Black Hills Regeneration Project

The Nature Restoration Fund

Project Report

Summary

The project set out to facilitate the regeneration of habitats and species on a landscape scale across the western range of the Knoydart Peninsula, to bring about enriched biodiversity from seashore to mountain tops.

The project has linked up and repaired existing deer fences, enabling deer in the Black Hills to now be managed separately from the wider peninsula. The deer density within the 3000-hectare project area has been reduced to a very low level, allowing woodland establishment and regeneration without the need for any more individual fences. Deer outside the project area are still being managed responsibly, guided by habitat impact assessment.

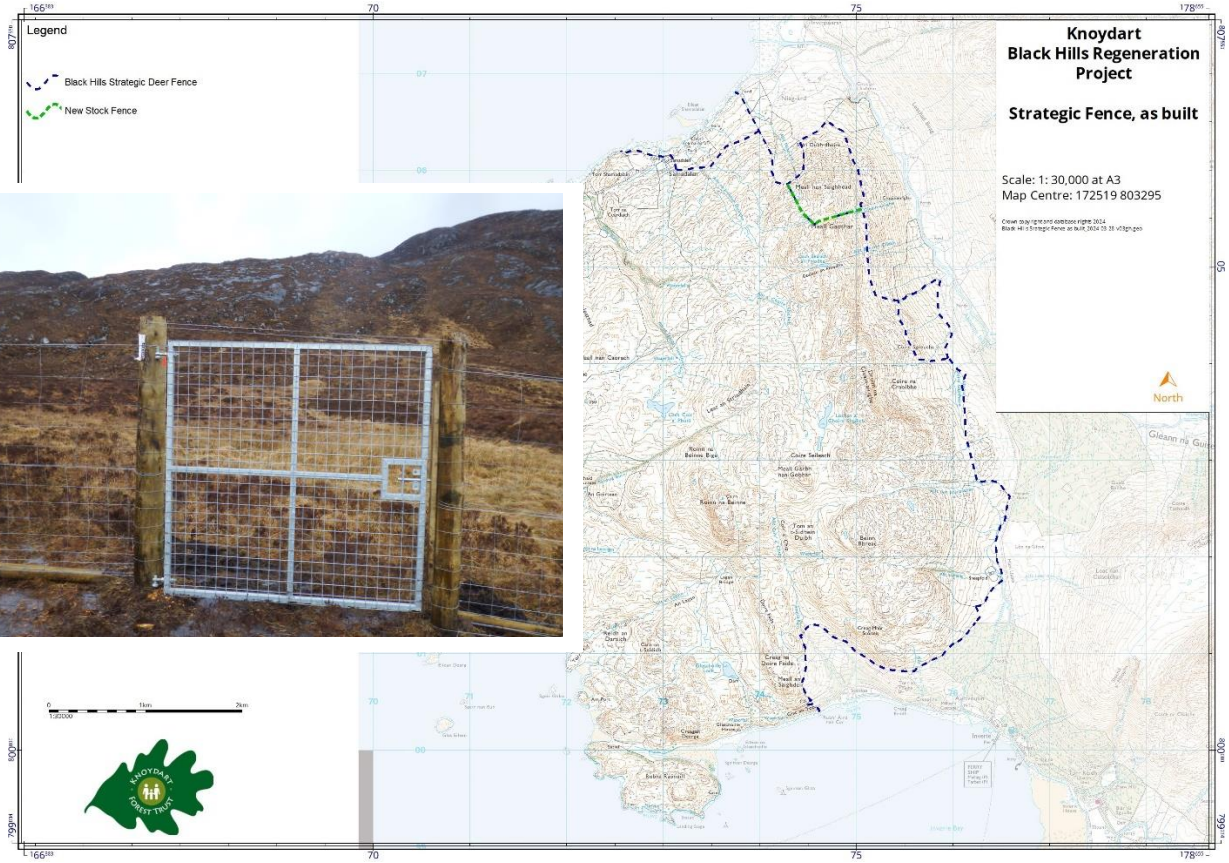
Effective partnership working between Knoydart Foundation, Knoydart Forest Trust, Inverguseran Farm, Airor Common Grazings and several other individual landowners has been key to the project success.

The project comprised five main elements:

- A strategic deer fence comprising new link fences and repairs to existing fences.
- A deer reduction cull within and adjacent to the project area.
- Habitat Impact Assessment surveys.
- Development of woodland regeneration and creation plans.
- Community engagement.

Previously degraded and suppressed habitats are now able to flourish once more, with reinvigorated growth and the beginning of species recolonisation already evident.

