

East Ross Deer Management Group Habitat Impact Assessment report 2019

Introduction

East Ross DMG commissioned Mountain Environment Services to carry out a whole-DMG wide survey of habitat impacts using the Wild Deer Best Practice methodology in 2019, as part of their responsibilities for the delivery of the public interest as determined by Scottish Natural Heritage (SNH).

It was agreed with SNH that the number of plots delivered would be 60 each of dwarf-shrub heath (DSH) and blanket bog (BB).

Methodology

The methodology used is clearly set out on the Wild Deer Best Practice website (<https://www.bestpracticeguides.org.uk/>). It has been due for revision but currently remains unchanged from that which was published several years ago. The current (early 2019) version has been used, which means that some of the more detailed information may be missing. However, the more detailed information required by both methodologies has been anticipated and extra data on bare ground and other impacts, like fire, have been collected and is available for further interrogation through the spreadsheet provided.

The fieldwork was started on 1 April 2019 and completed on 19 April 2019. Several days were lost due to bad weather but were easily replaced. Most of the plots were surveyed by Cathy Mayne, some accompanied by Megan Rowland (learning more about the methodology), with a total of 31 surveyed by Alison McLure, an occasional surveyor well-trained in the methodology. 4 plots were surveyed together by Cathy Mayne and Alison McLure, to ensure that variation between surveyors was minimised.

Plot distribution was based on the random data points provided by SNH, but some revision was necessary and plots originally placed in the Amat ownership (not an active participant in the group) had to be redistributed elsewhere. Hence the loss of plots DSH 1-3 and BB 5-9, which were replaced by DSH 61, 71 and 72 and BB 61-3 and 71-4. A total of 60 DSH plots and 62 BB plots were therefore installed.

Each plot was marked with a 450mm survey post, hammered into the ground such that the top was level with, or just below, the top of the vegetation canopy; each plot was recorded with a GPS 10-figure grid reference. For each plot the first photograph showed the plot number and GPS for reference, then a photograph of the plot itself was taken, along with 4 relocation photographs taken looking north, west, south and east in succession. This should allow the plot to be relocated in the event of poor GPS signal or the loss of the survey post. The photographs have all be renamed with the plot number and type.

A 2m x 2m plot was used, sub-divided into 16 50cm x 50cm quadrats, with the survey post in the bottom right hand corner. The plot is orientated to the 4 cardinal compass points and points north.

The data was captured on paper (complete survey forms provided) and transferred to computer later the same day, or shortly thereafter. Most of the plots were input to the computer by the surveyor.

The plot results were mapped using the QGIS software.

Results

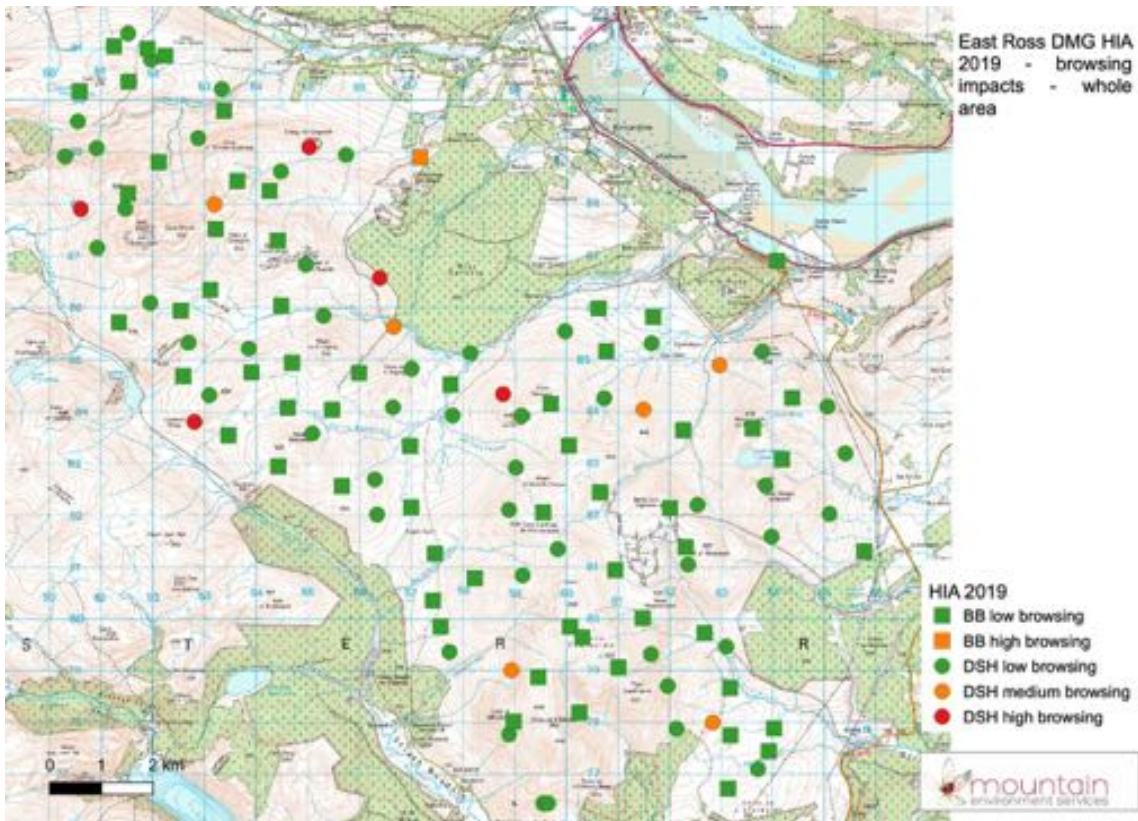
The outcomes for both browsing of heather and trampling within the plot are summarised in the table below:

