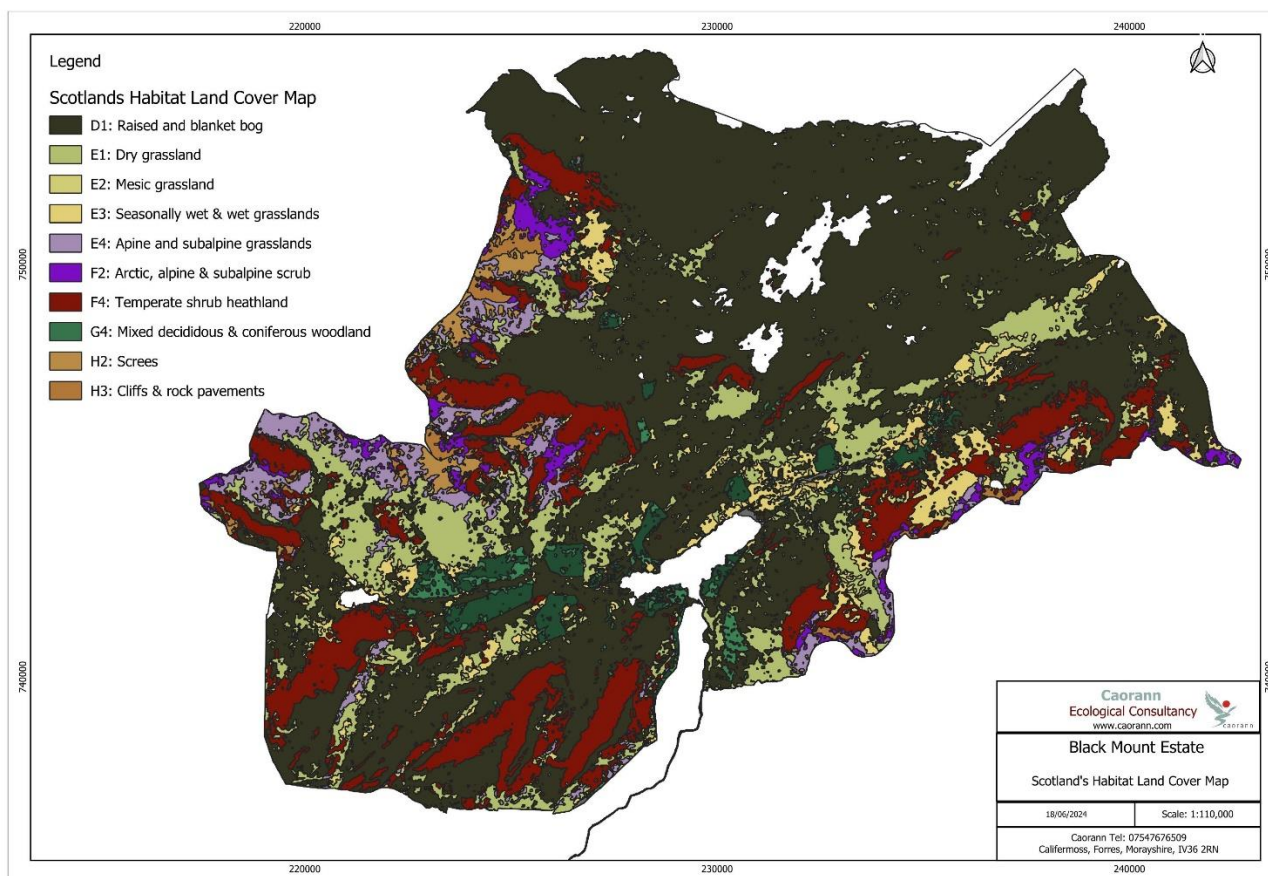
Grasslands (dry and seasonally wet) account for **18%** of the land area and are limited to the flatter glen bottoms. The area referred to as Loch Dochard is heavily dominated by grassland.

Patches of temperate shrub heathland (wet heath) is found mainly on the steeper sides of the Glens and accounts for **13%** of the land area.

Loch Dochard and Glen Fuar are U-shaped valleys with flat grassy bottoms alongside the river meanders. The greens beside the river are mostly *Agrostis/Festuca* swards in grass/heather mosaic which move into dry and wet heaths with *Molinia*, Deer grass and Cotton grasses with heather dominating the steeper sides of the glens.

¹ <https://www.data.gov.uk/dataset/911c87c4-a0d3-4bb8-9089-f7657980113e/scotland-habitat-and-land-cover-map-2020>

Figure 3: Habitat Distribution



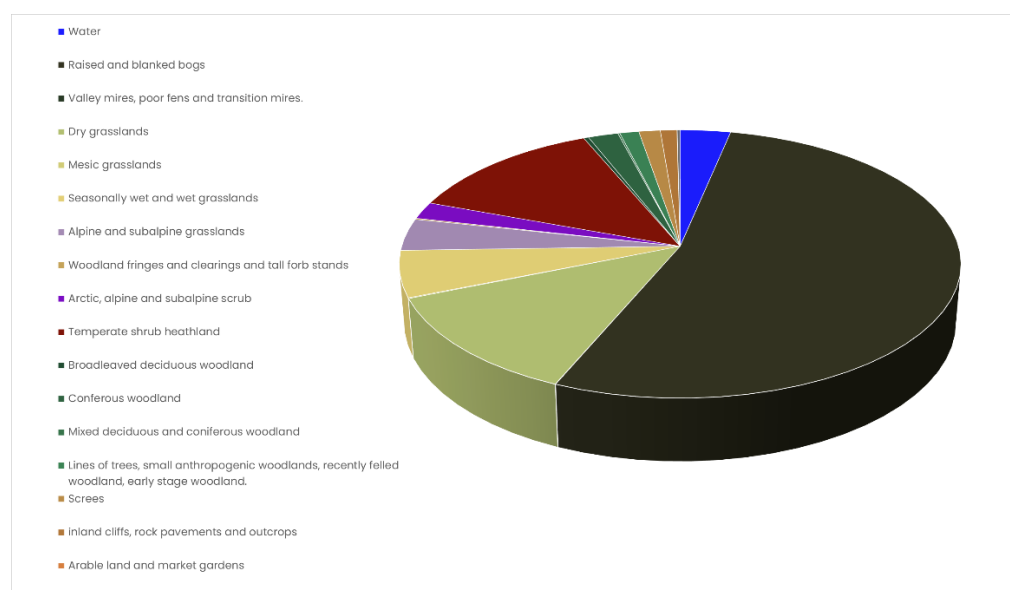
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Figure 4: View east from Loch Dochard.



Table 2: Habitat Types (Scotland's Habitat Land Cover Map 2020)

Eunis Code	Scotlands Habitat Land cover Map (EUNIS)	Area	% of Estate
C	Inland surface standing and running waters	848	3.3%
D1	Raised and blanked bogs	13,688	53.1%
D2	Valley mires, poor fens and transition mires.	4	0.0%
E1	Dry grasslands	3,194	12.4%
E2	Mesic grasslands	23	0.1%
E3	Seasonally wet and wet grasslands	1,437	5.6%
E4	Alpine and subalpine grasslands	995	3.9%
E5	Woodland fringes and clearings and tall forb	37	0.1%
E6	Arctic, alpine and subalpine scrub	532	2.1%
F3	Temperate and mediterranean- montane scrub	0	0.0%
F4	Temperate shrub heathland	3,368	13.1%
G1	Broadleaved deciduous woodland	84	0.3%
G3	Conferous woodland	506	2.0%
G4	Mixed deciduous and coniferous woodland	33	0.1%
G5	Young woodland	321	1.2%
H2	Screes	361	1.4%
H3	Cliffs and rock pavements	280	1.1%
I1	Arable land	4	0.0%
	Built Up	0	0.0%
O	Bare field	48	0.2%
Total		25,762	



2.2 Peatland

Carbon rich soils and peatland areas provide multiple benefits, e.g. good water quality, biodiversity and climate change mitigation as soil carbon stores and through [carbon sequestration](#). Soils are the main terrestrial store of carbon in Scotland and peatlands hold most of our carbon store (53%). Within the Estate, there is **7,472 ha** of Category 1 peatland (*Tables 3 & 4, Figure 5*).

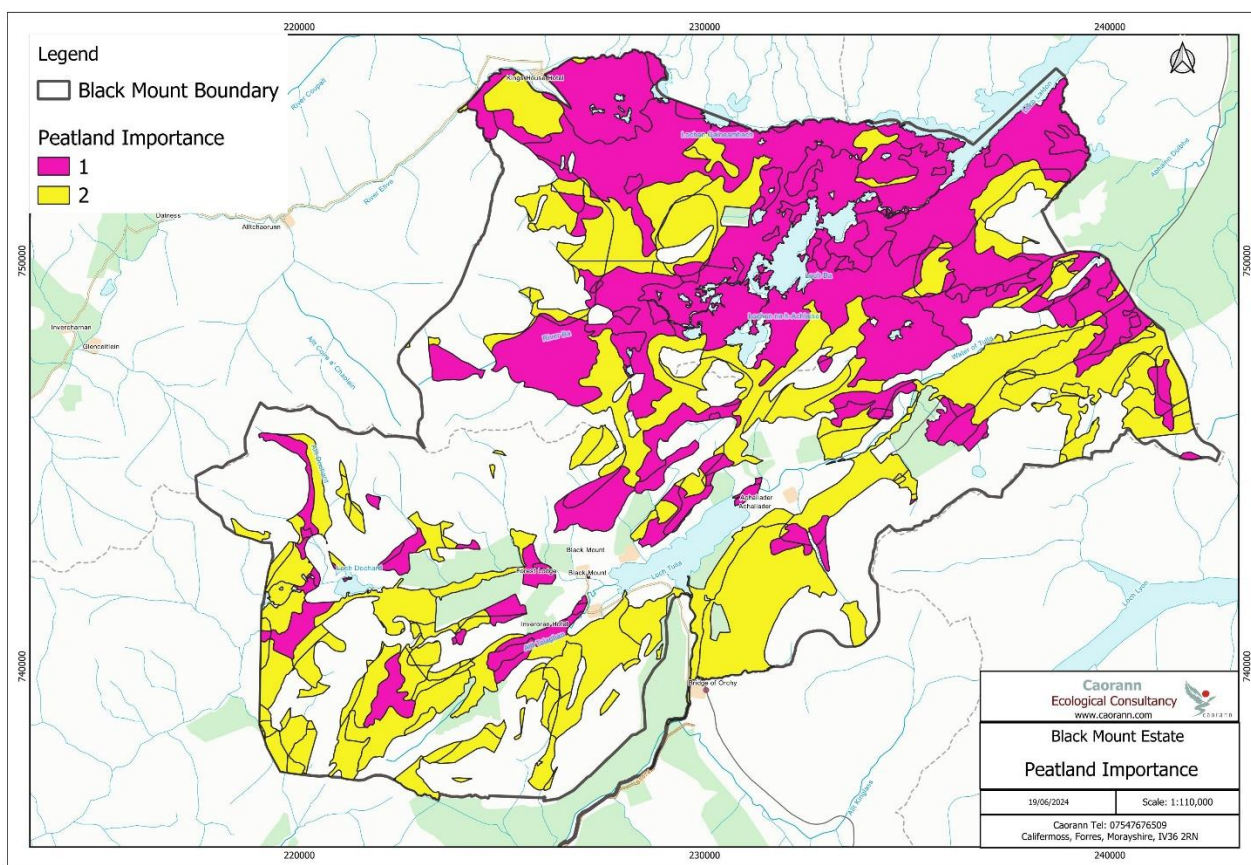
Table 3: Area of Peatland Importance

Peatland Importance Category							
	-2	0	1	2	3	4	5
Area ha	1,096	4,002	7,472	7,124	3,045	789	2,234