The Strategic Deer Fence



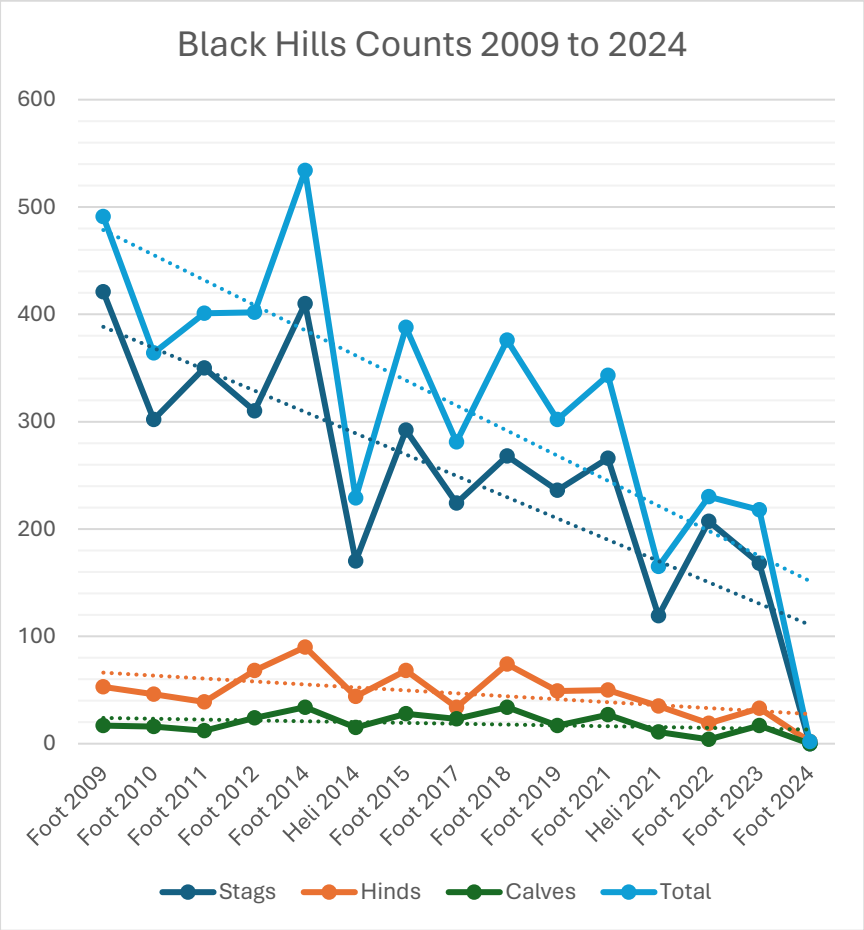
Following a tendering process via Public Contracts Scotland, Knoydart Forest Trust were appointed to construct the fencing. The two new links in Glen Guseran including deer leaps, were built in spring 2023, tying in with helicopter layout of fencing materials for the new woodland fence at Follach. This enabled deer movement out of the project area during the summer, whilst preventing any easy movement back in. The last link between Airor and Samadalan was built during summer 2023, along with layout of fencing materials for repairs and new stock fencing at that end. This was Plak's last fence build, and we struggled to find a new fencer willing to work out here, but eventually Richie and his team jumped in.

After an urgent new build deer fence at Kilchoan, they finally completed the Black Hills deer fence repairs and upgrades in late winter 2024. One of KFT's woodland deer fences at Fank Burn forms part of the strategic fence-line but being only 10 years old was not included in the NRF work. However, the timber here has already failed (as at four other sites from that era), so KFT have now also renewed this with some support from Woodland Trust for materials. The project area should now be secure from deer pressures for the next 20 years, though deer incursions will inevitably happen round the sea ends or through opened gates as occurred in autumn 2023.

Since original budgeting the fencing costs increased significantly. Thankfully we were able to secure some additional funds from NRF to cover these unforeseen rises. Pre-existing deer fences within the project area no longer need to be repaired and can now be removed much sooner than previously planned, blending the new woodlands within the wider landscape.

Deer Management

The project Deer Management Plan was based on historical count and cull data and attempted to facilitate the project outcomes whilst preventing increased impacts on adjacent land.



The already reducing transient population of stags would mostly use the area during the winter and move out during the summer. The compensatory cull was planned around the counted spring deer populations, but the West Knoydart Deer Management group requested an adjustment to reduce the planned cull of stags and increase hinds taken on adjacent areas. This was agreed conditional on impact levels on adjacent land not increasing.