Table 1: browsing and trampling data, East Ross DMG, HIA 2019.

Habitat type	Impact type	Impact level	Number	Percentage
BB; n = 62	Browsing	High	1	1.6%
		Medium	0	0%
		Low	61	98.4%
	Trampling	High	6	9.7%
		Medium	1	1.6%
		Low	55	88.7%
DSH; n = 60	Browsing	High	5	8.3%
		Medium	6	10.0%
		Low	49	81.7%
	Trampling	High	18	30.0%
		Low/Medium	42	70.0%

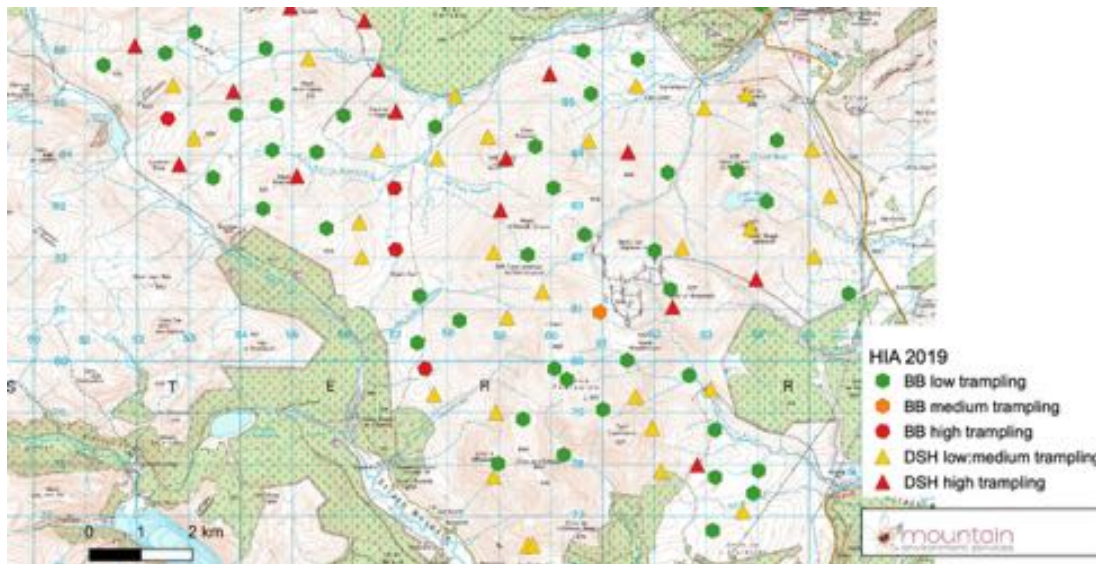
Maps for the distribution of plot results are given below, with more detailed maps provided at the end of the report:

Map 1: browsing impacts for whole DMG area.



Map 2: trampling impacts for whole DMG area.





Relevant information about other herbivores was collected, but it was only occasionally that this was necessary. Some sheep are present on Gruinards, red grouse are present throughout the area and a rogue sheep was spotted on Strathrusdale. Other herbivores noted were sika deer and a couple of times (though rarely) evidence of mountain hares.

