Appendix III

Habitat Assessment

East Sub Group Habitat Monitoring Assessment

At the June meeting in 2018 the group started to set out how it will set out results of habitat monitoring and how it will deal with the results ie how will levels of impact have an effect on deer management.
It was decided that the easiest and most effective way to show habitat monitoring results was to prepare a series of maps showing level of impact at each plot and overlaying this data on to the most recent deer density maps and designated site maps. There are now maps prepared showing the most recent data from the 2019 count and 2018 habitat monitoring. These maps will be updated annually as new data is gathered.
As the group generally are cautious about major changes in cull numbers it was decided that the best way to deal with levels of impact was as follows:

1. Low impact –Green - No change in cull required.

2. Medium impact – Yellow – No change in cull required.

3. High Impact – Red – the map showing survey plots, deer density and designated sites, and the habitat survey data for that particular plot will be looked at by the group and the person responsible for deer management at that area will try to explain why there is high impact here and what it is ie trampling and/or browsing impact. The responsible person will then decide if this is a temporary result (previous maps will be looked at if available) and if there is any need to take action. This will be taken on board by the group and culls altered if required.

It is likely that most of this correspondence will take place verbally or via email and will be discussed at the group summer meeting.

MU1 Benmore
Description to be added after 2019 summer meeting

MU2 Glencassley

Habitat Area – Glencassley Estate open hill habitat

Habitats Monitored - Blanket bog and Dwarf shrub Heath

Frequency- Every 3 years

Timing – June-August

Description

In June 2016 habitat monitoring was carried out over the two main habitat types on MU2 Glencassley Estate – Blanket bog and Dwarf shrub heath. As this is the first time habitat monitoring has taken place, a baseline has now been set to allow changes in impacts over time to be measured.

Aims

The aims of habitat assessment are to help to ensure sustainable deer management, monitor whether land use objectives are being met and public objectives are being met.

Method

Habitat monitoring was conducted in June 2016 following the methodology set out in the "Best Practice Guide to Habitat Impact Assessment". Random plots were generated by SNH for MU1 Sallachy and 60 plots were assessed in the two main habitat types – 30 plots in Blanket Bog and 30 Plots in Dwarf Shrub Heath. The plots are shown on ***(MAP to be completed)***. For each plot the location was located using a Garmin gps unit and marked with a 50x50mm wooden stake. A 2x2m quadrat divided in to 16 equal squares was placed on the ground and the bearing recorded at the stake. A digital photograph was taken at each plot. Each square was then assessed depending on habitat type and according to Best Practise Guides. The data was recorded on data sheets provided by SNH and then entered in to a workbook also provided by SNH. The workbooks produced a summary of the data collected.

Results

Blanket Bog

This habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots (6%) or pellet groups (17%) Average vegetation height was 14cm

Dwarf Shrub heath

Heather was present over 100% of squares sampled with light to moderate trampling and light browsing pressure and an average vegetation height of 14cm.

Discussion

This survey gives a baseline for future habitat assessments to be measured against. The assessment was conducted during June which is within the optimal period for assessing both habitat types. The results across all the plots in each habitat were consistent and showed light herbivore (deer) impacts across the whole management unit.

Conclusion

The results show light browsing and trampling across both Blanket bog and Dwarf shrub heath habitat, suggesting that current land management practice is environmentally sustainable.

MU3 Inchnadamph

Loch Glencoul Wood SSSI
The following report was prepared by Victor Clements, Native Woodland Advice, Aberfeldy, Perthshire

Summary

This short report sets out recommendations about the management of the Loch Glencoul SSSI site, concentrating on the woodland areas which are a designated feature.

The site owners gave initial support to whatever practical management might be required to take the site forward. There was an initial thought that such management would probably include a mixture of fenced regeneration plots and additional woodland creation to strengthen the woodland habitat network across the site.

Initial site survey work took place in March 2016, with more intensive regeneration monitoring taking place in early June when the leaves came out on the trees. It was considered vital to get a proper perspective on the extent of regeneration on the site. Additional follow up site visits took place in August and November 2016, and in February 2017, a number of discussions took place with regards to deer movements in the wider area. Those discussions have yet to conclude properly.