Table 4: Description of Peatland Importance Categories

	Class description	Indicative soil	Indicative vegetation
	Class 1 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value	Peat soil	Peatland
	Class 2 - Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential	Peat soil with occasional peaty soil	Peatland or areas with high potential to be restored to peatland
	Class 3 - Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat	Predominantly peaty soil with some peat soil	Peatland with some heath
	Class 4 - Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils	Predominantly mineral soil with some peat soil	Heath with some peatland
	Class 5 - Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.	Peat soil	No peatland vegetation
	Mineral soil - Peatland habitats are not typically found on such soils (Class 0)	Mineral soils	No peatland vegetation
	Non-soil (e.g. loch, built up area, rock and scree) (Class -2)	No soil	Not applicable
	Unknown soil type – information to be updated when new data are released (Class -1)	Not classified (unknown soil type)	Not applicable

Figure 6: Peatland Importance



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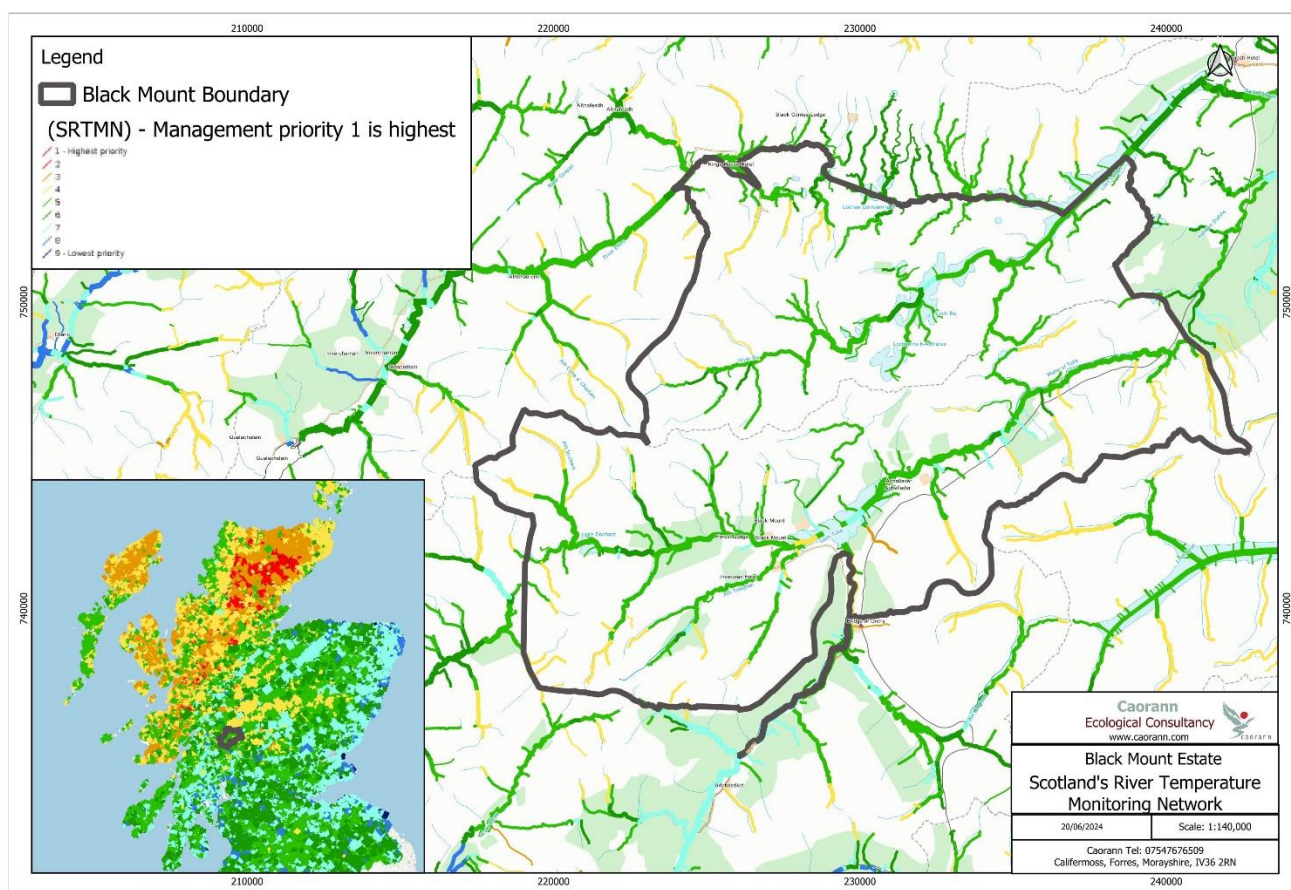
2.4 Riparian Woodland and Atlantic Salmon

Wild salmon are in crisis, with a decline of 70% in just 25 years. There are many factors affecting the survival of the iconic Atlantic salmon (*Salmo salar*), on their return journey from spawning grounds to sea. One critical factor is river temperature. Adapted to live in relatively cool water, salmon prosper when temperatures are in the teens but struggle much above 20°C. Where river temperatures exceed 23°C this can cause thermal stress and behavioural change. At 33°C salmon can no longer survive, even for a few minutes. During the summer of 2018, it is estimated that around 70% of rivers in Scotland experienced temperatures over 23°C. UK climate change projections provided by the Met Office indicate that summers like these could occur every other year by 2050, increasing concerns over the future of salmon in Scotland. Maximum summer river temperatures can be reduced by increasing the amount of water in the river channel, or reducing the amount of sunlight reaching the water surface. The amount of sunlight reaching the river surface can be reduced by riparian planting; shading the river channel with trees located on river banks. Scotland has around 108,000 km of rivers, of which only 35% are protected by any substantial tree cover.

It is therefore important that riparian tree planting is prioritised to areas where it can have greatest benefits for river temperature, specifically, where rivers are (1) hottest (2) most sensitive to climate change ([see SRTMN Predictions](#)) and (3) can be effectively cooled by riparian woodland. Criteria can be combined to show management priority on a scale of 1:9 where 1 is highest priority (i.e. high river temperature and high climate sensitivity) and 9 is lowest. This type of mapping can be used to maximise the benefits of riparian tree planting for protecting Scotland's rivers from the adverse effects of climate change.

It can be seen from the data that the rivers on Black Mount are considered to be on a priority score of 4 or 5 (with 1 being the highest priority) (*Figure 16*) and therefore grazing management actions to create and restore new riparian woodland as well as actions to restore degraded peatland would be beneficial in helping to mitigate the effects of climate change.

Figure 16: Priority Areas for Management(SRTMN Data)



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2.5 Current Habitat Condition & Assessment

The range of upland habitats present on the Estate include considerable areas of ecologically important blanket bog and peatlands, as well as coarse grasslands and heath. Herbivore trampling and grazing is an important factor in the management of upland habitats and the Estate has had an established programme of Herbivore Impact Assessment since 2019, predominantly to understand and manage the impacts of deer.

Condition of the moorland varies according to location. Different habitat types and their condition are described in the following sections. The Reserve has implemented a programme of monitoring herbivore impacts on wider Blanket Bog and Dwarf Shrub Heath habitats according to Best Practice Guidance methodology (as recommended by NatureScot) which is based on methodology in 'Guide to Upland Habitats'. Impacts on moorland will be managed within acceptable ranges ([MacDonald et al 1998¹](#)) (Table 5).

In 2021, a sub-sample of the herbivore impact assessment plots established in 2019 were reassessed as part of a wider programme of monitoring undertaken by the Black Mount Deer Management Group. The 2021 assessment showed a marked reduction in browsing impacts in 2021 compared to 2019.

Table 5: Impact Targets and Sustainable Levels of Grazing for Upland Habitats

Habitat Type	Grazing Target
Designated Upland Features	On designated sites the targets set by NatureScot are for 90% of survey samples for blanket bog and dwarf shrub heath (overall impacts: grazing/browsing and trampling) to be in the range of Low to Moderate/Low

Blanket Bog 2019 –2021

The main areas of blanket bog are to be found to the west of the site (Section 2.2). In 2019 73% of grazing impacts were found to be low or low/moderate. In 2021, 100% of impacts were low. Trampling impacts in 2019 and 2021 were mostly low (93% and 100% respectively) (*Table 4, Figures 7&8*)

Table 4: Blanket Bog Impacts

Impact	Year	No Plots	Low	LM	Mod	MH	High	Year	No Plots	Low	LM	Mod	MH	High
Browsing	2019	30	21	1	8	0	0	2021	10	10	0	0	0	0
			70%	3%	27%	0%	0%			100%	0%	0%	0%	0%
Trampling	2019	30	28	0	0	0	2	2021	10	10	0	0	0	0
			93%	0%	0%	0%	7%			100%	0%	0%	0%	0%

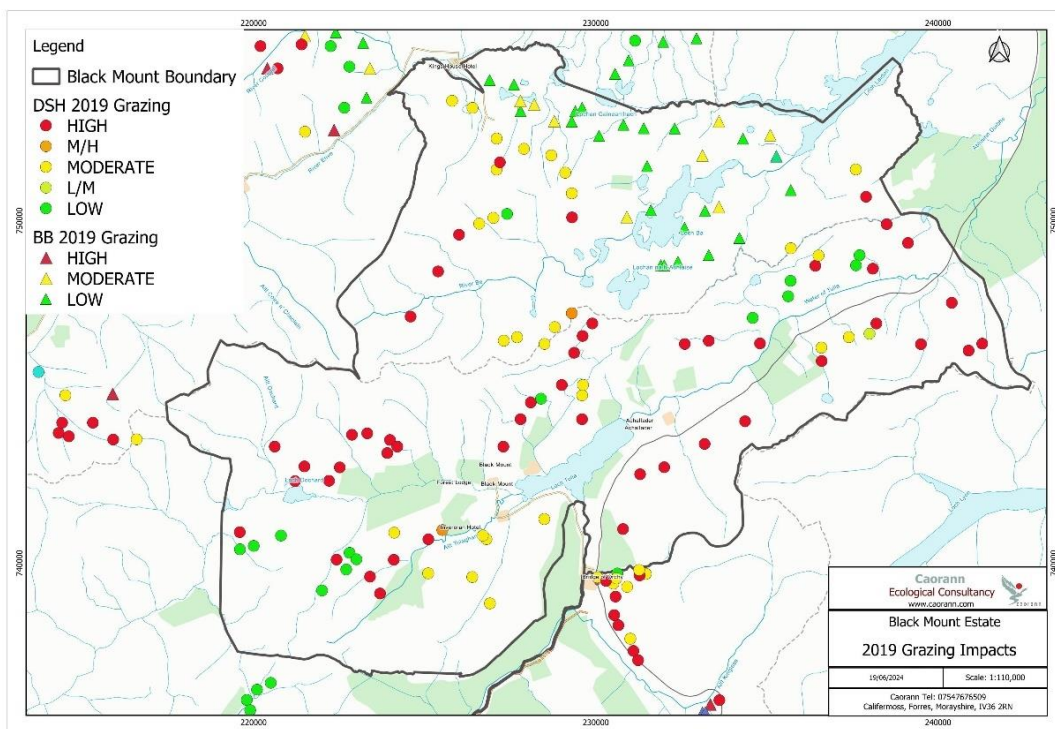
Dwarf Shrub Heath 2019–2021

The assessment of dwarf shrub heath in 2019 found 54% of grazing impacts in the high or moderately high category compared to 7% in 2021. Although trampling wasn't measured in 2019, 93% of impacts were low in 2021.