Alongside the wider annual deer cull, the additional project culling began in July 2022 and continued through till March 2024 with just a short break in early summer 2023 when the deer larder was out of action for maintenance. Out of season and night shooting licenses were issued by NatureScot, which facilitated the eventual successful outcomes. Also invaluable was permission to shoot on private land given at Glaschoille, Sandaig and Torr na h'Innse.

In summer 2023 it was apparent that the project area low deer density target had already been achieved, but then in the late autumn two gates were found open, just at the time the stags were trying to get back in. Some old fencing at Inverie was also knocked down by the heavy winter stag pressure, allowing more movement into the project area via Inverie Woods. An emergency additional cull of the stags impacting on the fence line was taken in December, alongside renewed culling activity within the project area. This was urgent work with the first planting scheduled for January 2024, and just completed as the trees were being planted.

Achieving the additional hind cull on adjacent land continued to be a challenge throughout the project for several reasons. Staff time was taken up dealing with the project area stag incursions, as well as night shooting in Inverie Woods where timber harvesting is underway and so imminent restock requires protection. Increased stag density on adjacent areas displaced hinds further away, whilst poor winter weather often limited hill operations and during good

weather the prolonged easterly winds tended to also draw the remaining hinds away from the out of season authorisation area when disturbed.

However, compensatory cull targets were eventually achieved, with a final return of 161 stags (target +51), 62 hinds (target +2) and 22 calves (target -3); total of 245 red deer (target +50). This in addition to the wider open range annual cull.

Deer counts in February 2024 returned densities of just 0.1 deer/100ha within the project area and 9.2/100ha on the adjacent open range, so all within target populations.

Also culled from the project area were 2 roe does, 3 roe bucks, and 2 sika stags.

Ongoing monitoring for inevitable deer immigration and impacts is in place, with the current lower than target density meaning that future short term increased impacts can now be absorbed.

Venison

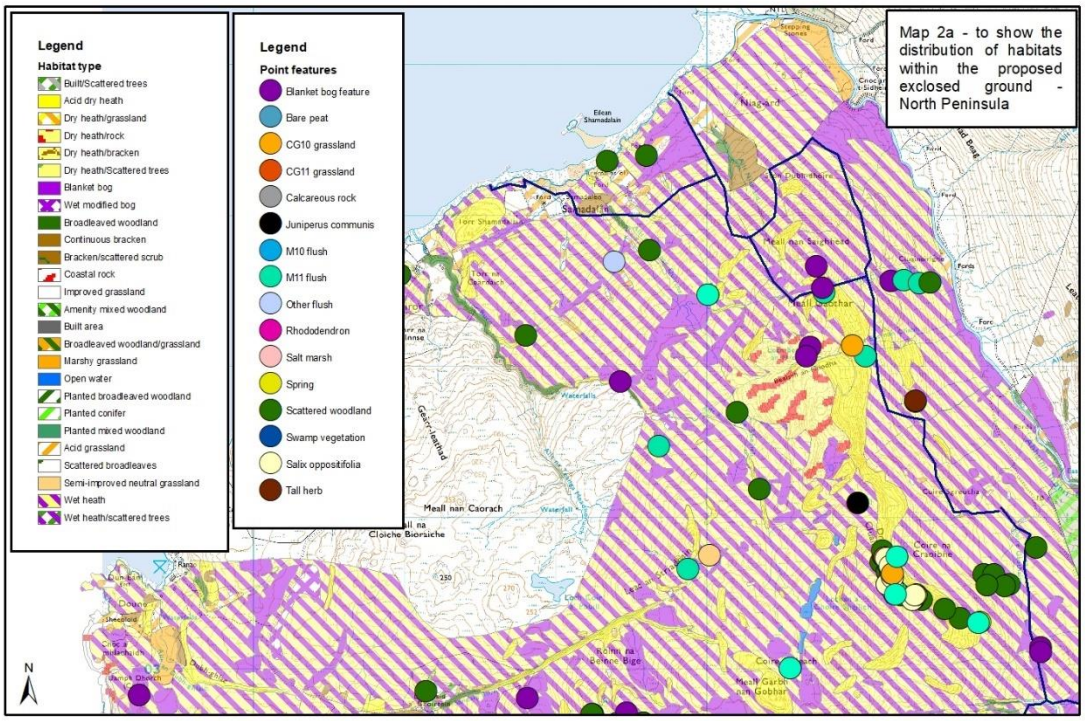
With Knoydart Wild Venison now taking the majority of our deer carcasses, there was often pressure on the butchery team and their resources. The exceptionally high cull level meant that there was simply not the capacity or freezer storage to process everything, though they've done a great job continually making space in the chill for more!

