



BLACK HILLS REGENERATION PROJECT

Deer Management Plan

Community led landscape scale native woodland expansion, peatland restoration and upland habitat regeneration facilitating enriched biodiversity.

Background

The climate and biodiversity crises are a reality and pose a serious risk to Knoydart, Scotland and the World. On Knoydart our experience to date is relatively mild - changes in the weather and seasons, however in other parts of the world the effects are already severe with floods and raging wildfires bringing catastrophic impacts on people, wildlife, plants and landscapes.

To help tackle climate change Scotland has a goal to reach net-zero by 2045. In tandem with reducing emissions, major changes to how our land and seas are used are needed to lock up carbon and restore biodiversity. Although Knoydart is a tiny corner of the planet, as a community we are in the privileged position of being able to take action on a landscape scale that will make a real difference.

The community run Knoydart Foundation (KF) and Knoydart Forest Trust (KFT) have been effectively managing herbivore impacts on habitats and successfully establishing new native woodlands for over 20 years, totalling over 800 hectares on just KF land. The extent of this work has been limited by available funding and deer fencing requirements as well as the limited human resource on the peninsula.



Deer Management by KF

For the last two centuries the Knoydart Estate land has been managed primarily for sheep production and more latterly sport deer stalking. The remote mountainous landscape is therefore relatively denuded of both human population and woodland, with ruined settlement, open range grassland, heaths and bogs prevailing.

Since the community buyout of the remnants of the estate in 1999, land management objectives have become more diverse. During the 22 years since, overall red deer densities have been reduced to a point where open range habitat impacts are relatively low, and the deer herd is more productive with negligible natural mortality. Out of necessity, this progress has been funded by an effective 'game farming' financial model, whereby sporting guests are taken out to shoot the deer. This model has limited the potential to reduce deer numbers because a threshold deer population must be maintained to sustain the required annual cull and income needed to cover the management costs. The model has proved effective but always marginal and fragile, particularly given the recent decline in sporting lets due to covid restrictions.

KF have decided to make every effort to diversify income streams away from an over-reliance on tourism. Our land management has its part to play, within the national 'Green Recovery' context. With new funding opportunities and a supportive community dynamic, we are now able to begin moving our land management efforts to the next level.

The Proposal

The proposal is to link up and repair the existing deer fences between Inverie, Inverguserein and Airor, building 3 relatively short sections of new fence. This will enable deer in the Black Hills area (everything west of the Inverie to Inverguiserain Track) to be managed separately from the wider peninsula. Deer numbers within the 3000-hectare project area will be reduced to a level which allows successful woodland establishment and habitat regeneration without the need for any more internal fences. Deer outside the project area will continue to be managed in line with the West Knoydart Deer Management Group (WKDMG) DMP to a maximum density of 10 deer/100ha and with culling effort also continuing to respond to HIA results. The potential for further deer density reduction outside the project area will be kept under review.



Deer Management in the Black Hills

Compared with the rest of the peninsula, the area is relatively low lying and comprises significant abandoned settlement and cultivation around the coastal fringe. Inland are hills rising to a height of c.500m, interspersed with significant areas of peatland and numerous small watersheds with burns flowing out to sea or the Guserein River.

The Black Hills has traditionally been managed as a stag wintering ground, with resident hind numbers maintained at very low levels. The stags migrate into the area after the rut, reaching a peak in population during late winter and early spring. Until recent years many of these stags remained through the summer, but now increasing numbers of visitors are venturing into the relatively accessible hills and regularly disturbing the deer which become very flighty. As a result, the stags nowadays tend to move out of the mountain range and into the adjoining conifer plantation to seek safety from spring onwards. As such, the ground now has very limited use for sport stalking, though we must still manage the impacts of the stags which winter there.

Even at its annual peak in population level, the Black Hills support a relatively low deer density. Regular estate foot counts since 2009 have returned densities of between 7.1 deer/100ha (2022) & 16.5 deer/100ha (2014), demonstrating the fluctuating nature of the transient stag population. The 2021 NatureScot helicopter deer count returned a density of just 5.1 deer/100ha, which compares to returns of 11 deer/100ha for the KF/adjoining land and 13 deer/ha for the WKDMG as a whole.