Table 5: Dwarf Shrub Heath Impacts

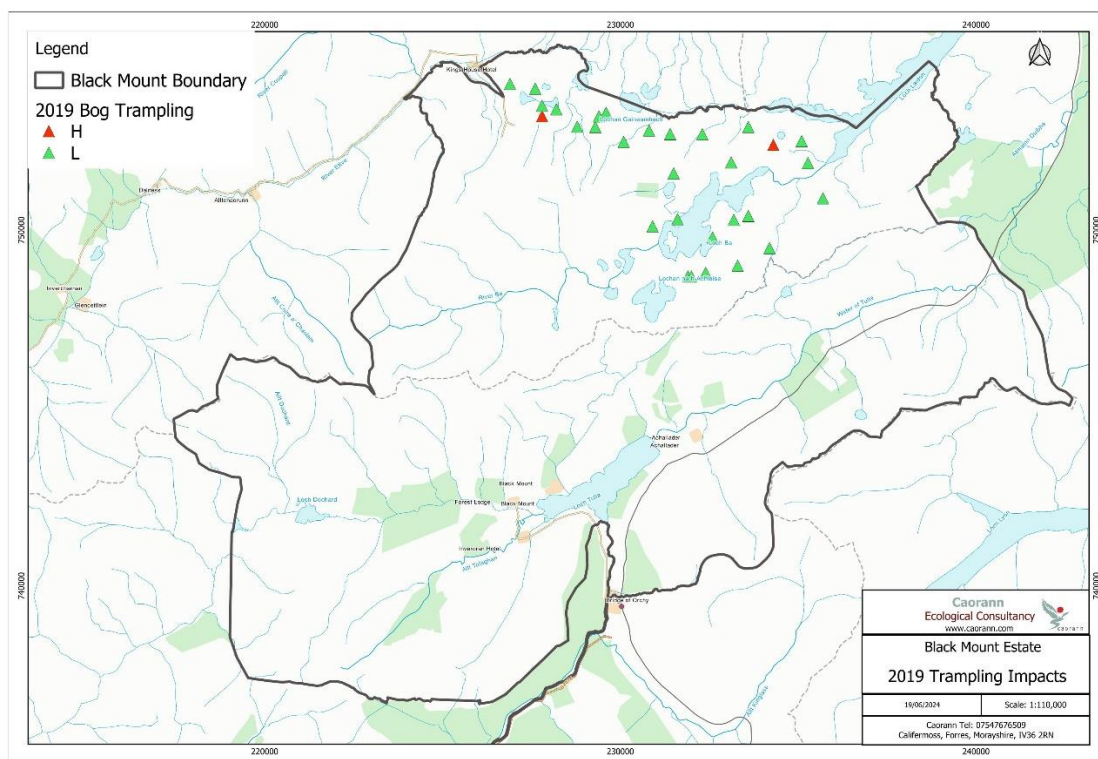
Impact	Year	No Plots	Low	LM	Mod	MH	High	Year	No Plots	Low	LM	Mod	MH	High
Browsing	2019	93	14	1	28	2	48	2021	30	25	0	3	0	2
			15%	1%	30%	2%	52%			83%	0%	10%	0%	7%
Trampling	2019	N/A	0	0	0	0	0	2021	30	28	0	0	0	2
			0%	0%	0%	0%	0%			93%	0%	0%	0%	7%

Figure 7: 2019 Browsing Impacts



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Figure 8: 2019 Trampling Impacts



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Image : Cattle Grazing Plot on School House Park



2.4 Current Condition – Designated Sites

Black Mount Estate is of national and international interest for nature conservation, encompassing: (Figure 9 and Table 6)

- Special Protection Area (SPAs): **Glen Etive & Glen Fyne SPA** and **Rannoch Lochs SPA & SSSI**
- Special Areas of Conservation (SAC): **Rannoch Moor**
- Sites of Special Scientific interest (SSSIs): **Crannach Wood, Doire Darach, Rannoch Lochs, Rannoch Moor**

Figure 9: Designated Sites

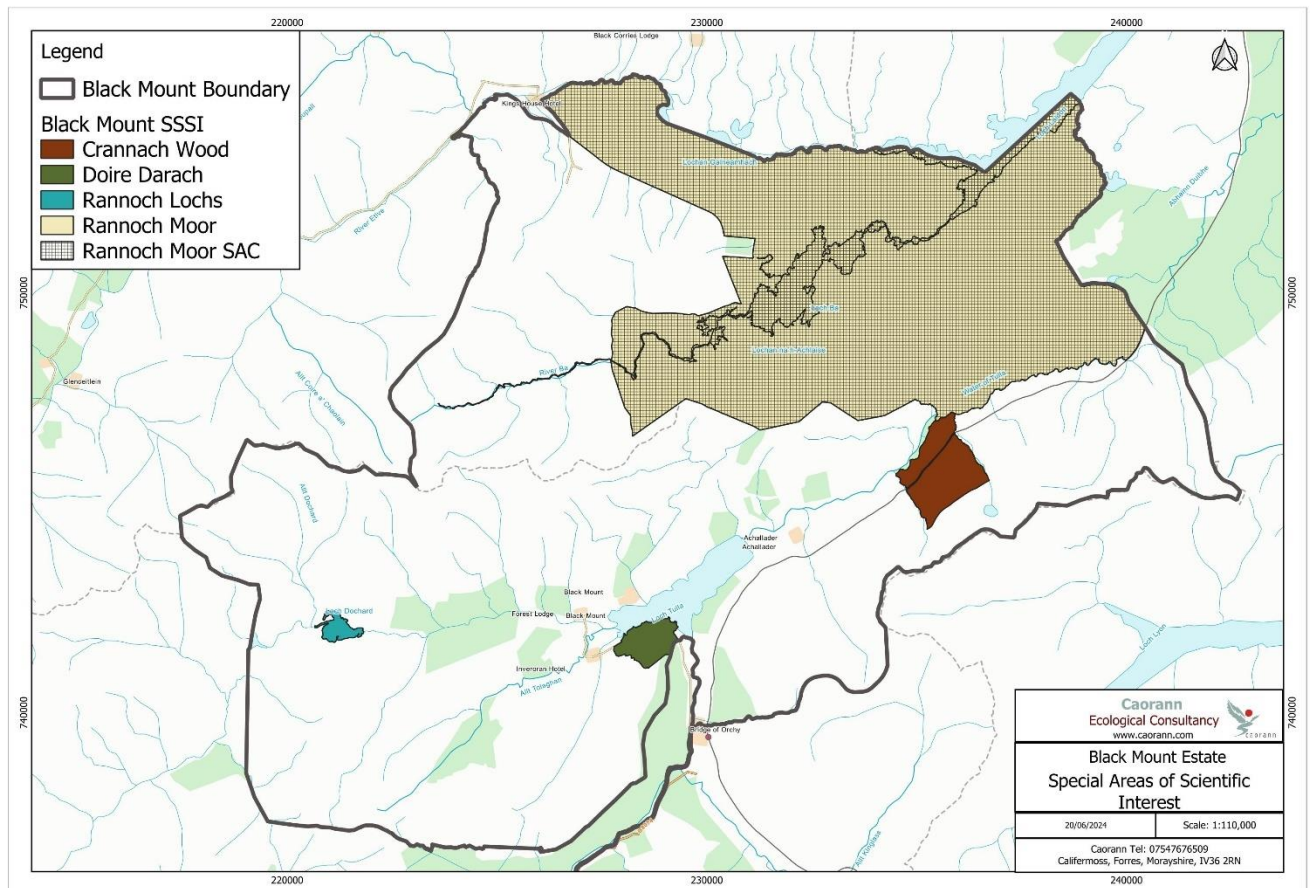


Table 6 Designated Feature Condition

Site	Des	Site Area (ha)	Feature category	Current Reported Condition	Current Pressure
Glen Etive & Glen Fyne	SPA	291	Golden Eagle (<i>Aquila chrysaetos</i>)	Favourable Maintained	Recreation/Disturbance
Rannoch Lochs	SPA	1176	Black-throated diver (<i>Gavia arctica</i>), breeding	Favourable Maintained	Recreation/Disturbance
Rannoch Moor	SAC	10113	Acid peat-stained lakes and ponds	Favourable Maintained	None
Rannoch Moor	SAC & SSSI	10113	Blanket Bog	Favourable Maintained	Burning, Over grazing, Recreation/Disturbance, Trampling
Rannoch Moor	SAC	10113	Clear Water Lakes	Favourable Maintained	Water Quality
Rannoch Moor	SAC	10113	Depressions on peat substrate	Favourable Maintained	Over grazing
Rannoch Moor	SAC	10113	Dry heaths	Unfavourable, no change (2016)	Burning, Over grazing
Rannoch Moor	SAC	10113	Clear Water Lakes	Favourable Maintained	Water Quality
Rannoch Moor	SAC	10113	Freshwater pearl mussel (<i>Margaritifera margaritifera</i>)	Unfavourable, no change (2010)	Wildlife Crime
Rannoch Moor	SAC	10113	Otter (<i>Lutra lutra</i>)	Favourable Maintained	Over grazing, Recreation/Disturbance,
Rannoch Moor	SAC	10113	Very Wet Mires	Favourable Maintained	None
Rannoch Moor	SAC	10113	Wet heathland with cross-leaved heath	Unfavourable, no change (2016)	Burning, Over grazing
Rannoch Moor	SSSI	10102	Beetles	Favourable Maintained	Water Quality
Rannoch Moor	SSSI	10102	Breeding bird assemblage	Favourable Maintained	Burning
Rannoch Moor	SSSI	10102	Dystrophic loch	Favourable Maintained	None
Rannoch Moor	SSSI	10102	Oligotrophic loch	Favourable Maintained	None
Rannoch Moor	SSSI	10102	Flies	Favourable Maintained	None
Rannoch Moor	SSSI	10102	Moths	Favourable Maintained	None
Rannoch Moor	SSSI	10102	Vascular plant assemblage	Favourable Maintained	Over grazing and trampling
Rannoch Lochs	SSSI	353	Black-throated diver (<i>Gavia arctica</i>), breeding	Favourable Maintained	Recreation/Disturbance
Crannach Wood	SSSI	283	Native Pinewood	Unfavourable, declining (2012)	Over grazing
Crannach Wood	SSSI	283	Invertebrate Assemblage	Favourable Declining	Grazing
Crannach Wood	SSSI	283	Northern Emerald Dragonfly (<i>Somatochlora arctica</i>)	Favourable Maintained	No neg pressure
Doire Darach	SSSI	57	Native Pinewood	Favourable Maintained	Invasive species and over grazing

Rannoch Moor SAC

Following site visits from NatureScot, the following points were noted for the SAC:

Rannoch Moor is a SAC for otters, depressions on peat substrate, clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels, acid peat-stained lakes and ponds, very wet mires often identified by an unstable 'quaking' surface, freshwater pearl mussel (*Margaritifera margaritifera*), wet heathland with cross-leaved heath, blanket bog and dry heaths.