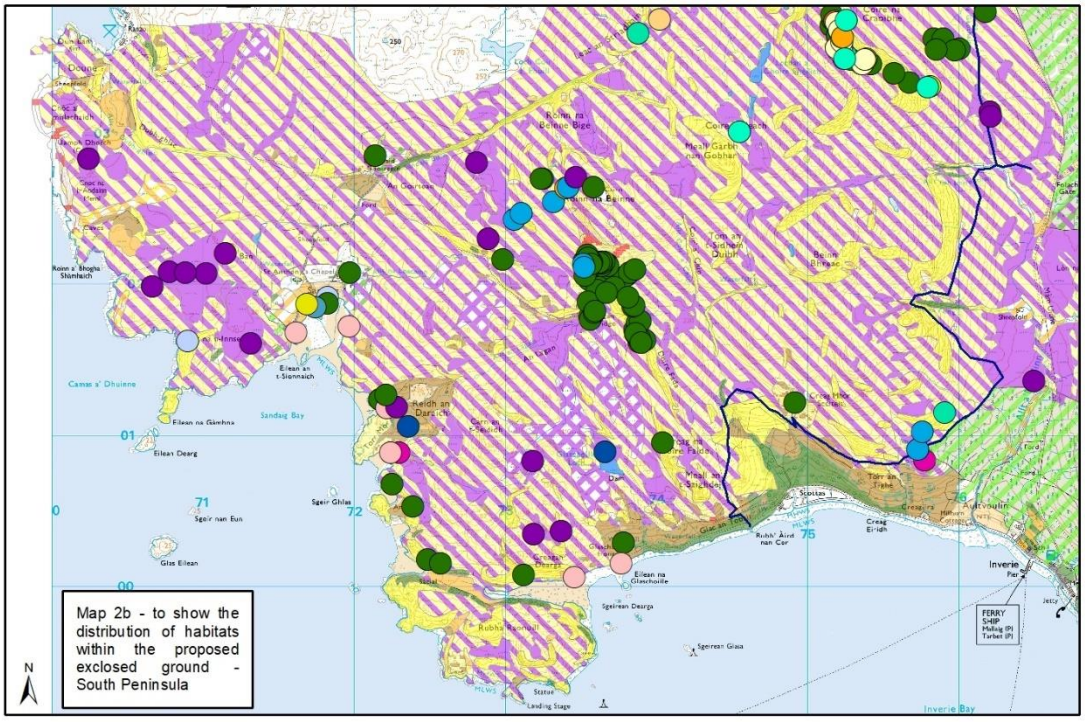
Shipments to a game dealer were made in Sept/Oct 2022 for stags over 4 weeks, and Jan/Feb 2023 for hinds over 4 weeks. We had hoped for a similar arrangement in 2023/24 but could not find a game dealer willing to make the collections. We only managed to get a one-off load away to a game dealer in December, associated with the additional emergency cull, and so had to find innovative ways to make good use of the surplus carcasses.

We now offer stalking clients the opportunity to butcher their own venison with tuition, and to pack and take home. We have also been using the poorest quality carcasses to trial a raptor feeding station, in conjunction with the KF Ranger Service. This has also proved a success with golden eagles now visiting regularly, and next is a viewing hide for visitors to enjoy the spectacle.

Habitat Impact Assessment

To get the project off the ground we had managed to secure some funding from Highland & Islands Enterprise and Fauna & Flora International, to produce Archaeological and Habitats assessments, mapping and reports.





Additional areas were surveyed to give a more complete map of NVC habitat types, and the full report with management recommendations is appended.

We received the ecologist's recommendations for an expanded monitoring programme to be established, to assess and measure the expected outcomes of the project:

1. 30 plots within currently fenced woodland areas to be measured by the NatureScot 'Best Practice' guidance for the assessment of impacts within woodland. This should be carried out years 1, 5 and 10 of the project to monitor seedling and sapling establishment within these areas.
2. 30 plots sited randomly within dwarf shrub heath across the open hill land, outside the currently fenced areas. These should be assessed using the NatureScot Best Practice guidance for Dwarf Shrub Heath Habitat Impact Assessment to monitor current impact levels, and include measurable targets indicating improvement such as dwarf shrub height and % heather cover. At each plot the presence of tree seedlings/saplings should be assessed using the NatureScot 'Best Practice' methodology for woodland as above. The ten existing HIA plots currently used by the deer management group can be incorporated into this set.
3. 15 plots sited within blanket bog, to include the five currently established by the deer management group. These should be monitored using the NatureScot Best Practice guidance for HIA of blanket bog.
4. 10 plots sited above 500m to assess the recovery of higher altitude scrub and grassland habitats.
5. 15 plots sited within base rich flushes that will be monitored using the NatureScot Best Practice guidance for flushes, in particular monitoring changes to the vegetation height, the cover and diversity of bryophyte and herb species and the cover of bare, trampled ground.