This site is going to be extremely difficult. The woodland remnants are fragmented, many trees may be beyond the age of seeding, and the density of seed sources are a particular issue. Except for one area, the terrain and threat of falling boulders would preclude the possibility of fencing. Although the ground conditions across much of the site is well suited to regeneration, the distribution of regeneration is actually very poor, and addressing this will be a major issue to deal with going forwards.

Meaningful regeneration of the woods could only take place by targeted deer control, but the area is underlain by limestone and other base rich rocks, is very fertile and attractive to deer, and this is likely to be very difficult, even without the issues of having a very fragmented seed source, and little in the way of current advance regeneration.

Finally, the SSSI boundary is only two kilometres from the Ardvar SSSI site, with the actual woodland areas being approx four kilometres apart. One site cannot be addressed without reference to the other. A plan which incorporates the needs of both sites must be devised. Some suggestions about how that might be done are given here, but some further development work needs to be done on this yet.

Loch Glencoul SSSI is one of a very small number of genuinely difficult sites in Scotland, even when, in this case, a willingness to address the issues exists.

SITE SURVEY

The site was visited on two occasions in March and June 2016, with the initial visit confirming that a subsequent visit would be required to properly document what advance regeneration

might be on the site.

The woodland blocks have been broken up in to 6 X "compartments" for the purposes of this plan, and these areas are now described here below.

Cpt 1 2.9 ha

Cpt 1 lies on the north side of Loch Glencoul, and is a long, narrow strip of woodland stretching across a contour on a very steep slope. The woodland area is comprised mostly of birch. It was not visited during survey work, but could easily be viewed across the water. Accessing the site itself would have been difficult, given the slopes involved. It appears that 10-15% of the length of the cpt has regenerated with birch in the last ten years or so, possibly as a result of landslips making this area less accessible to deer. Fencing off any of the area of this cpt would be practically impossible, although Reay Forest Estate have suggested in their Deer Management Plan that they would be looking at doing this.

Cpt 2 11.1 ha

This area was actually not surveyed during visits because its location made it difficult to access and potentially dangerous to navigate. It appears that ground conditions would be suitable for regeneration to take place, and that a scattered seed source is present across much of the area. A fencing scheme would not be appropriate in this area. The area is likely to respond favourably to targeted deer control, if that could be achieved.

Cpt 3 0.7 ha

Cpt 3 is a long narrow strip of mixed woodland growing along an inaccessible ridge. There is a good age and species mix within the actual strip, but the ground both above and below the woodland is dominated by a very green and fertile grassland sward, attractive to deer, and therefore, no regeneration is present. Regular rock falls on to the lower ground would prevent any woodland enclosure being created below the woodland strip. This otherwise could have been contemplated. It would not be possible to fence the woodland itself, nor would any obvious advantage arise from that. Extension of this area could only be achieved by targeted deer control, which would certainly be beneficial to the very rich ground flora in that area.

Cpt 4 3.3 ha

Cpt 4 is split in to two areas; Cpt 4a contains approx 30-40 mature to over- mature birch trees. While there is little regeneration in and around these trees, the ground vegetation suggests that good regeneration possibilities do exist. Cpt 4b lies at a slightly higher level, and comprises of a greater range of species in inaccessible rocks. The age profile of many of these trees is much younger. These 2 X cpts are at the heart of an area of c 20 ha which might well regenerate well had the seed source been more significant. The ground vegetation and ground disturbance by deer tracking have created conditions where regeneration should be possible, although that is not actually the case.

Cpt 5 2.5 ha

These two areas are mostly comprised of birch and cpt 5a in particular is the only area on the whole site where any significant density of regeneration exists, within the boundary of the wood

itself. The regeneration monitoring suggests densities of up to 4000 stems per ha within the limited boundaries of the wood, with less around the perimeter, and less within the extensive bracken area which takes up about a third of the area of Cpt 5a.