Black Hills Deer Counts	Stags	Hinds	Calves	Total	Area	Density
Foot 2009	421	53	17	491	3240	15.2
Foot 2010	302	46	16	364		11.2
Foot 2011	350	39	12	401		12.4
Foot 2012	310	68	24	402		12.4
Foot 2014	410	90	34	534		16.5
Foot 2015	292	68	28	388		12
Foot 2017	224	34	23	281		8.7
Foot 2018	268	74	34	376		11.6
Foot 2019	236	49	17	302		9.3
Foot 2021	266	50	27	343		10.6
Foot 2022	207	19	4	230		7.1



Proposed Project Deer Management Strategy

This relatively low deer density, comprised mainly of transient stags, is the key feature that will ensure the success of this project. The proposed strategic deer fence will rely on sea-ends which are never completely deer proof. It is anticipated that displaced stags could put pressure on the fence and gain access back inside via the sea-ends. Effective deer leaps will be designed as integral components of the new link fences, to allow any deer incursions a free way back out. However, to minimise pressure on the strategic fence in the first place, a compensatory cull is proposed. By culling most deer that are currently reliant on the area, even if only seasonally, the potential for increased habitat impacts on adjoining ground will also be prevented. Already established HIA monitoring will be maintained within and adjoining the project area, with any increased impacts being responded to with higher culling.

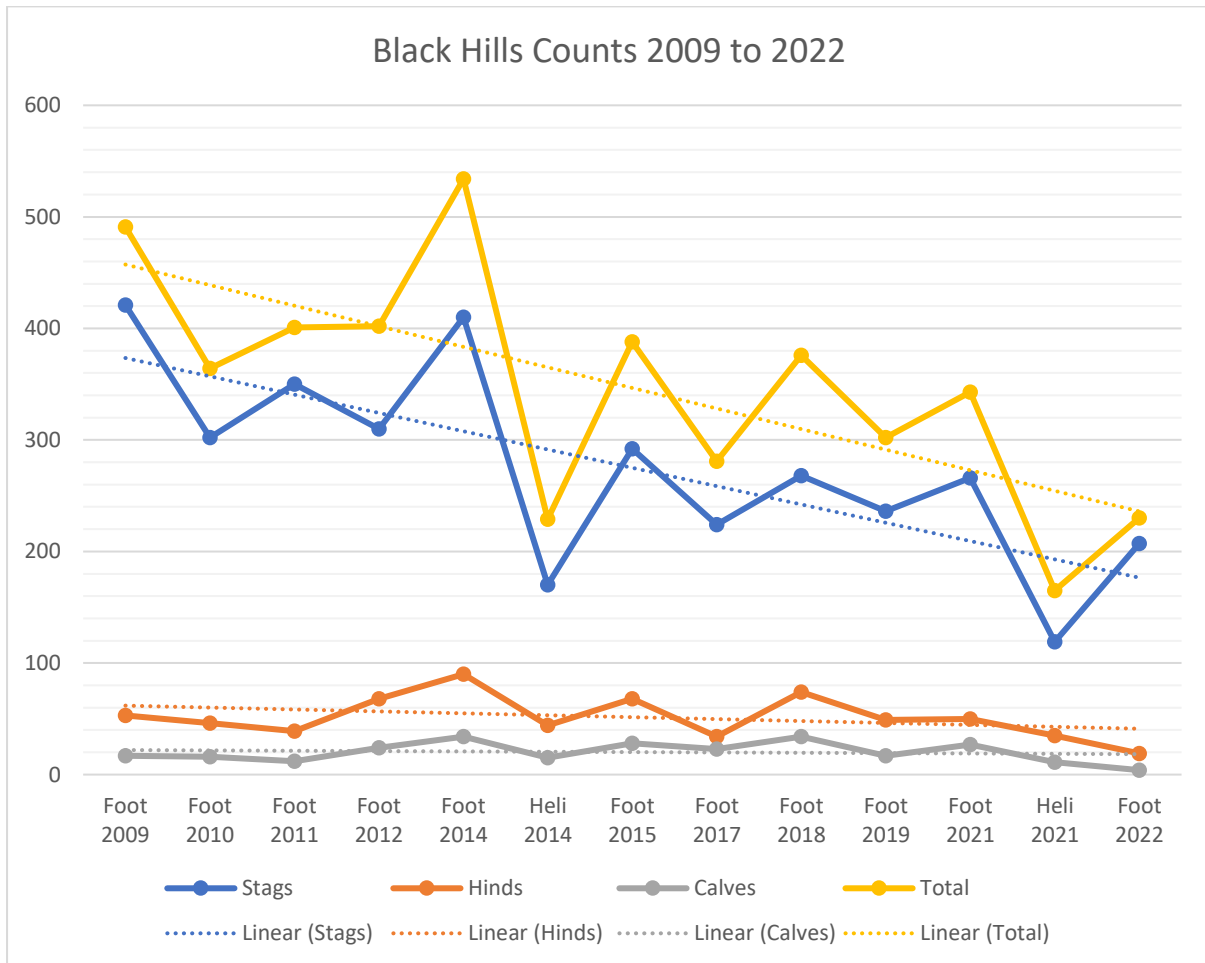
The Compensatory Cull

By taking a linear trend prediction from historical counts, a spring 2022 population of 240 deer, or density of 7.4 per 100ha is anticipated within the project area.