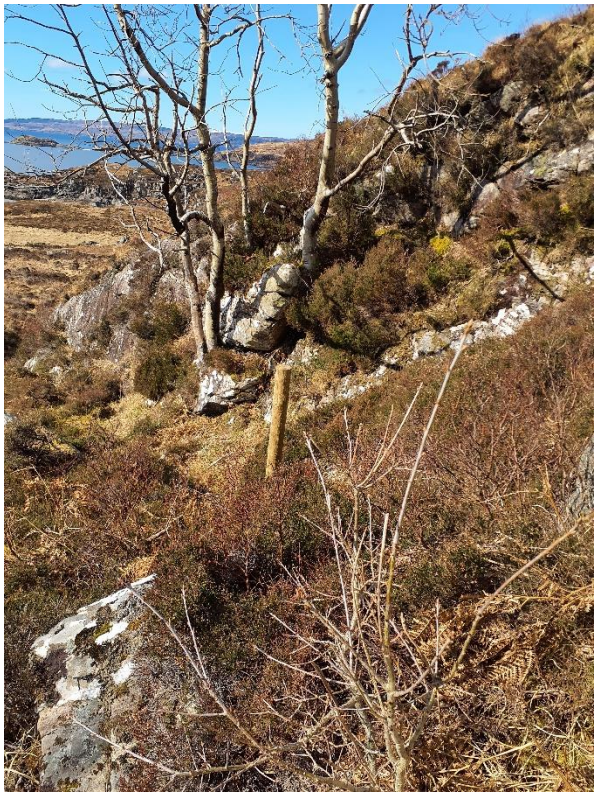
The expanded survey program was implemented in May 2023, incorporating existing HIA plots and adding new plots where needed. The additional burden of work and terrain meant that the surveys needed to be carried out efficiently, and so location of plots is not completely random. Planned routes were roughly mapped out to provide maximum ground coverage of habitat types, with each being achievable in a day. Where possible the plots were spaced at approximately 500m on each route, as with existing transects. This was not always realistic, particularly for montane and flush plots, with the habitat types being so geographically limited.

A second survey was carried out in March 2024 and over that period measured impacts have significantly reduced. The timing of this survey was to fit the NRF fund reporting requirements, being earlier than when it would normally be carried out in May. It is therefore possible that certain plants, in particular tree seedlings may not have been recorded as present due to no leaf being observable. Measures of height could also be affected where last year's spring growth was measured and then partially cast from deciduous plants/seedlings in the autumn.

1. Woodland

KFT will be carrying out WHIAlite surveys within the currently fenced woodlands, but this is not an immediate priority as they are now still deer fenced and have always been kept relatively deer-free. This will however provide important baseline data before fences are progressively removed. KFT also carry out monitoring of remnant coastal woodland over 22 plots at Glaschoille & Rubha Raounuill. This survey work will be completed in the next couple of months, so that report will follow on. In 2023 browsing levels remained high, from 53% to 83%.

Five woodland regeneration plots have been surveyed in both years by KF and show that the average tree browsing has reduced from 78% to 13%, just within the target of <15% browsed.



2. Dwarf Shrub Heath

6 existing and 24 new plots were surveyed. For new heath plots, where possible, a site including tree seedling(s) was selected, with the eventual aim of transitioning from heath to woodland type monitoring as the natural regeneration of native trees re-establishes.

The surveys show a reduction in average heather browsing from 64% to 10%, and an increase in average heather height from 26.2cm to 29.9cm. Average tree seedling browsing reduced from 64% to 26%. Any future increase in distribution of heather will be difficult to assess, given existing 100% occurrence in plots, so the photos will be very useful here.

