MORVERN DEER MANAGEMENT GROUP

HABITAT IMPACT ASSESSMENT

REPORT 2021



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Executive Summary

During June 2021, a suite of 90 Habitat Impact Assessment (HIA) plots were established on Morvern DMG, with 30 each in the north-west, north-east and south-east sub-group.

The plots were placed on blanket bog (BB) habitat and assessed for impacts using the Wild Deer Best Practice methodology.

Approximately half of the total area has herbivores other than deer contributing to impacts – sheep on most of the SE sub-group and some of the NW sub-group area and both sheep and goats on the NE sub-group area. Otherwise, deer are the primary herbivore and the main cause of impacts on the plots.

Results show a dominance of low impacts in both browsing (52%) and trampling (89%). Differences between subgroups is less pronounced than in the 2020 DSH plots.

HIA targets have been met for both designated sites and the wider group area when the DSH and BB results are combined.

Changes to deer management are not considered necessary to maintain the DSH habitat condition in its current condition.



Introduction

In line with the requirements placed on deer managers through the Deer Management Planning process, a series of Habitat Impact Assessment (HIA) plots have been installed in Morvern Deer Management Group area during 2021. This is the second of three different habitat types being assessed over the period 2020-2022, with dwarf-shrub heath (DSH) plots installed and assessed in 2020. The area covered is the open hill range of three of the four sub-groups – north-west, north-east and south-east.

The results are intended to assist, along with other data collected by the group, in setting targets for deer density and cull targets.

Method

The method used is that set out in the Wild Deer Best Practice Guides, developed initially by the Deer Commission Scotland and now managed by Scotlish Natural Heritage (SNH). While in the process of being updated, the original, published, method has been used but additional data also collected which it is expected will be comparable with the updates currently in draft form.

A series of 90 plots each of blanket bog (BB) habitat were installed in a random distribution across the sub-groups, 30 in each sub-group, using some of the plots issued by Scottish Natural Heritage (SNH). The plot distribution is random, but an effort has been made to achieve a good scatter across each sub-group, in particular filling in the blank areas left by the DSH plots from 2020.

The plots are marked with a 600mm wooden survey post, hammered in such that it is below the level of the vegetation sward. 10-figure GPS grid references and 4 separate location photographs were taken to ensure that the exact same location can be repeated in future. Additional photographs were taken of the plot number and GPS, and of the plot itself. Each image was given a file name that refers to the location, year, habitat type and plot number.

The data was recorded on paper forms and then transferred on an Excel spreadsheet. Both the forms and the spreadsheet, along with the relabelled images, have been provided to the DMG to facilitate repeat survey work in the future.

Results

Habitat condition - general observations

As with the 2020 observations, the open ground habitats on Morvern show relatively few signs of high current impacts from large herbivores. The greatest impact on habitats in their current state, as discussed in the 2020 report, is the historic impact of large numbers of sheep run on the peninsular during the 19th Century. Even though these impacts were initiated up to 150 years ago, the capacity of habitats to recover to a former condition may be lost and while they may be very slowly improving, those historic impacts are still very clear to see.

The numbers described in "Morvern Transformed" (Philip Gaskell, 1968, 3rd edition 1998) which derive from parish records and the Statistical Accounts for Morvern parish (the peninsular excluding Kingairloch) show that the population of the parish rose from 1,223 in 1755 to 2,137 in 1831, whereafter it declined to only 730 souls in 1901. The number of sheep rose from 14,000 in 1794 to 29,000 in 1843 and the number of cattle fell from 2,500 in 1794 to 690 in 1843. In the latter part of the century, sheep made up 80% of the gross income of Ardtornish/Achranich Estate, with 90% of the flock made up of Cheviots until the 1890's when reduced profits and an apparent change in their suitability for hill grazing led to them being replaced by black-face sheep.

From 1860 onwards sheep numbers were slowly declining and more ground was given over to deer forest, as the profitability of the sheep walks declined. While this decline may be in part due to lower prices for wool, and latterly meat, from Australian farms, it seems likely that it was also in response to a decline in the condition of the hill habitats. Appendix E of Gaskell's book gives an account of a retiring Police Constable from Glasgow, who had been a herd boy and under shepherd on Old Ardtornish in 1860's, remembering the hersels there carrying roughly 10,000 sheep in 1860. When he retired in 1903 and returned from Glasgow to Lochaline, he was most surprised by the reduced stock numbers and, by inference, the capacity of the ground to carry livestock.

The greatest manifestation of this agricultural activity is in the dominance of *Molinia caerulea*, purple moor-grass, across the bulk of the peninsular. In most areas it is the plant of greatest cover value and even in blanket bog, where it does not naturally thrive, it occurs across the bulk of the ground. Of the 90 BB plots from 2021, 73 showed presence or dominance of *Molinia*, which is comparable to the 76 out of 90 DSH plots in 2020. This amounts to 83% of all 180 plots.