It would be possible to fence these 2 X areas and achieve rapid advancement of the existing advance regeneration, but it is suggested later that these two areas are incorporated in a larger woodland creation enclosure, perhaps up to 19 ha or so.

Cpt 6 0.9 ha

Finally, cpt 6 is a birch dominated woodland area that lies outwith the SSSI boundary, but it is likely that it will provide a seed source for a heather dominated ridge within the boundary of the SSSI, and it therefore is strategically important.

REGENERATION MONITORING

The March visited clarified that a series of fenced woodland exclosures were not going to be possible at Loch Glencoul, and thoughts then turned to what outcome might possibly be achieved in the short to medium term via targeted deer control. The impression was formed in March that there might be a considerable level of birch regeneration across the site. Certainly, ground conditions were such that this was thought very likely.

The main purpose of the June visit was to set out regeneration transects in the extensive area above and below cpts 4 a & b, and around cpts 5a & b. In addition, opportunity was taken to monitor the heather ridge to the east of Cpt 6, just inside the boundary of the SSSI.

72 transects were measured across the area, using a 30 metre tape. For each transect, an area two metres wide was examined on either side of the tape, giving an area of 120 sq metres for each transect. The transects were completed over 3 X days. Unfortunately, on the second day, the GPS unit was lost and the positional data with it. It was decided to continue the survey work, and mark approx positions of the transects only. This was possible from the previous day as the transects were arranged along contours, with the end transects noted in a notebook along with the nos of trees present. So, on the map provided, ALL of the positions are approx locations only.

REGENERATION MONITORING RESULTS

The trees located on the 72 X transects are noted in the attached Excel spreadsheet. No trees greater than 45 cms were located, although the regeneration within Cpt 5a may be sufficiently dense to push away now in the next few years, being above the height of the heather there now. For almost all of the rest of the site, the trees present were located below the height of the ground vegetation only.

Although the average tree density was 310 per ha, this was very heavily influenced by Cpts 48-51, with the average over the rest of the site being approx half of this (168 trees per ha). Even then, distribution of trees was very patchy, with 29 transects showing no trees at all, and many of the transects only picking up a small number of rowan seedlings.

Some willow regeneration was noted at one transect only.

Excluding transects 48-51, the average density of birch seedlings across the site was only 66 per ha. This is very low indeed. Particularly noteworthy was the scarcity of young 1 & 2 year old

seedlings, and the apparent lack of regeneration close to the mature trees in Cpt 4a. The only significant birch regeneration around cpts 4a & b was within a very limited area of boulder field, where browsed birch regeneration could be found in small but dense pockets close to individual nearby trees. The boulder field seemed to be creating inaccessible niches for them to germinate and develop, but they were not getting above the level of the heather.

In the lower parts of the site, regeneration levels were very low as well. Targeted deer control on the site would therefore be unlikely to create a good outcome in the immediate future. There simply is not a critical mass of regeneration over a sufficient area to withstand the browsing that would inevitably occur on such a fertile site, even at lower densities.

DEER

It was apparent from both visits that this is a very attractive area for deer. It would appear to be more of a summering area than a wintering area, with very extensive evidence of fresh deer droppings in June, and evidence of recent tracking across the site.

Much of the ground vegetation is very palatable and diverse. The area is quiet, with no sheep grazing, and it must indeed be an attractive place for deer. Similar conditions exist over the wider area. It is not clear whether this area is a little hotspot or not, but targeted deer control here, sufficient to achieve tree regeneration, is likely to have implications over a much wider area.

That includes the SSSI/ SAC area at Ardvar, which is only a few kilometres away.

During the latter period of looking at Loch Glencoul, efforts were also being made to take forwards a deer management plan for Ardvar SSSI/ SAC. Analysis of deer count data there, along with discussions with a variety of interested parties strongly suggest that the Assynt peninsula deer herd is not self contained, and that there must be a considerable movement of deer from neighbouring ground, including this area at Loch Glencoul.

Up to that point, there seemed to be a reluctance to accept this. There seemed to be a concerted effort to isolate the more controversial site at Ardvar, and to downplay any connections with neighbouring ground.