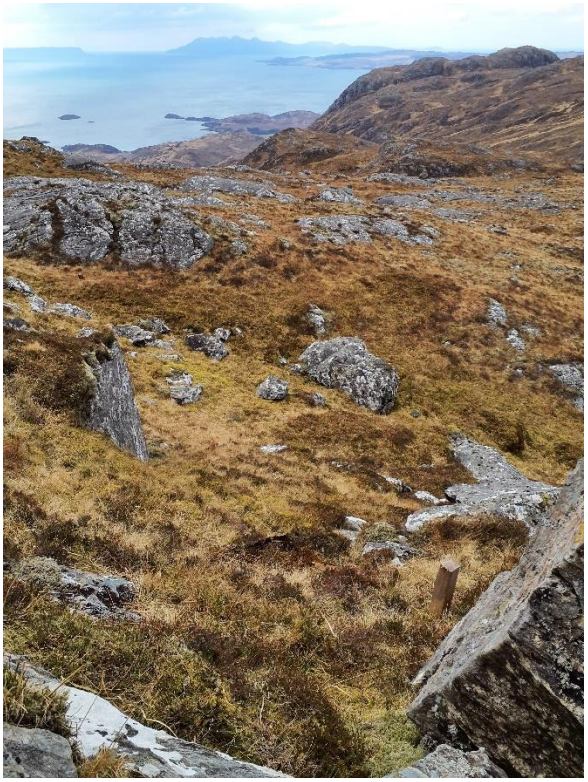
Tree seedlings within heath plots were often not found (most likely due to lack of leaf at this time of year) and frequently noted as being browsed whilst the heather was not. This browsing is certainly a result of the winter deer incursions, localised and worthy of note that even a relatively low deer density was locally impacting woodland regeneration but not so much the heath species.

Some heather dieback was noted.

3. Blanket Bog

5 existing and 10 new plots were surveyed, at varying altitudes across the project area. Bog moss distribution continued at 100%. Average browsing of heather reduced from 53% to 7% and heather height increased from 21.7cm to 25.7cm. Bob Myrtle was noted as frequently un-browsed, where it would previously have been almost all browsed. Sphagnum moss cushions were observed as mostly recovering depth and spring.

Again, some heather dieback was noted.



4. Montane

There is apparently no 'off the shelf' HIA survey methodology to suit our requirements here, with Willow Scrub being the only Best Practice guide available. All native montane scrub habitat here have been lost to historical muirburn and overgrazing, so the most frequent dwarf tree species found on the tops is now rowan, where seed has been deposited by birds. There is one accessible Juniper, and a lodgepole pine! The project area only just reaches 500m ASL, so the montane type habitats are a product of exposure as much as altitude. We have blended woodland and heath plot monitoring techniques to provide a practical survey methodology which will yield meaningful results over time.

The surveys show a reduction in average heather browsing from 67% to 10%, and an increase in average heather height from 16cm to 19.5cm. Average browsing of the target trees reduced from 60% to 10% and average browsing of other seedlings in the plots reduced from 35% down to 5%.

Again, the photo's should be invaluable for future assessment of habitat recovery, and we will watch with interesting to see how much the wee Rowans are now able to grow on the most exposed tops. If necessary, supplementary planting with local provenance dwarf montane scrub species will be assessed to re-establish this rare and fragile habitat type.

5. Base Rich Flushes

17 plots were established where these flushes were found to be accessible. Being quite a scarce habitat type here, the distribution of plots is entirely reliant on occurrence of the flushes, with the majority being located at relatively high altitudes in amongst or below craggy rock outcrops. Given their sensitivity to changes in management, it would be worthwhile recording more detail of species and ground cover in future surveys. We adapted the best practice methodology to include an overall assessment of browsing impact.

The surveys show a reduction in average plot browsing from 70% to 7%, and a reduction in flora pulled up from 35% to 0%. In 2024 significant deer impacts were only found on one flush, adjacent to an area where several old dung groups had been noted. The most common specialist flush species noted was Yellow Saxifrage, though it's true abundance was difficult to assess in March 2024 due to winter die-back not yet re-grown at this time of year.