The Freshwater Pearl Mussel (FWPM) feature of this site, which is a priority, is Unfavourable. Over 2009 and 2010 an average of 0.27 mussels per m² were found which fails the target of 5 mussels/m² significantly. Further, the population make up contains ~12% juveniles (<65mm) where the target is greater than 20%, therefore it fails considerably here too. This is highly concerning given the global significance of Scotland's FWPM population. The habitat for mussels could be significantly improved by the addition of riparian planting as some shade will be provided in summer months. Further, habitat and spawning grounds for salmonids (hosts for early stage mussels) will be improved.

Otters as a feature of the SAC were found to be favourable however negative pressures noted include over grazing, poor water quality and recreational disturbance. It is shown that between this SCM and the last there has been a 20% reduction in otter population, making any measures to improve habitat or food source even more important. Suitable fish are required for Otter of which brown trout are found in the Loch Ba and Loch Laidon. There is no data for the lochans that are in the planned area for this riparian regeneration however increase in tree cover will provide shade for juvenile fish in the summer and therefore improve the quality of their habitat in our chosen site.

Having consulted with Peatland ACTION the Estate has been assured that as the planting is away from the bog it will not interfere with the SSSI blanket bog feature nor the SAC depressions on peat substrate, very wet mires often identified by an unstable 'quaking' surface or blanket bog features. It has been noted that a future project safeguarding these features would be of interest to Peatland ACTION.

An area of concern for the '**clear-water lakes**' or lochs with aquatic vegetation and poor to moderate nutrient levels' is water quality, which could be enhanced by the addition of some native woodlands to the site. In some of the lochs the conditions were favourable but at risk for concentration of green algae- this is something which should be reduced in the sites where riparian planting is done.

For the feature of **acid peat-stained lakes and ponds** the most recent SCM found green filamentous algae where there had not been any in the previous round. This is a deterioration of the feature and hence will be improved by providing some shade to the water in order to reduce the algae.

Rannoch Moor SSSI

Rannoch Moor is a SSSI for oligotrophic loch, vascular plant assemblages, breeding bird assemblages, moths, blanket bog, beetles and flies.

In the last SCM in 2016 it was found that the water quality was a negative pressure on Loch Ba and a number of other **Oligotrophic lochs**.

A feature of the SSSI is the **vascular plant assemblages** which are facing a negative pressure from over grazing and trampling. Vascular plant assemblages on site include Dwarf Birch (*Betula nana*) which 25% of the populations did not contain more than 25 individual plants. The last SCM

found that dwarf birch in particular had been heavily browsed leading to low levels of reproduction therefore enclosures excluding deer for this species would enhance total reproductivity. Deer excluding enclosures would also enhance the habitat for Inundated Club Moss (*Lycopodiella inundata*), Boreal Bog Sedge (*Carex magellanica*) and Rannoch-rush (*Scheuchzeria*) by reducing the red deer trampling. Boreal Bog Sedge in particular was highlighted in the SCM report as being heavily affected.

The site has a fantastic range of **moorland and waders**. In the most recent SCM report (2007) for this as a feature it is noted that heavy grazing, browsing pressure and trampling are affecting the condition of bird habitat.

A SCM report from 2014 finds the dystrophic loch feature of the site with some characteristic species missing: bulbous rush (*Juncus bulbosus*) and floating bur-reed (*Sparganium angustifolium*). This project to improve the biodiversity in riparian zone could contribute to improving water quality for the latter and creating trample free enclosures for terrestrial species. Further, it was found in assessing this feature that there was green algae present at the sample sites (downstream of our planned site), this is noted as being the result of a dry sunny period. This bids aims to create riparian planting, some of which is on the South bank of the lochans/watercourses and will shade the water helping to reduce green algae.

The most recent survey, notes the presence of **qualifying beetle species** in the areas survey and further notes that in more productive parts of the site you would expect to generate more records. Data was limited to the East of the site for the **fly assemblages** and so the condition of this feature is unknown for our proposed site. However, it is written that the outstanding conditions found in the East site are not replicated across the site and so management to enhance the habitat and food source to improve the condition of this feature in the West of the site would be positive.

River Tay SAC

This is designated for **Clear-water lakes or lochs with aquatic vegetation** and poor to moderate nutrient levels, Brook lamprey (*Lampetra planeri*), Atlantic salmon (*Salmo salar*), Otter (*Lutra lutra*), River lamprey (*Lampetra fluviatilis*) and Sea lamprey (*Petromyzon marinus*). Some of these features are discussed in the above sections however undiscussed features are below.

- Brook lamprey (*Lampetra planeri*), Sea lamprey (*Petromyzon marinus*). River lamprey (*Lampetra fluviatilis*) are in favourable condition across the River Tay however a negative pressure noted is water quality and barriers. Any improvements on water quality would have positive implications for the lamprey here.
- Atlantic salmon (*Salmo salar*) is also in favourable condition with primary concerns being hydro schemes, invasive native and non-native species and water quality. A riparian project upstream would enhance the water quality (reducing algae) and could have positive impacts downstream.

2.6 Current Condition–Wider Biodiversity

Key Species

Species interest is wide ranging, and Black Mount Estate is rich in biodiversity with a vast array of plant, insect, bird and animal life. Mammal species include otters (*Lutra lutra*), pine marten (*Martes martes*), badgers (*Meles meles*) and water voles (*Arvicola amphibius*).

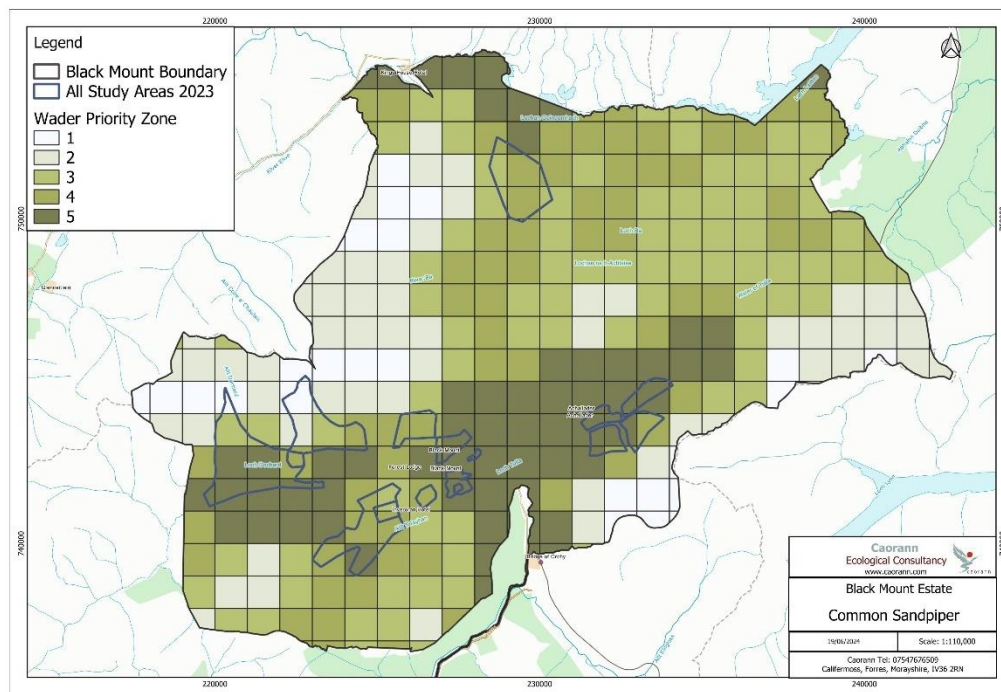
A variety of important (Annex 1 and Schedule 1) birds including Golden Eagle (*Aquila chrysaetos*), Black-throated Diver (*Gavia arctica*), White-tail Eagle (*Haliaeetus albicilla*), Osprey (*Pandion haliaetus*) Red Kite (*Milvus milvus*), Hen Harrier (*Circus cyaneus*), Peregrine Falcon (*Falco peregrinus*), Merlin (*Falco columbarius*) have all been recorded on the Estate. Black grouse (*Lyrurus tetrix*) are regularly recorded.

A further five species of breeding wader including the Annex I Golden Plover (*Pluvialis apricaria*), and typical montane species such as ptarmigan (*Lagopus muta*), ring ouzel (*Turdus torquatus*) and snow bunting (*Plectrophenax nivalis*) all benefit from the wider moorland habitat.

The Estate is of particular importance for waders. The BTO Wader Priority Zone² data set identifies high priority areas for a range of wader species on the Reserve including Common Sandpiper (*Actitis hypoleucos*), Snipe (*Gallinago gallinago*), Oyster Catcher (*Haematopus haematopus*) (Golder Plover (*Pluvialis apricaria*) and Dunlin (*Calidris alpina*), Figures 10 –14

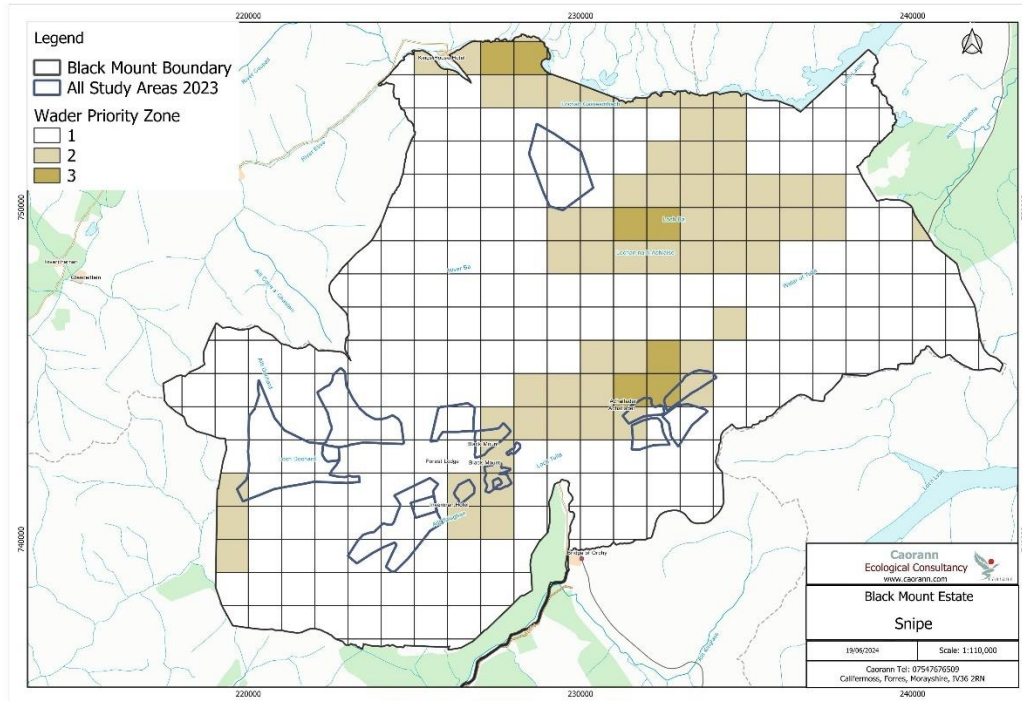
² [BTO Wader Priority Zone](#)