One rare species of plant was noted – dwarf birch (*Betula nana*) – which was found at 2 locations, NH5264286008 (3 plants) and NH5963081506 (1 plant extending to over 10m, close to windfarm track). These records have been passed to the Vice-County Recorder for the Botanical Society of the British Isles.

Heather beetle impacts were observed throughout, but particularly in the central section on Gledfield and Dounie. Heather beetle was observed as present in a number of plots during survey work. Where burning has been used as a management tool, the resultant heath habitats appear to be healthy. Small-scale burning appears to be beneficial in the places where it was observed.

Peat hags were observed in a number of places but generally these were considered to be a product of climatic or hydrological changes and did not appear to be suffering from significant herbivore impacts at the present time. However, a few locations showed significant drying with observable impacts from the very dry summer of 2018 still apparent (crusts and cracking, even in currently active pools). On Mid Fearn close to the quarry, at BB plot 61, an area of extreme drying was seen with total loss of sphagnum cover. This particular site had no apparent reason for the drying and downslope the bog became wetter, with sphagnum present, suggesting that this may be a climatically-driven change.

Discussion

The data show relatively low levels of impacts throughout the group area. Heather habitats are generally healthy and the capacity of the heath vegetation to recover is apparently very good.

Unusually, trampling impacts were higher than browsing impacts, though this could reflect the great abundance of heather throughout which is used to assess browsing. The greater the abundance of heather, the lower the overall browsing impact for a given number of deer – and also, quite likely, the higher the overall trampling impact as the habitat shows trampling more readily than does a habitat like, for example, grassland. Relatively high abundance of *Cladonia* species recorded in many plots does, however, suggest that trampling impacts are generally sustainable.

However, there would appear to be other factors at work here, in particular the large plantation at Gledfield, which is open to deer and probably contains a large population of both sika and red deer. Very high impacts in the vicinity of the edge of the plantation, on the northwest side, suggest a pattern of behaviour relating to winter activity – coming out of the forest to browse on the periphery – and another one relating more to summer activity –

forest to browse on the periphery – and another one relating more to summer activity – moving downhill to feed in the grassy parks nearer the road. This is repeated to a more limited extent on the top (southwest) edge of the plantation, with high browsing near the forest edge probably exacerbated by the feeding stations along the ATV track. On higher knolls and tops above the forest, high trampling impacts not necessarily associated with high browsing impacts show where deer head to during the hotter summer months.

The generally higher trampling impacts suggest that deer are not feeding predominantly on heather during the winter, at least not those deer that are resident in the plantation during the winter months. They may be coming out to get some browse, but the majority will be coming from within the plantation. It is likely that patterns of behaviour have changed to reflect the more mobile nature of deer which are sharing their time between the open hill and a large forest; other similar situations have shown that matriarchal groups of hinds and calves will rotate use of the same patch of open ground, rather than occupying one patch of ground the whole time. Stags will limit their movement and conserve energy as much as possible but hind groups will travel much more than is the norm with open hill range deer.

In summer, heather is much less attractive than other, greener plants so will only be taken where it is very short and has a high proportion of leaf (typically in its pioneer stage). The trampling damage on Gledfield and also to a certain extent on other properties in the group indicates that there is considerable movement of deer between shelter and forage in the lower areas/plantations and the tops, probably mostly in summer to avoid flies. Effectively per head of population, these forest/open hill deer have a much higher trampling impact than those normally resident on the open hill with no large-scale woodland to use.

Another area where trampling is a potential issue is around and between muirburn patches. This was particularly apparent on Gruinards, where some of the heather has achieved very substantial heights and rotational muirburn is a normal management technique. Where heather is above about 15cm evidence of browse is very low while where it is rank, browse is completely absent. Instead, these areas are used for shelter, while the recently burned areas are those used for forage. Here impacts can be very high, with the vast majority of heather shoots browsed. However, this seems to last only a few years (estimated to be about 4-5 years) before the heather reaches a certain height (10-15cm) and attention is turned elsewhere. Between the muirburn patches significant wear lines become established, but since the attention of the deer on any one patch is limited to a very few years, these are abandoned and revegetate quickly rather than becoming well-established.

The pattern of impacts around the muirburn patches is sufficiently short in duration that there seems to be no adverse long-term impact, either on the ground through the development of tracks, or on the heather itself, which remains vigorous and grows to significant height, as already described. Clearly herbivore interest in heather moves away before the point at which the plants can be seriously damaged and their health undermined.