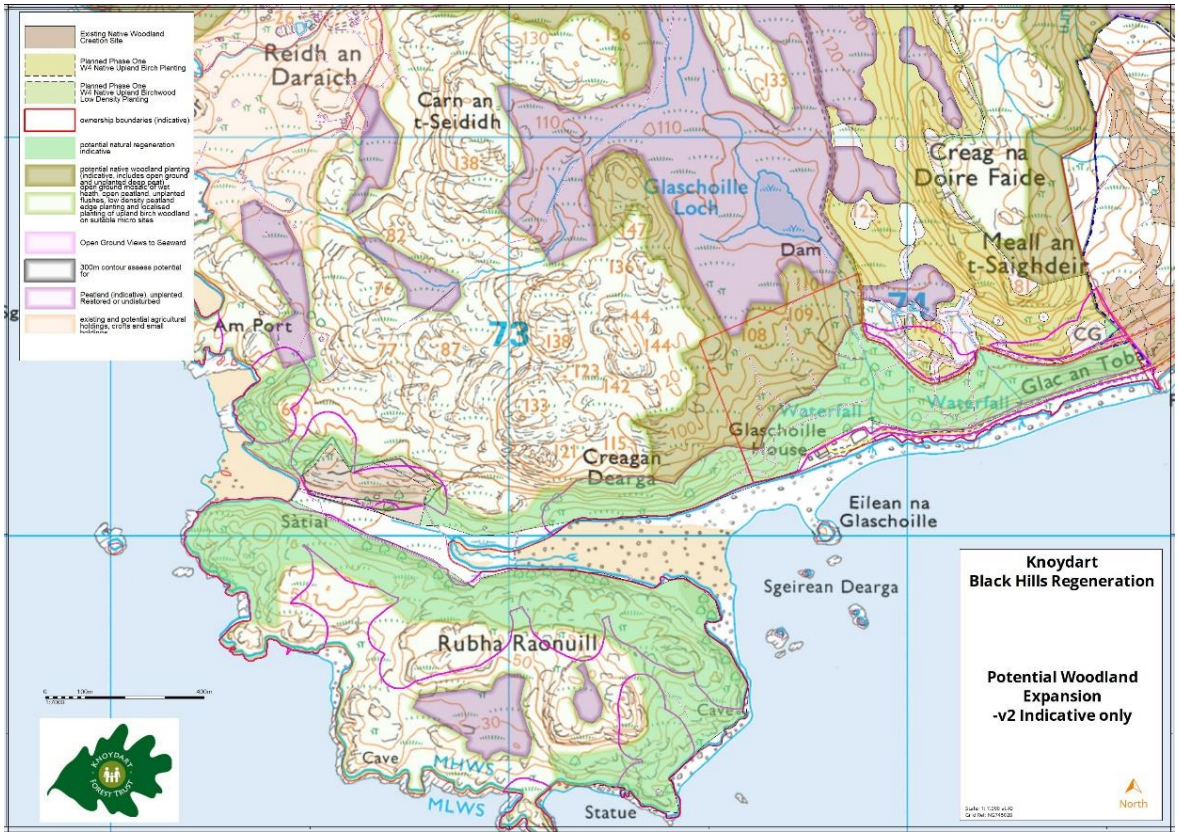
HIA Conclusions

The 2024 survey results confirm estimated deer presence from observation over the past year. It was clear in summer 2023 that very few deer remained within the project area, following heavy culling and disturbance through the previous winter and spring. The deer leaps have been a success, with observed deer numbers inside the strategic fence reducing at a much faster rate than explained by culling alone. Deer incursions during late autumn and early winter resulted in localised, light impacts on habitats. In places that the deer congregated tree seedlings have been preferentially browsed, whereas heather has retained the majority of summer growth.

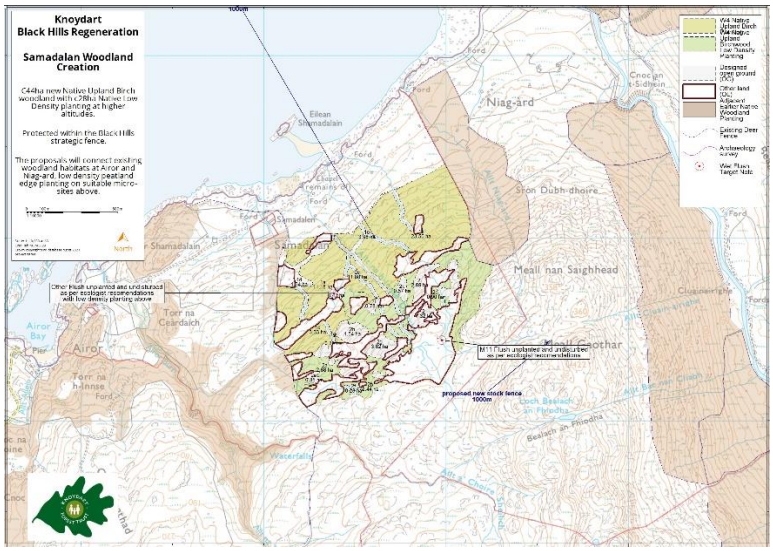
Native Woodland Regeneration and Creation

The project has been working in partnership with KFT to develop plans for new woodland and assessing where natural regeneration will take place. An FGS Cooperation Fund grant was awarded to work with the multiple stakeholders towards this goal. As a result, the first significant planting unconstrained by an individual deer fence is now in the ground at Doire Fada, with 44ha of native upland birch woodland planted. This scheme is being implemented over two years, with the remaining 44ha to be planted next winter, along with a second scheme of 72ha on Airor Common Grazings at Samadalan.