Figure 10: Wader Priority Zones – Common Sandpiper



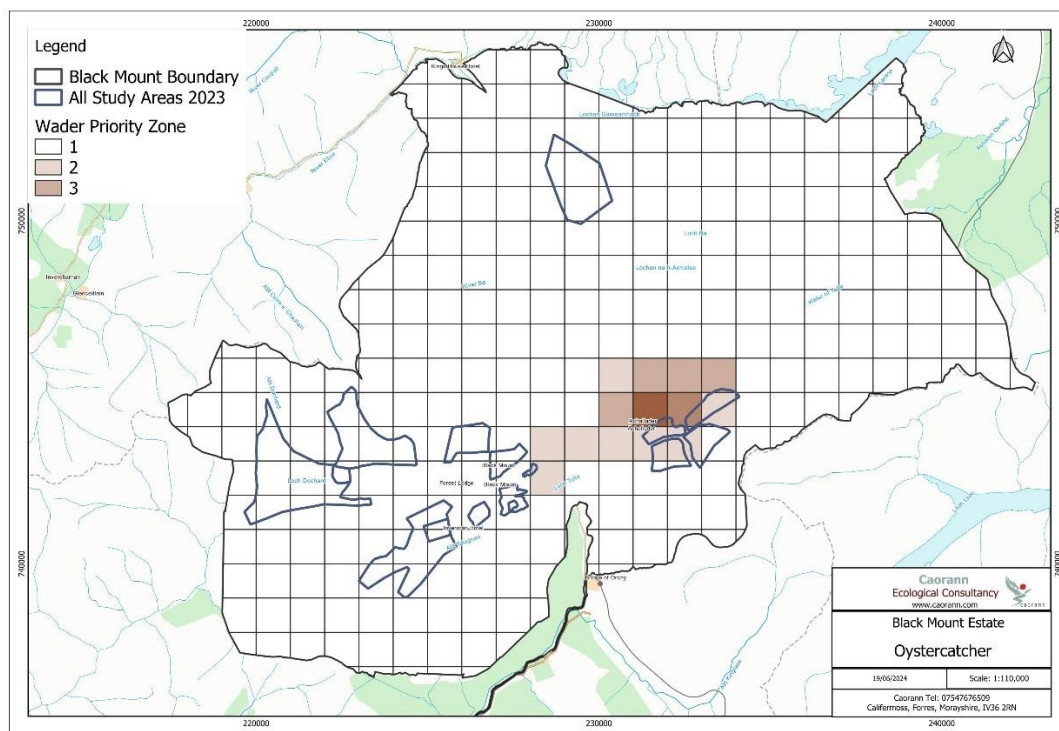
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Figure 11: Wader Priority Zones – Snipe



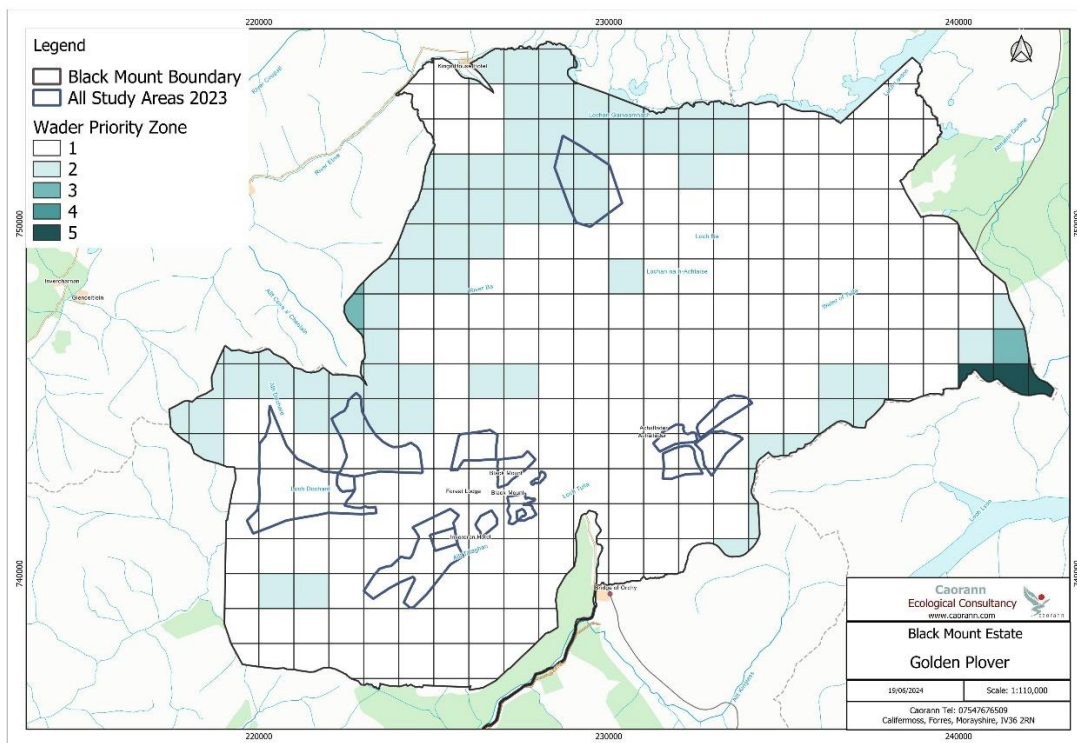
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Figure 12: Wader Priority Zones – Oyster Catcher



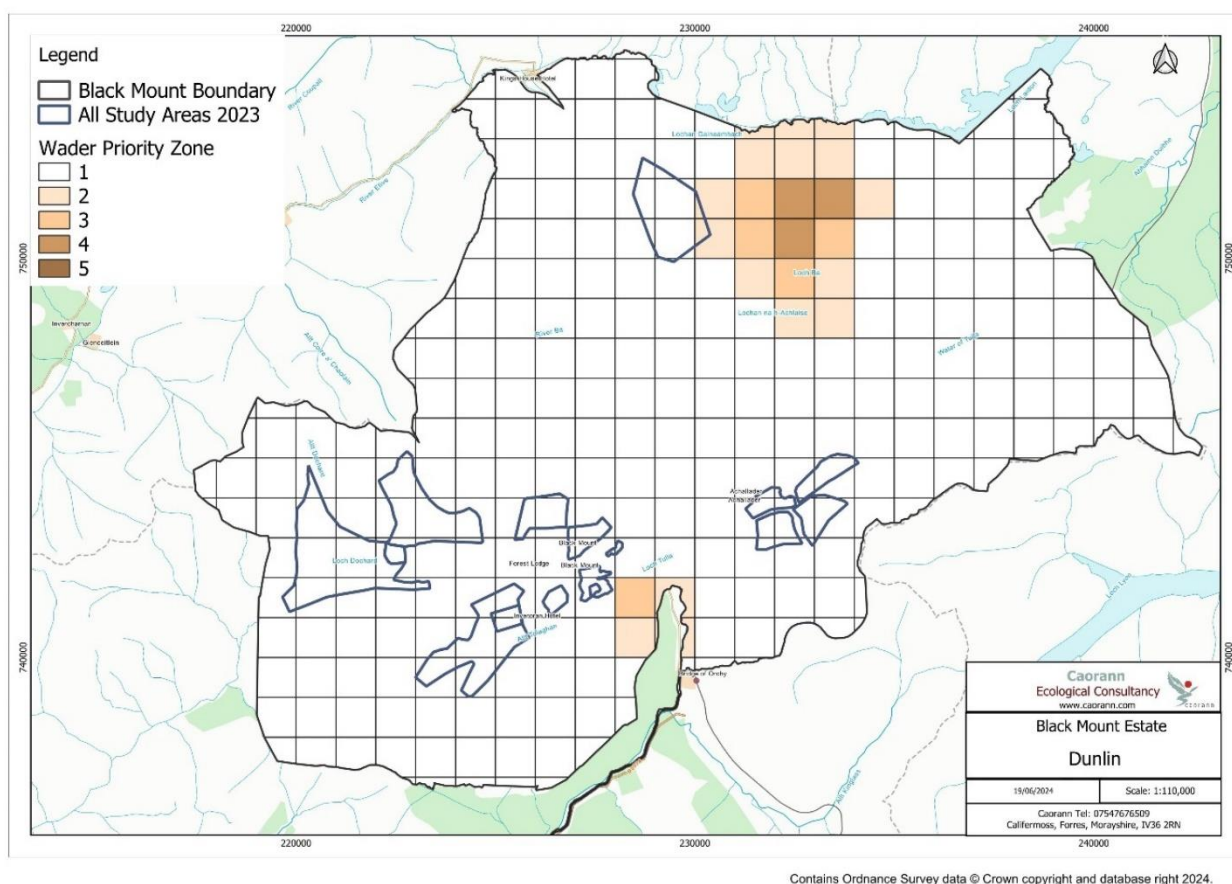
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Figure 13: Wader Priority Zones – Golden Plover



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Figure 14: Wader Priority Zones – Dunlin



2.7 Biodiversity- Breeding Bird Survey

In 2021, a breeding bird monitoring programme was implemented across the cattle grazing project areas to establish a base line from which to measure any changes in the breeding bird species over time. Surveys are conducted annually from May to August with an additional two surveys carried out over winter. The location of species recorded was mapped and the results used to compare the presence of species within each study grazing area.