However, the impacts observed in the central section of the group, suggest that there is likely to be some long-term deterioration in habitat quality and therefore sustainability. Wherever peat has become bare and devoid of vegetation, there is a very real risk of total loss due to erosion. Once the vegetation mat has been broken, it is readily stripped away and water is then capable of removing much of the underlying soil or peat. The substrate beneath the surface soil/peat is much less capable to sustaining vegetation cover and the habitat becomes permanently impoverished.

The capacity of the plantation to hold and support a large number of deer is probably leading to unsustainable impacts on the open ground habitats in the central part of the group. The results of this are likely to be felt throughout all the properties within the group.

Of even greater concern are the changes that will be needed when the forest is harvested.

Given that this forest has been open to deer for 10 years or so, by the time harvesting and restocking takes place there will be no deer left with any memory of how to survive on the open hill without access to woodland shelter. From a deer welfare point of view, at the time of harvesting and restocking of this large plantation, all the deer using the central part of the group area would need to be culled. with considerable impacts on Gledfield's deer numbers

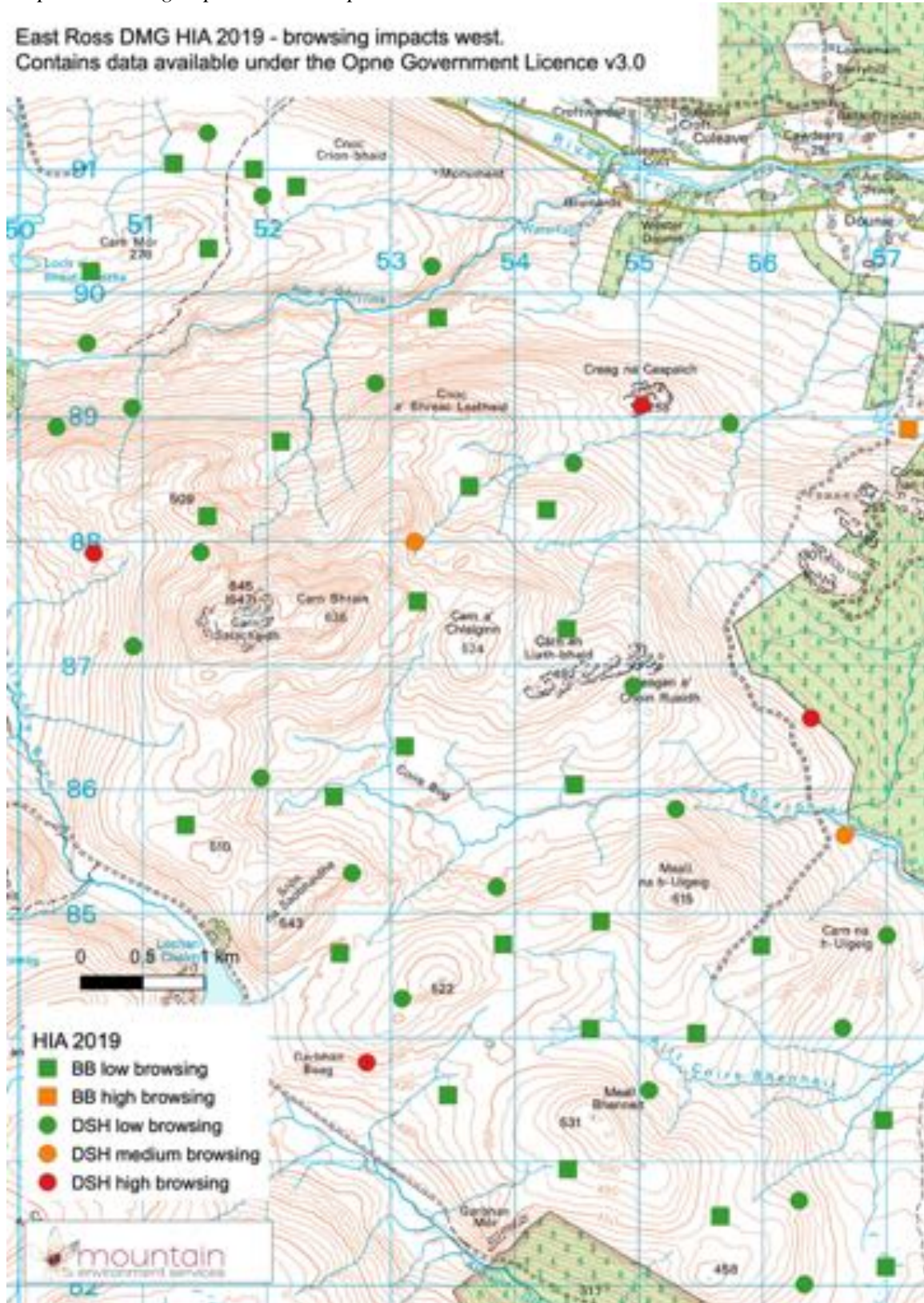
group area needs need to be taken, with consideration impacts on Gledfield's deer habitats and its neighbours.