A compensatory cull of approximately 195 deer is proposed, which should reduce the population to about 45 deer or a density of 1.5 per 100ha. It is anticipated that the actual numbers remaining within the strategic fence-line will be lower than this due to the high levels of disturbance caused by heavy culling pressure over 2 years.

As described above, the timing of stag movements in and out of the area will make this cull impossible to achieve within the current open season for stags alone. To cull this number of deer within the strategic fence once it is closed will equally be impossible, due to the level of disturbance causing deer to exit the strategic fence via the leaps. Even if that were not the case, due to FGS funding claim timings, the period between closing the fence and initial tree planting would not be long enough to cull the number of deer required.

The compensatory cull would therefore be largely reliant on gaining out of season authorisations from NatureScot particularly for stags, both within and on land immediately adjoining the project area.



Black Hills Compensatory Cull Proposal

	Stags	Hinds	Calves	Total	Area	Density
2022 prediction from linear trend	180	40	20	240	3240	7.4
Proposed compensatory cull 2022 to 2024	150	30	15	195		
Extrapolated Population Spring 2024	30	10	5	45	3000	1.5

The final deer population remaining within the project area will be guided by HIA monitoring and must enable the unchecked growth of planted and regenerating trees. In practice this may well be as close to zero as is achievable during the initial establishment phase.



Proposed Compensatory Culling Regime 2022 to 2024

July/August 2022

Project area, 24 stags

September 2022 to February 2023

Normal annual cull activities, target c. 60 stags, 70 hinds + calves

Overlap with compensatory cull December to February

December 2022 to March 2023 (Out of Season, if authorised by NatureScot)

Project area and adjacent

56 stags, 20 hinds + calves

April 2023

Close strategic fence, deer count of project area and HIA surveys.

April-June 2023 (Out of Season, general authorisation)

Project area, 20 stags

July to December 2023 (Out of Season, if authorised by NatureScot)

Within strategic fence, and complete compensatory cull adjacent

40 stags, 5 hinds + calves

January to March 2024 (Out of Season, general authorisation)

Complete reduction cull within strategic fence

10 stags, 5 hinds + calves.

Deer count & HIA monitoring of project area.

Start first tree planting.

Total Cull, over 2 years

150 stags, 30 hinds + calves

This is in addition to normal annual cull over the wider KF area.



Monitoring, Reporting and the Future

KF already have dwarf shrub heath and bogland HIA monitoring established, both within the project area and immediately adjacent. These will be surveyed as usual in April/May 2022 and 2023. Surveys will be carried out slightly earlier in March 2024 to feed into the final project report.

By the end of the project, as a measure of success, we expect deer impacts on all plots within the project area to be low. If impacts on adjacent monitoring plots increase, then culling effort outside the strategic fence will be increased.

We also have monitoring plots established within some of the coastal remnant woodland patches, where native tree seedlings have naturally established. These are almost all at present heavily browsed with no succession of seedlings growing on to saplings and trees.

By the end of the project, as a measure of success, we expect to achieve low or no browsing of these tree seedlings. This will be a key indicator for us that the new woodland planting areas will successfully establish.

Annual deer counting of the project area will continue. The census immediately after closing the strategic fence in April 2023 will be key to planning the cull level required within the project area for the second year. A census will be carried out in March 2024 to feed into the final project report. Success will be measured by a deer density of 1.6 per 100ha or less having been achieved. The neighbouring deer density on KF land will be maintained no higher than 10 deer per 100ha.

The initial two-year project funding will enable investment in the community deer management operation, both equipment and staff which will help to ensure the project success and sustainability for the ten year maintenance period and beyond. The strategic fence will be robust enough to cope with the higher deer density outside the project area for at least the first 20 years of restoration. By that time, it is anticipated that natural capital financing, largely built on the flush of regeneration this project will facilitate, will be in place to support the long-term and wider deer management.