Breeding Bird Survey Species List

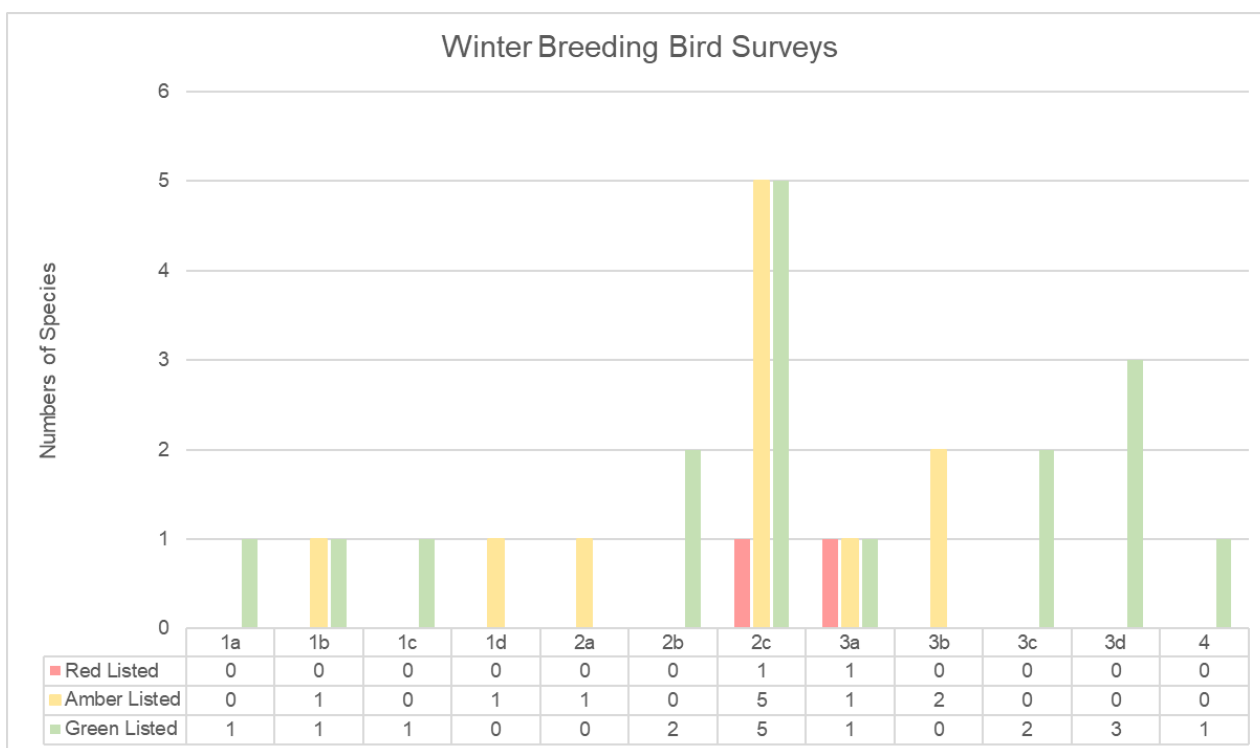
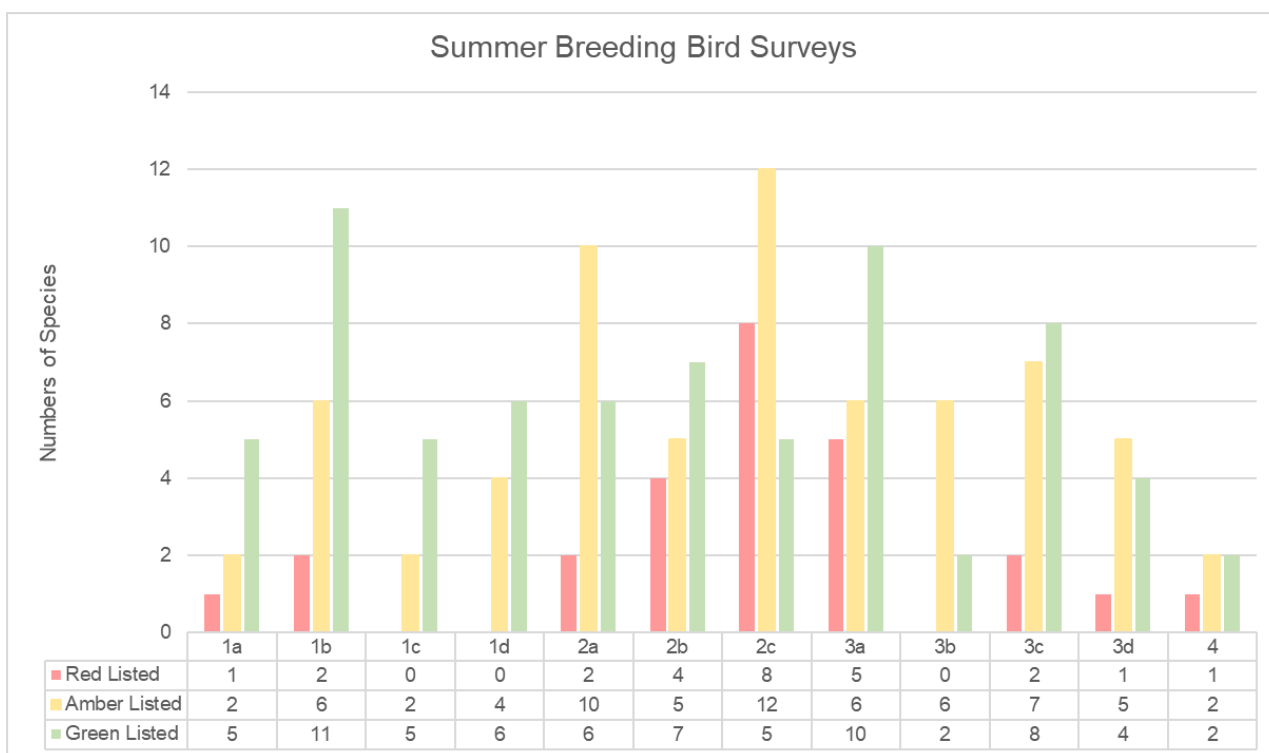
Table 7 shows the complete list of bird species recorded in 2021. According to the December 2021 Birds of Conservation Concern (BOCC) list there were 12 Red listed species, 20 Amber listed and 20 Green listed species observed.

Table 7 Breeding Bird Species List 2021

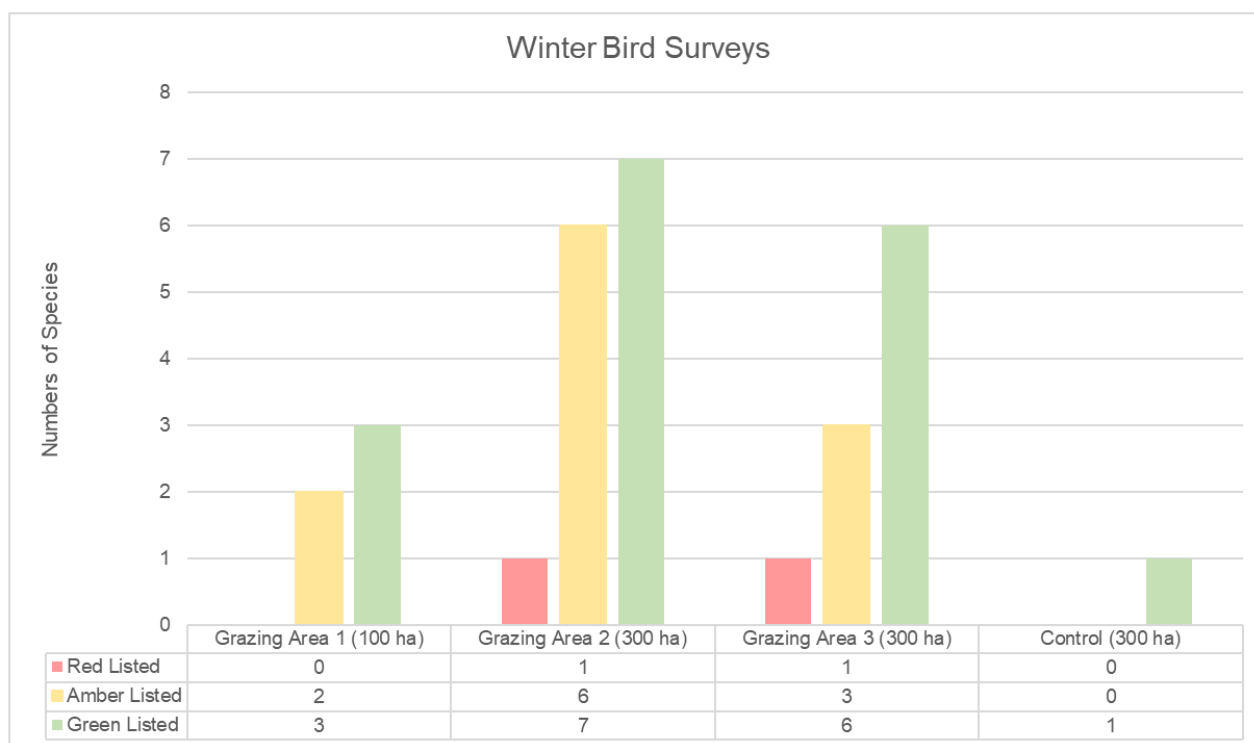
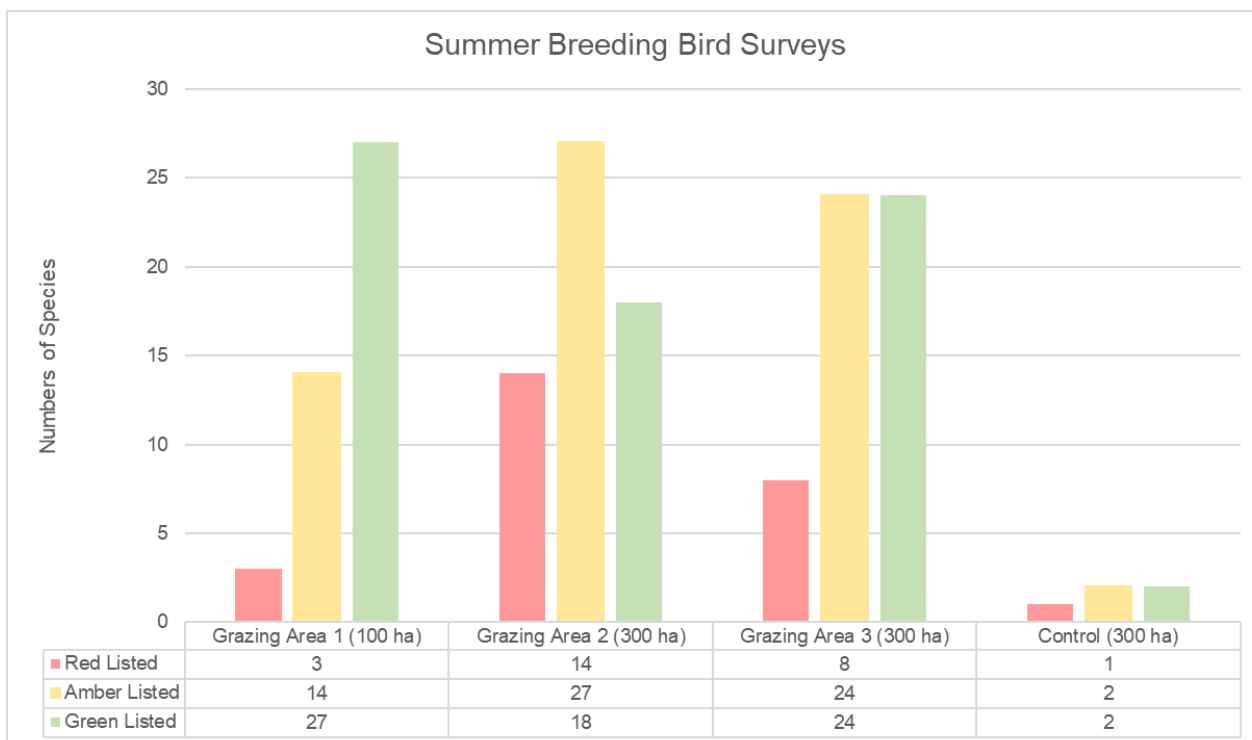
Red Listed (Dec 2021) BOCC5	Amber Listed (Dec 2021) BOCC5	Green Listed (Dec 2021) BOCC5
Black grouse	Common crossbill	Blackbird
Cuckoo	Common sandpiper	Blue tit
Dunlin	Greenshank	Buzzard
Greenfinch	Grey Wagtail	Canada goose
House martin	Greylag goose	Coal tit
Fieldfare	Kestrel	Chaffinch
Lapwing	Mallard	Goldcrest
Ringed plover	Meadow pipit	Golden eagle
Skylark	Osprey	Golden plover
Tree pipit	Red breasted merganser	Grey heron
Whinchat	Redpoll	Hooded crow
Woodcock	Redstart	Jay
	Snipe	Pied wagtail
	Song thrush	Raven
	Wheatear	Red grouse
	White tailed eagle	Robin
	Willow warbler	Sand martin
	Woodpigeon	Siskin
	Wood sandpiper	Stonechat
	Wren	Swallow

Figures 16a and 16b show the numbers of Red, Amber & Green listed birds recorded in each grazing area. It is notable that grazing Area 2 which has been grazed by cattle for the longest time, recorded the most species and the most Red and Amber listed species compared to grazing Area 3 and the control area (of similar areas).