Where ground is damper, though not truly wet, the impact of heather beetle (*Lochmaea suturalis*) is widely apparent on heather, with substantial areas of up to 1 hectare completely dead from an outbreak. This was observed, for example, on the wet heath of the north-facing slopes of eastern Laudale and western Carnach where a large area of heather has been completely lost. Generally heather struggles to recover in areas impacted by beetle outbreaks, perhaps because the nitrifying effects of beetles and their larvae promote grassier species (ie *Molinia*) to out-complete the young heather plants. Other pests and pathogens are also likely to be playing a part in heather loss and is an area which badly needs more research as well as a greater importance placed on habitat impacts, rather than assuming large herbivores are to responsible for heather losses.

The focus of the methodology on heather for browsing impacts is actively unhelpful where heather is sparse in the landscape. In much of the group area the high impacts recorded on the plots merely reflects the relative scarcity of heather, rather than a genuine measure of overall off-take. Other observations therefore acquire greater importance in coming to a conclusion about the ability of the habitat to support its deer population, not least of which is the condition of the deer in the late spring and early summer and the observation of mortality. Tracking, dunging and other indicators of traffic by deer are logged in the comments for each plot and apply to a wider area than just the plot itself.

Bracken continues to be a problem, occupying far more ground than is ideal that is then lost for more productive purposes. The increasing extent of bracken is not clearly tied in with any specific causal factors, though climate and changes in grazing regime are the most likely. Bracken always occupies good ground, with non-peaty soils that would originally have supported woodland. Management to control it is challenging and onerous; chemical spraying is undesirable and often fails to deliver the desired outcomes, swiping or cutting is extremely onerous on difficult terrain and the use of cattle tends to have patchy results. Overplanting with native woodland is probably the most beneficial way of making this ground more productive from and environmental point of view, or with commercial conifers for economic benefit.

Plot results

The results from the plots are essentially divided into browsing impacts and trampling impacts. Browsing impacts are considered to be low where less than 33% of last year's heather shoots have been browsed, medium where between 33 and 66% of last year's heather shoots have been browsed and high where it is above 66%. Trampling impacts are assessed on damage to the *Sphagnum* layer, where present and the amount of bare ground with hoof prints.

One of the plots from the NE sub-group had no live heather in it, in spite of every effort to find some in the vicinity of the plot location. All the heather in the location was dead, presumably from heather beetle. It therefore could not return a measure of browsing.

| Sub- | Browsing | | | | | | | Trampling | | | | | |
|---------|----------|-----|--------|-----|------|-----|-----|-----------|--------|-----|------|----|--|
| group | Low | | Medium | | High | | Low | | Medium | | High | | |
| | No. | % | No. | % | No. | % | No. | % | | | No. | % | |
| NW | 16 | 53% | 10 | 33% | 4 | 13% | 27 | 90% | 3 | 10% | 0 | 0% | |
| NE | 17 | 57% | 10 | 33% | 2 | 7% | 25 | 83% | 5 | 17% | 0 | 0% | |
| SE | 14 | 47% | 10 | 33% | 6 | 20% | 28 | 93% | 1 | 3% | 1 | 1% | |
| Overall | 47 | 52% | 30 | 34% | 12 | 13% | 80 | 89% | 9 | 10% | 1 | 1% | |

Table 1: browsing impacts on BB in 2021; percentages relate to the data in the row, not column. One plot in the NE sub-group returned no browsing outcome, which is only captured in overall pie-chart in figure 1.



Figure 1: BB browsing results across all sub-groups as a pie-chart.



Figure 2: BB browsing results by sub-group as a pie-chart.









There is less difference in the browsing results for BB in 2021 between sub-groups that there was in the DSH plots from 2020. The SE sub-group has the highest number of high plots and the lowest number of low plots, but it is also the sub-



group with possibly the highest numbers, or concentration, of livestock. The absence of appropriate habitat in the NE corner of the NE sub-group may have impacted on the relatively better performance in 2021 than 2020.

The trampling results are all, or nearly all, in the low or medium categories, with only 1 plot returning a high impact. The sensitivity used in interpreting the results has included hoofprints in *Sphagnum*, rather than just the presence of hoofprints in bare ground that is used in the unrevised version of the WDBP BB methodology. It reflects the likely revisions to the methodology and its interpretation, that is currently still in draft form.



Map 1: Browsing in BB, NE sub-group 2021.



Map 2: Browsing in BB, NW sub-group 2021.





Map 3: Browsing in BB, SE sub-group 2021.



Map 4: Trampling in BB, NE sub-group 2021.





Map 5: Trampling in BB, NW sub-group 2021.



Map 6: Trampling in BB, SE sub-group 2021.





Map 7: Browsing in DSH 2020 and BB 2021, whole area.



Map 8: Trampling in DSH 2020 and BB 2021, whole area.





Map 9: Heather Beetle recorded in plots for 2020 and 2021.



The above maps show the distribution of browsing and trampling impacts on BB in 2021, and the combined plots for both DSH in 2020 and BB in 2021 across the whole area covered by the survey.

Data on heather beetle impacts were carefully collected in 2021 but noted in some plots in 2020 as well. This is shown in map 9.