The West Sutherland DMG now accept that there is a connection, and have undertaken to try and map more accurate boundaries for an Assynt Peninsula deer population model area.

FENCING

The main purpose of the November 2016 visit was to see if a much larger strategic deer fence could be installed, taking in a much wider area of several hundred hectares.

It was concluded that this was not possible or desirable on a number of fronts:

- Such a fenceline was not physically possible and it could not be closed properly on the northern side. Stretches of any such fence would be prone to falling boulders, and cost would be extremely high over remote and almost impossible ground.
- Fenceline would be too visible in the local landscape, which is within a National Scenic Area.

- The ground flora within the SSSI is an important part of the overall rationale for designation. Removing all grazing from a base rich ground vegetation is likely to lead to rapid deterioration. Reduction of herbivore pressure would be more preferable than complete removal.
- The vast majority of any large enclosure would be dominated by blanket bog, with almost no scope whatsoever for strategic woodland creation to bolster the overall habitat network in the area. Without this being possible, it is hard to justify such a fence, even if it were possible.

ANALYSIS

Addressing this site will be extremely difficult:

1 The native woodland remnants are extremely fragmented, and a proportion of the trees may well be beyond the point of being able to seed. This site is towards the end of the spectrum where practical restoration efforts will have to be very involved and extensive, among the most difficult sites in the country.
2 Except for the area around Cpts 5a & b, it will not be possible to fence any of the site
3 That would suggest that targeted deer control is required, but in an area where fertility is very high, and where deer will almost certainly find the vegetation very attractive
4 There is very little advance regeneration at present, not enough to tackle a deer control programme with any prospect of success at present
5 The site is only a few kms from Ardvar, and would have to take in to account what is going on there.

Set against this, ground conditions/ vegetation exists across much of the site which might allow for regeneration to take place.

RECOMMENDATIONS

Regenerating the site

The likelihood is that this site will need to be regenerated by targeted deer control. Any strategy for doing this will have to take in to account the above difficulties, namely the relative attractiveness of the area, and the scarcity of effective seed sources. Certainly, the existing resource of seedlings is very poor.

Deer control for this site will almost certainly overlap with and impact upon what is being suggested for the nearby site at Ardvar. If both sites were at a similar state of development, then progressing both on a similar timescale would be appropriate and recommended. However, the Ardvar complex of woods is very extensive when compared to Loch Glencoul, and there have been a number of pulses of regeneration there over several decades. There is extensive current regeneration which has yet to be properly secured, but which could potentially be secured within a ten year window or so.

At Loch Glencoul, no such pulse of regeneration exists, and efforts would first need to be expended to try and generate this.

In addition, and this point is very important; achieving an appropriate level of deer control around Loch Glencoul would require encouraging deer to winter (or summer) in other areas

within the DMG area. The woods at Ardvar are one obvious place which deer might find more attractive, but that would cause issues in the short term.

It is suggested therefore that targeted deer control is not contemplated at Loch Glencoul within the next 10 year period, with that period being used to prioritize regeneration within the woods at Ardvar, achieving as much as possible there within that timeframe.

After ten years, it suggested that deer culling at Ardvar is relaxed, and the focus for culling switched to Loch Glencoul. At present, the order of magnitude required there is not known, but efforts are likely to more effective if some deer at least have the options to go elsewhere.

The next 10 years at Loch Glencoul

This woodland is already fragmented with a high proportion of older trees, and not doing anything to address this over ten years can only make the situation worse.

The most obvious action to take in the short term is to try and secure the regeneration taking place in cpts 5a & b. This could be achieved relatively easily by simply fencing the two blocks separately, and allowing the existing birch regeneration to come away. However, it would be more beneficial to incorporate these 2 X areas in to a larger area of woodland creation, extending up to 19 ha or so. This would require approx 2400 metres of deer fencing. It is suggested that c 60% of the area within the proposed enclosure is plantable, with some areas dominated by peat, or too rocky to plant. There is c 0.3 ha of bracken within cpt 5a in which birch regeneration is present, but this area could also take some enrichment planting to diversify tree species present on the site.