Figure 15a and 15b: Numbers of Species by Grazing Sub Area – Summer & Winter



Figures 16a & 16b: Numbers of Bird Species by Grazing Area – Summer and Winter

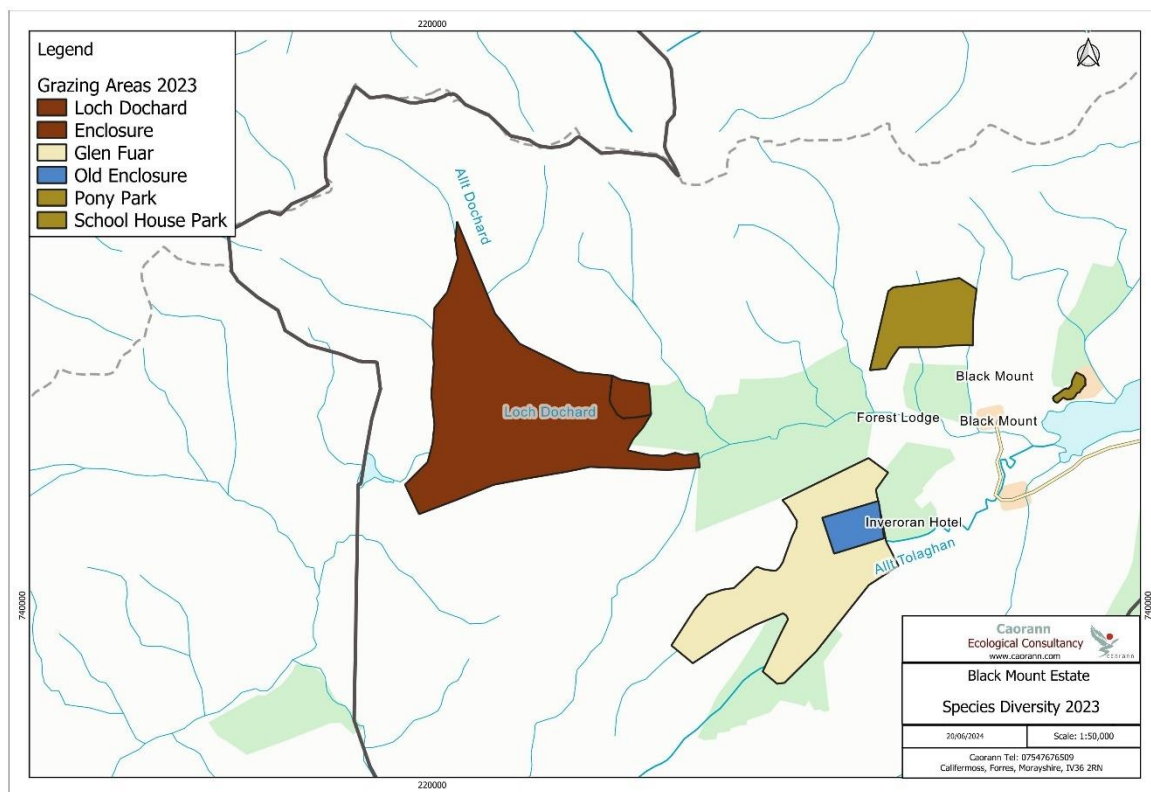


1.9 Cattle Grazing & Species Diversity

At the start of the project the main cattle grazing areas were **Loch Dochard** and **Glen Fuar**. In 2022 and 2023 two new areas were identified for cattle grazing: **School House Park** and the **Pony Park**.

In order measure the effect of cattle grazing over time, a detailed habitat survey was conducted to establish a baseline for future reference. Historically these sites would have been grazed by sheep but currently is only grazed by deer.

Figure 17: Main Cattle Grazing Project Areas



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Table 8: EUNIS Habitat Summary for Cattle Areas

	EUNIS Habitat Type	Stob Gour	Loch Dochard	Encl	Area 1 Total	Glen Fuar	Morrissey	Lochside	Area 2 Total	Pony Park	Forest Lodge	School House Park	Area 3 Total
C	Inland surface standing and running waters		32.7		32.7			0.3	0.3				0.0
D1	Raised and blanked bogs	33.2	217.1	0.5	250.8	184.7	12.9	35.1	232.6	4.9	20.0	52.7	77.6
D2	Valley mires, poor fens and transition mires.				0.0	0.0			0.0		1.2		1.2
E1	Dry grasslands	216.4	147.1	6.1	369.5	90.6	8.3		98.9		35.7	44.6	80.3
E2	Mesic grasslands				0.0			1.4	1.4				0.0
E3	Seasonally wet and wet grasslands	5.7	75.1	14.1	95.0	43.8	3.5	6.6	53.8	0.7	1.0	0.1	1.9
E4	Alpine and subalpine grasslands	20.3	2.2		22.5	0.2			0.2			0.0	0.0
E5	Woodland fringes and clearings and tall forb stands		0.8		0.8	0.2	1.4	0.0	1.6	0.1	0.0	0.1	0.2
E6	Arctic, alpine and subalpine scrub	0.6			0.6				0.0				0.0
F3	Temperate and mediterranean-montane scrub				0.0				0.0				0.0
F4	Temperate shrub heathland	7.8	5.2		13.0	6.7	1.0	0.8	8.5		0.3	0.0	0.3
G1	Broadleaved deciduous woodland	0.0			0.0				0.0	0.0			0.0
G3	Coniferous woodland	0.1	0.0	0.0	0.2	0.1	0.1	2.7	2.9	0.0	0.0		0.0
G4	Mixed deciduous and coniferous woodland				0.0			0.1	0.1	0.0			0.0
G5	Young woodland	0.0	0.1	0.0	0.2	1.5	0.0	0.0	1.6	0.6		0.0	0.6
H2	Screes	4.7			4.7				0.0				0.0
H3	Cliffs and rock pavements		0.3	0.9	1.2			0.1	0.1				0.0
I1	Arable land				0.0				0.0				0.0
O	Bare field		1.1		1.1			1.2	1.2				0.0
		288.9	481.8	21.5	792.3	327.8	27.1	48.4	403.4	6.3	58.2	97.6	162.1

Prior to 2021, between 20 and 35 cattle were grazed within a fenced area of around 33 ha (marked in blue: Figure 17). In 2021, the fence was removed, and cattle are now free to range over a much wider area of around 240 ha.

A total of 16 plots in the new area were sampled on 23rd June 2022 and 15 plots sampled in Glen Fuar on 24th June 2022 (*Figure 17*). In 2023 A further 40 plots were sampled in and around the pony park. In each 2m x 2m plot the following information was recorded:

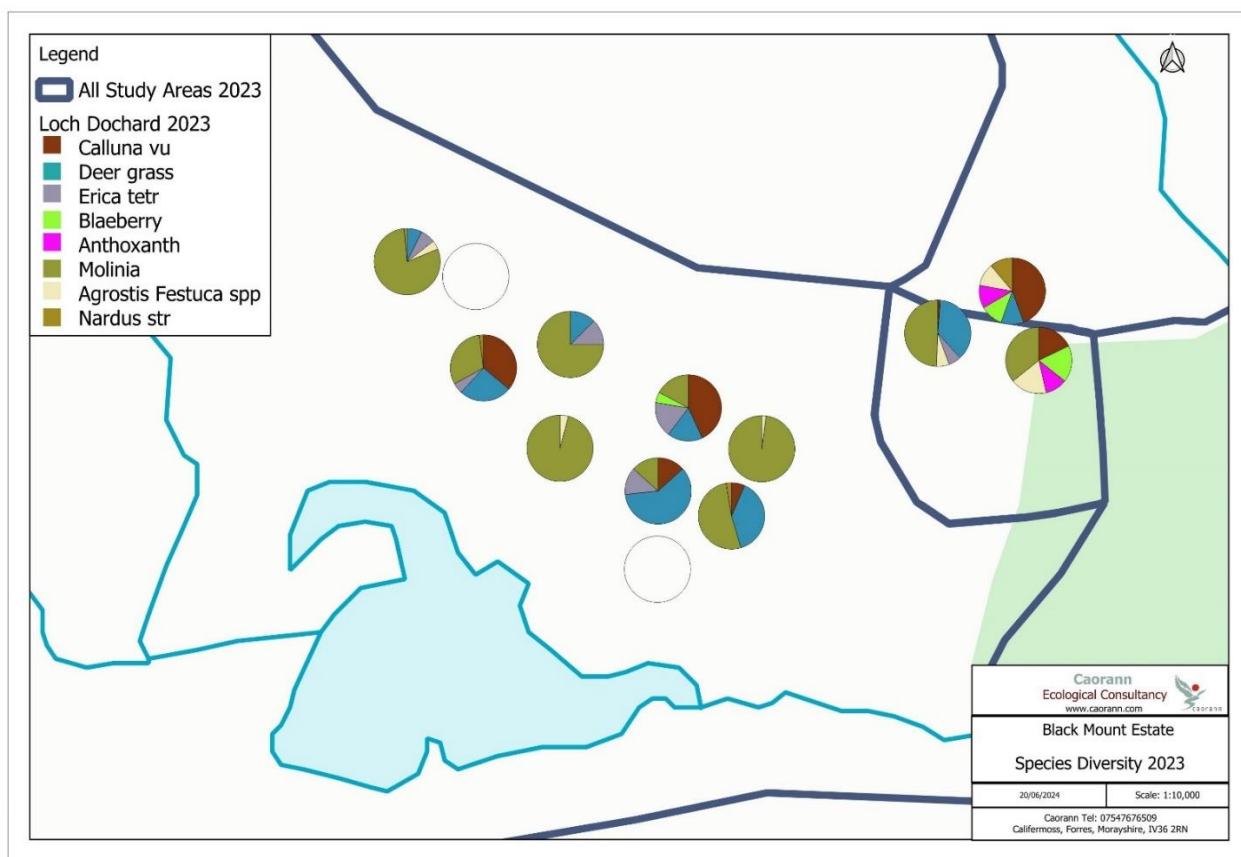
- Botanical species present and percentage cover
- Percentage of litter cover
- Average vegetation height

A summary of the results from the surveys is detailed in Table 3.