Discussion

In terms of browsing impacts, in spite of the relative scarcity of heather in the area covered, 52% are low and 33% are medium, leaving only 15% in the high category. Trampling impacts are all or almost all in the low or medium categories, with only 1 plot out of 90 returning a high impact. The BB method still relies on heather to evaluate browsing but it is a habitat that is less used by deer for forage. This is likely to reflect the relative mineral status of plants growing on shallow soils relative to the same plants over deep peat.

There is not the same gradation of plot impacts from NW to SE that was seen in the 2020 DSH plots. The higher impacts are in areas where management activity (in terms of culling), value of habitat and/or availability of woodland shelter might be expected to lead to either lower or higher impacts.

The loss of heather to beetle remains a serious concern, building on the picture seen in the DSH plots from 2020. Rank heather over moderately deep peat (20-60cm, for example) seems to be worst affected, which matches it's known preferences.

Deer condition was good throughout the group area, in spite of the cold, dry spring. Almost nothing was seen in the way of mortality, with only 4 carcasses noted throughout the whole area covered. This supports the observation that the current herbivore population is more than adequately supported by the habitats on which it depends. Those habitats are more impacted by historic management and currently by beetle, than by and current herbivore impacts.

Results relative to DMG HIA targets

The DMG has stated HIA targets, as set out in Appendix 4.7 of their Management Plan. These are as follows:



Table 2: HIA targets for Morvern DMG.

| Habitat type | Targets |
|--|--|
| Designated Woodland | 80% low/medium impacts (currently 37%) |
| Designated upland sites | 80% low/medium impacts |
| Salt marsh | Generally low impacts |
| Upland open range (including non-designated sites) | DSH: 70% low/medium impacts with <30% high |
| | Blanket bog: <30% high impacts |
| Native woodland on non-designated sites | 60% low/medium impacts (currently 67% for native |
| | species and 76% for PAWS) |
| Other woodland: | |
| a. Commercial forestry | No target for established forestry |
| b. Continuous canopy forestry | 60% low/medium impacts |

Other than to comment that it will not be possible, using the Best Practice Guidance, to assess impacts on saltmarsh as no methodology has (yet) been agreed for any kind of grassy communities, at the present time we can only look at the targets against the DSH and BB habitat types.

There is now a total of 19 plots within the designated sites; 2 in the SNH-owned part of Sunart SSSI/SAC and 17 in the Beinn ladain and Beinn na h-Uamha SSSI. Of these 17 Beinn ladain and Beinn na h-Uamha SSSI plots, 6 are in the open range SAC of the same name and 1 is within the Morvern Woods SAC part of the SSSI. The plot results are shown in the table below.

| | | Low | Low/ | Medium | High | Target | Result | Target met? |
|-----------|-----|-----|--------|--------|------|---------|----------|-------------|
| | | | medium | | | | | |
| Browsing | BB | 6 | n/a | 5 | 1 | | | |
| | DSH | 5 | n/a | 3 | 0 | | | |
| | ALL | 11 | | 8 | 1 | 80% L/M | 95% L/M | Υ |
| Trampling | BB | 10 | n/a | 2 | 0 | | | |
| | DSH | 5 | 3 | n/a | 0 | | | |
| | ALL | 15 | 3 | 2 | 0 | 80% L/M | 100% L/M | Υ |

The sample size of plots on designated sites is too small for conclusions to be drawn about that area alone; the results are only statistically valid where the sample size approaches 30.

Across the whole group, the targets are set out against the HIA targets as set out in the DMG's Management Plan (Appendix 4.7).

Table 4: DSH and BB all plots for open ground habitats.

| | | Low | Low/ medium | Medium | High | Target | Result | Target met? |
|-----------|-----|-----|----------------|--------|------|-----------------|------------------|----------------|
| Browsing | BB | 47 | n/a | 30 | 12 | <30% H | 86% L/M 13% H | Y |
| | DSH | 15 | n/a | 44 | 31 | 70% L/M, <30% H | 56% L/M 44% H | Ν |
| | ALL | 62 | | 74 | 43 | <30% H | 76% L/M 24% H | Y |
| Trampling | BB | 80 | n/a | 9 | 1 | <30% H | 99% L/M 1% H | Y |
| | DSH | | 23 | | 7 | 70% L/M, <30% H | 92% L/M 8% H | Y |
| | ALL | 80 | 23 | 9 | 8 | <30% H | 96% L/M 4% H | Y |



Across all open ground habitats, the DMG's HIA targets have been met. The designated site targets have also been met.

Conclusions

180 plots across DSH and BB habitats now show a comprehensive set of browsing and trampling impacts on 3 of the 4 sub-groups for Morvern DMG. The targets for impacts have been met for the combined habitats across all plots and within the designated sites. All the indicators currently available suggest that the population of deer is sustainable for the habitats open to them. Changes in that range could affect that sustainability.

Historic impacts remain a significant factor in determining current habitat condition. The impact of heather beetle on the health of heather and its longevity needs to be considered. Any further reduction in herbivores may lead to an increase in heather beetle impacts by increasing the amount of rank heather over the damper soils.