Such an enclosure, incorporating both woodland creation and natural regeneration of existing trees can easily be incorporated under the Forestry Grant Scheme (FGS).

For future deer control to be effective at Loch Glencoul, additional scarification requires to be undertaken, but it must also be recognized that the current seed source is fragmented and unable to cover the potential area that might regenerate.

The area is already being partially scarified through the pressure of deer, which suggests that using some cattle to further scarify the site would work well. The order of magnitude would be 15-20 animals for the summer months, over 2-3 years. As woodland grazing, this activity could also be supported via the FGS.

If widespread scarification could be achieved, it is still unlikely that sufficient seed can be generated on site to take advantage of this.

During survey work, the thought occurred to me that perhaps drone technology could be used to scatter birch seed across the site. There are 3 X obvious zones within the area, the boundaries of which are reasonably well defined, and each could be co-ordinated from a central location.

While this may sound a little far fetched, the native woodland remnant here is very badly degraded and has been allowed to deteriorate for too long, and therefore, all possible means of seeding the site need to be considered.

MU4 Duchally/Invercassley
Detail to be added after 2019 summer meeting.

MU5- Sallachy

Habitat Area – Grudie Peatlands SSSI, Strath an Loin SSSI and wider habitat

Habitats Monitored - Blanket bog and Dwarf shrub Heath

Frequency- Annually

Timing – June-August

Description

In 2015 habitat monitoring was carried out over the two main habitat types on MU5 Sallachy Estate – Blanket bog and Dwarf shrub heath. As this is the first time habitat monitoring has taken place, a baseline has now been set to allow changes in impacts over time to be measured. SNH were consulted before monitoring began to make sure that there would be no negative impacts on qualifying features of protected areas (Grudie Peatlands SSSI and Strath and Loin SSSI) and also to make sure that plots were random and the methodology was suitable.

Aims

The aims of habitat assessment are to help to ensure sustainable deer management, monitor whether land use objectives are being met and public objectives are being met.

Method

Habitat monitoring was conducted in July and August 2015 following the methodology set out in the "Best Practice Guide to Habitat Impact Assessment". Random plots were generated by SNH for Sallachy Estate and 82 plots were assessed in the two main habitat types – 52 plots in Blanket Bog and 30 Plots in Dwarf Shrub Heath.

Blanket Bog

This habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots or pellet groups. Average vegetation height was 16cm.

Dwarf shrub heath

Heather was present over 93% of squares sampled with very light trampling and browsing pressure and an average vegetation height of 15cm.

Discussion

This survey gives a baseline for future habitat assessments to be measured against. The assessment was conducted during July and August which are the in the optimal period for both habitat types. The spring and early summer were cold and wet this year and so in future habitat monitoring may start in June. The results across all the plots in each habitat were consistent and showed light herbivore (deer) impacts across the whole management unit.

Conclusion

The results show light browsing and trampling across both Blanket bog and Dwarf shrub heath habitat, suggesting that current land management practice is environmentally sustainable.

2016 Results

Habitat monitoring was conducted in August 2016 following the methodology set out in the "Best Practice Guide to Habitat Impact Assessment". Random plots were generated by SNH for Sallachy Estate and 70 plots were assessed in the two main habitat types – 40 plots in Blanket Bog and 30 Plots in Dwarf Shrub Heath.

Blanket Bog

This habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots or pellet groups. Average vegetation height was 16cm.

Dwarf Shrub heath

Heather was present over 94% of squares sampled with very light trampling and browsing pressure and an average vegetation height of 15cm.

Conclusion

The results show light browsing and trampling across both Blanket bog and Dwarf shrub heath habitat, suggesting that current land management practice is environmentally sustainable.

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Habitat monitoring was conducted in August 2017 following the methodology set out in the "Best Practice Guide to Habitat Impact Assessment". Random plots were generated by SNH for Sallachy Estate and 70 plots were assessed in the two main habitat types – 40 plots in Blanket Bog and 30 Plots in Dwarf Shrub Heath.

Blanket Bog

This habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots or pellet groups. Average vegetation height was 14cm.