Table 9: Floral Diversity of Cattle Grazing Areas

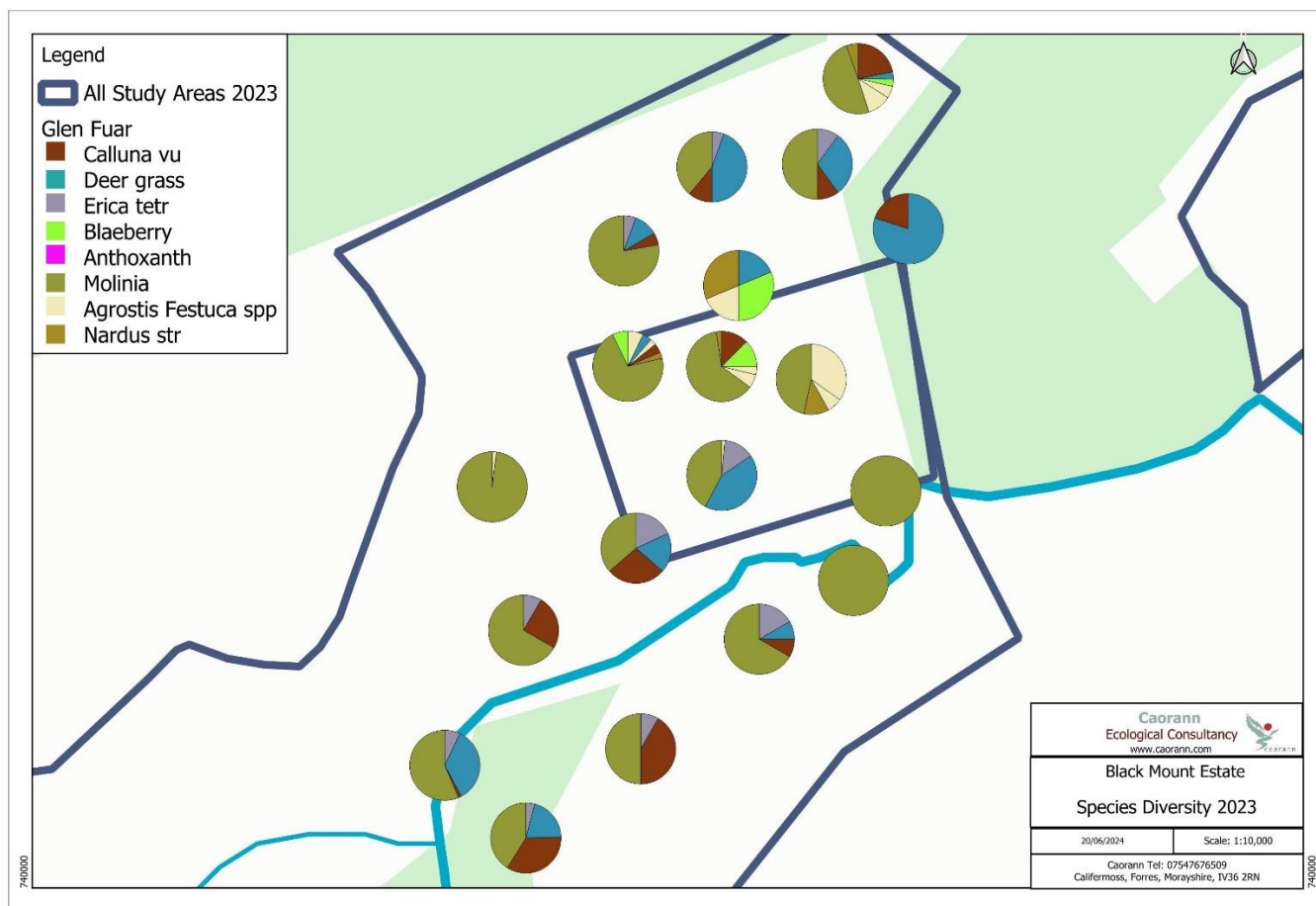
Area	Glen Fuar 2022	School House Park 2022	Loch Dochart 2023	Pony Park 2023
Grazing Regime	Grazed by cattle	Cattle Introduced 2022	Previously grazed by cattle	Cattle Introduced 2023
	15	15	11	30
Area (ah)	328	98	482	6.3
Total Number of species recorded	33	28	35	54
Average number of species per plot	10.9	10.9	13.4	7.7
Minimum number of species recorded in plot	5	5	8	3
Maximum number of species recorded in plot	19	13	20	14
% Molinia cover	36%	54%	35%	63%
% Litter cover per plot	50%	61%	27%	43%
% Heather Cover	8.6%	6.5%	9.2%	3.3%
Average vegetation height per plot (cm)	19.2	22.9	19.2	50.6

Figure 18: Main Species Composition Loch Dochard



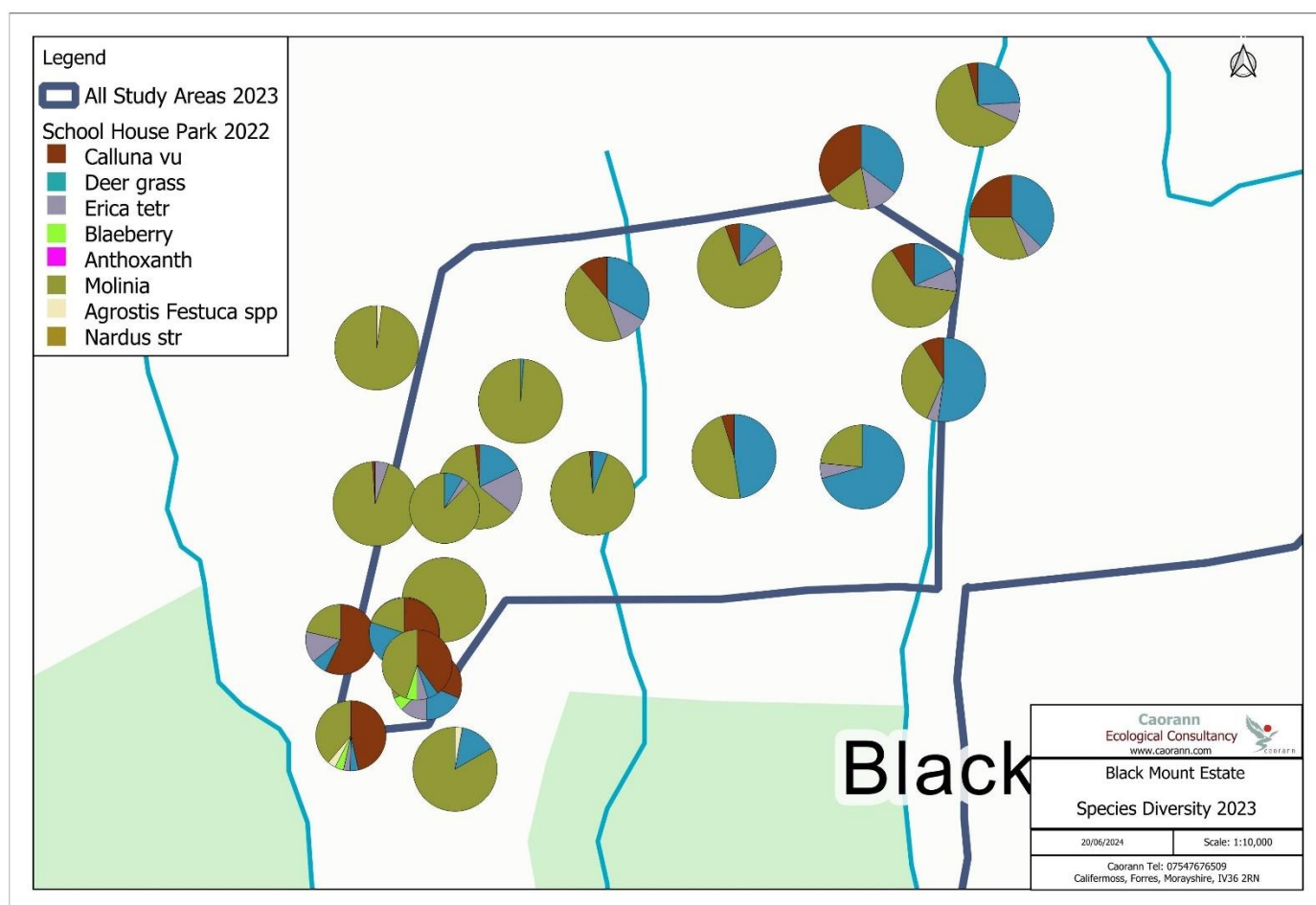
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Figure 19: Main Species Composition Glen Fuar



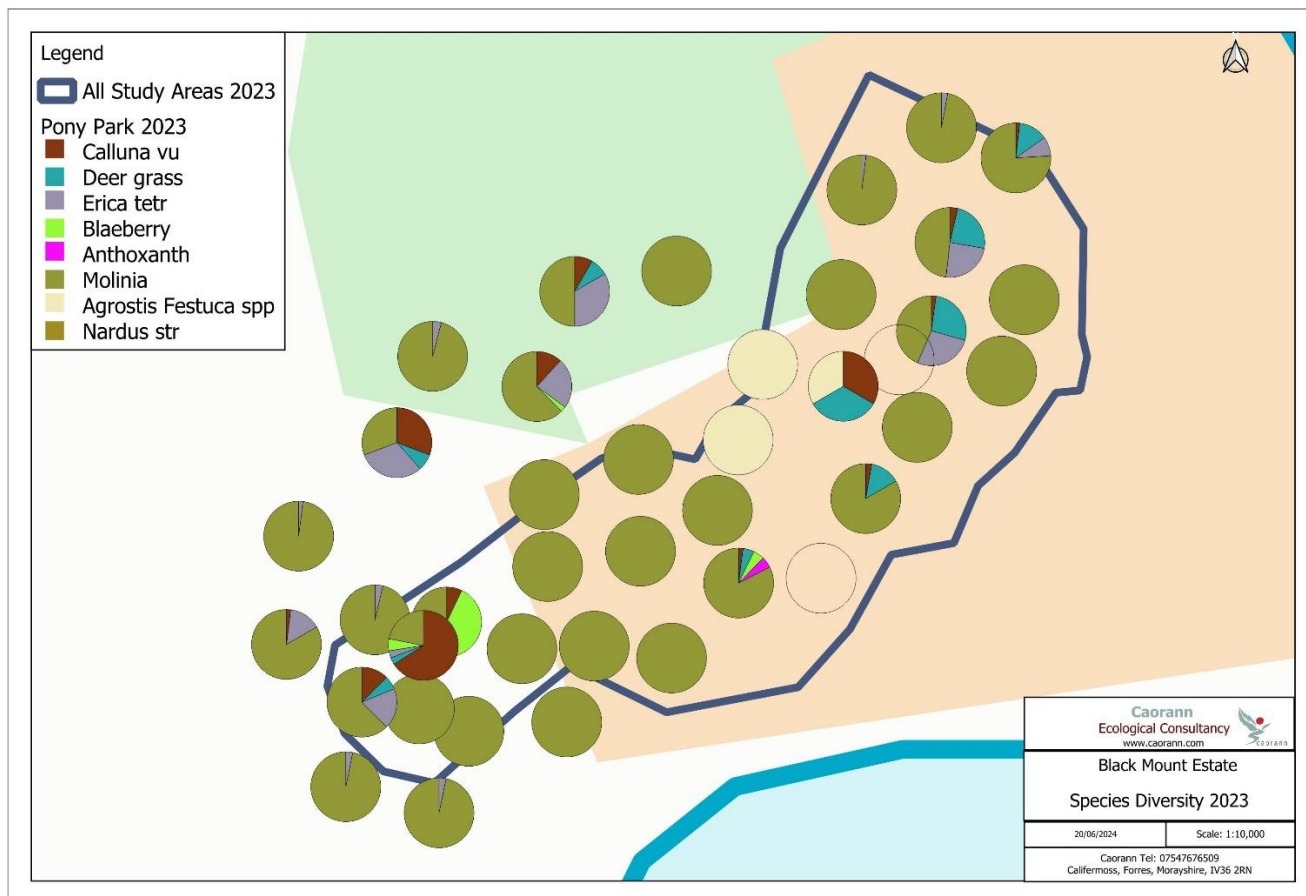
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Figure 20: Main Species Composition School House Park



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Figure 21: Main Species Composition Pony Park



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