The majority of remnant woodland with regeneration potential is already within individual deer fences. The most significant area to be newly facilitated by this project is at Glaschoille & Rubha Raounuill, with 12ha on private land and 33.5ha on KF land being the focus of FGS WIG H&S applications.



There are scattered tree seedlings now starting to appear throughout the project area, either as individuals or clumped in more sheltered and/or fertile niche. These are too thinly distributed to be easily mappable yet, but will naturally develop into a component of the intended mosaic of habitats outside the more intensely planted areas.



The aim is to complete the rest of the big chunks of native woodland creation in the first 5 years, because the new tree planting will perform much better before the ground sward becomes too dense. Years five to ten will then see a softer touch style of management, with low-density planting and an aspiration to re-establish the high-altitude montane scrub habitats. We also hope to begin other habitat management actions to support biodiversity gains as guided by year five habitat assessments and further ecologist input. Management actions to encourage rare species already present such as black grouse and pine marten, but also consideration of reintroductions for example red squirrel when habitat recovery and management allows.

The Alliance for Scotland's Rainforest recently held a field visit on Knoydart, including lichen & bryophyte surveys in some of the Black Hills woodland remnants. Several pristine indicator species of Atlantic temperate rainforest were discovered, so we will continue to work closely with ASL on developing management plans for the regenerating habitats. An important component of this work is to manage woodland regeneration to prevent the sensitive lichens & bryophytes from being shaded out and smothered whilst still promoting regeneration. Consideration can also be given to reintroducing species to regenerated woodland where distances from remnant populations are too great for a natural colonisation.

Community Engagement

Community support and involvement in the project has been critical for success. It all started with discussions amongst local residents including landowners, and then a proposal to the KF board in 2021. This was followed by a community presentation and series of consultation exercises which demonstrated overwhelming support. Encouragement from other community, woodland and environmental organisations also assisted us to the NRF application stage, and now community involvement in the project has helped see it through. Local volunteers and casual staff have often jumped in to help out with deer management activities. We have also hosted several visiting students and volunteers over the last two years.

Interest in the project and other community land management aspects has attracted several high-profile delegations and individual visitors including from Scottish Forestry, Community Land Scotland, Institute of Chartered Foresters and MSP Kate Forbes.

The local community has been kept informed of progress through regular features in the KF Newsletter. The Friends of Knoydart and other visitors received a land management update. We have also hosted a documentary film maker for European TV channel 'Arte' and will continue to look for ways to keep promoting the community project and its wider land management. The West Knoydart deer Management Group has received regular updates at their meetings, with one other member now inspired to commence their own NRF project and working closely with KF, KFT and other joint partners.

Project Maintenance and Future Finance

The primary maintenance requirements are the strategic deer fence and effective management of any deer incursions. Keeping an eye on gates, sea ends and winter storm damage are the most important aspects, with a rapid response to any repairs needed. An annual spring check of the full strategic fence will therefore take place, with additional checks made if deer incursions become apparent. The deer management team will make ongoing regular visits to the project area to keep an eye out for deer and also continuous informal assessments of regeneration and any impacts. KFT will implement stocking and impact surveys of new woodland creation in line with FGS requirements.

We had hoped to have the FGS SMF Reducing Deer Impact grant in place to fund the ongoing deer management requirements, but we couldn't compile the full application supporting information for this year's deadline. We will keep working on this to have in place for next year, and in the meantime will have to rely on the new woodland establishment budgets to cover costs. As part of the project partnerships with private landowners we want to share the costs and benefits of the project, so we are in the process of formulating a template for private benefits to feed into the community's ongoing project costs. We will continue to search out funding for individual management components of the wider project where possible.

Natural Capital Financing

We have just heard the great news of a successful bid to the National Lottery Heritage Fund for FIRNS (Facility for Investment Ready Nature in Scotland) support. This is one year development stage funding to employ someone and associated costs, to develop a replicable, community based, natural capital credit 'bundle' incorporating carbon credits, biodiversity gains and social sustainability. We will be working closely with several partners on this project, which we are optimistic will open the door to the investment that will enable multiplication of the social and environmental gains we have seen from this project going into the future.