Dwarf Shrub heath

Heather was present over 93% of squares sampled with very light trampling and browsing pressure and an average vegetation height of 16cm.

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Blanket Bog

This habitat had light browsing pressure, light crossed leaved heath browsing pressure and very little signs of slots or pellet groups. Average vegetation height was 16cm.

Dwarf Shrub heath

Heather was present over 95% of squares sampled with very light trampling and browsing pressure and an average vegetation height of 16cm.

Discussion

This survey continues the assessment against the 2015 baseline. The assessment was conducted during July and August which is in the optimal period for both habitat types. The results across all the plots in each habitat were consistent with the previous three years results and showed light herbivore (deer) impacts across the whole land parcel.

Corriekinloch New Native Woodland Survey 2018

Corriekinloch Native Woodland Survey 2018

Inspection Summary

Inspection of all compartments undertaken by Iain Thomson between 03/082018 and 23/08/2018.

Objectives:

1. Obtain an overview of tree condition and beat up requirement
2. Inspect progress in natural regeneration areas.

Method

Beat-up assessment method – walkover of line transects at approximately 200m spacing recording findings at 150-200 intervals along each transect. The adjacent planting positions method of beat-up assessment was undertaken – counting the number of dead and missing trees among 20 adjacent plant locations.

Information regarding tree condition, tree height and level of browsing intensity was recorded along with notes on other site features.

Areas inspected were predominately the 1600 and 820 stocking density zones.

In addition a series of 1/100th smaple plots were laid down to check mound density and associated beat up requirement. All density zones were sampled.

Regeneration Area Assessment Method

General walkover of riparian zone recording all site observations.

Results

Beat-up

Compartment1 Overall Beat up results by Planting Zone				
Original stems per Ha	Area (Ha)	Total Stems	Beat-up %	BU Number reqd
820	12.3	10086	14	1400
1600	18.73	29968	26	7800
2800	0	0	0	0
Totals				9200

Trees in Compartment 1 are generally progressing well, all species achieving heights of 70-200cmm, with natural regeneration among the ancient woodland and riparian areas quite abundant. Herbivore impact is negligible although there is some fraying and browsing damage due to temporary red deer incursion in the past year. All 5 deer have now been culled.

Compartment2 Overall Beat up results by Planting Zone				
Original stems per Ha	Area (Ha)	Total Stems	Beat-up %	BU Number reqd
820	1.64	1344	28	400
1600	25.95	41500	19	7900
2800	14.84	41500	15	6250
Totals				14550

Trees in Compartment 2 are progressing satisfactorily where they have become established although beat up will be required in the few areas where the planting has failed (mainly due to exposure). Tree heights are in the range of 70-250cm. There is no evidence of any herbivore impact. Localised regeneration is fairly abundant in the riparian zones.

Compartment3 Overall Beat up results by Planting Zone				
Original stems per Ha	Area (Ha)	Total Stems	Beat-up %	BU Number reqd
820	63.02	51676	30	15500
1600	97.06	155296	20	31000
2800	84.66	237048	20	47400
Totals				93900

In compartment 3 Scots pine and alder have grown best achieving heights of 150-250cm. Exposure has affected many of the stems and resulted in flagging/one sidedness of the pine especially. The birch and other species are doing less well. Crown dieback and death of some isolated trees was evident among the established birch and some of the other species likely as a result of a combination of site factors – exposure, waterlogging and perhaps some damage due to the drought conditions in spring 2018. There is browsing damage evident on this site. There were three incidents in the past 7 years where red deer were able to access the site – one due to a gate being left open and the other two due to water gates being damaged by floods. Due to the remoteness and lack of access to this site it was some time before these incursions were noticed and several weeks afterwards before the issue was resolved. There is also a resident sika population within this compartment that are proving very difficult to control mainly due to the factors described above and the terrain and size of the compartment (500 ha fenced area). Therefore there is both historic and current browsing damage on this site.

There is widespread regeneration along the Creanich Burn at low density of around 100-300 stems /Ha. This primarily rowan but also some birch and grey willow.