Conclusions

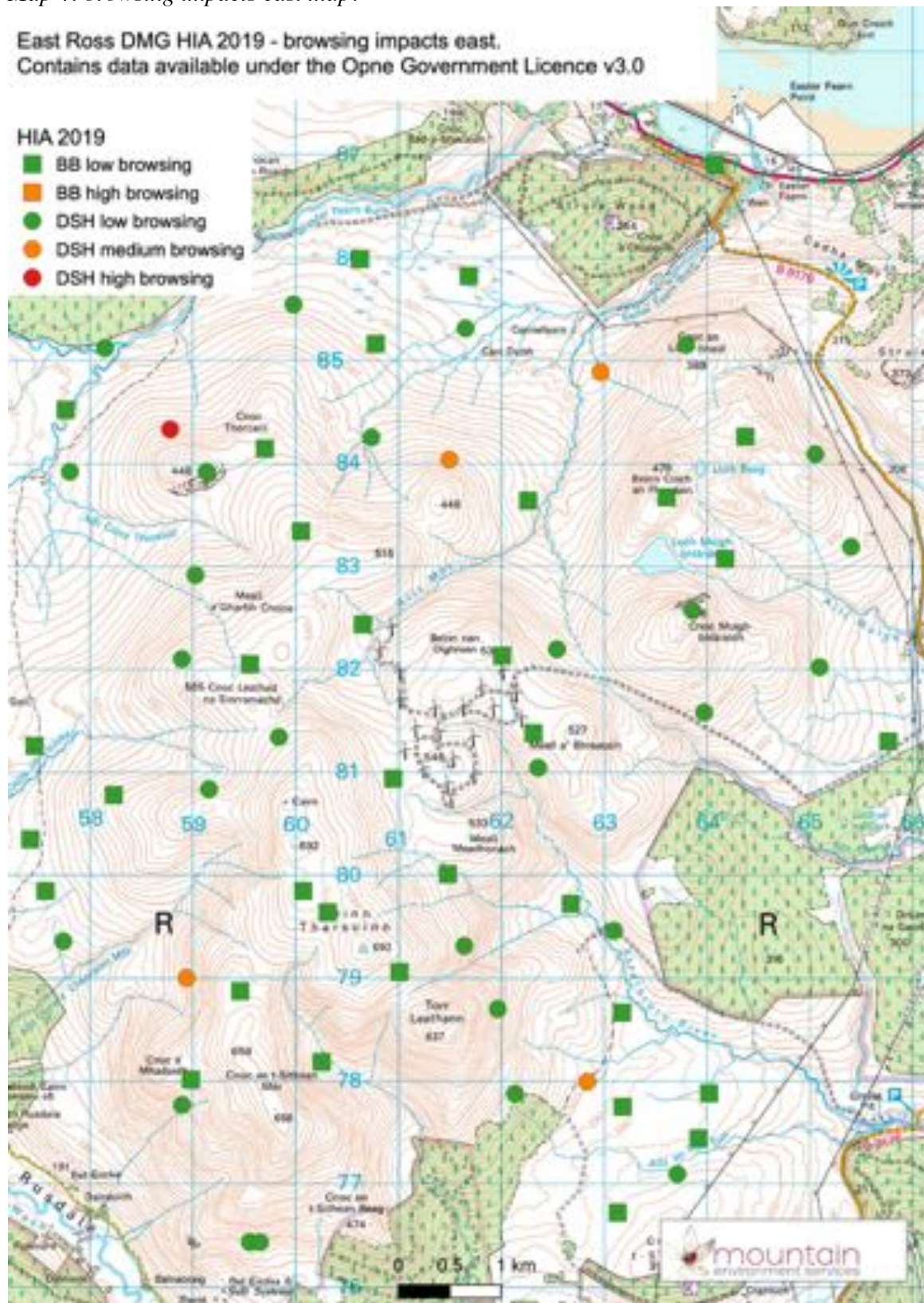
Apart from the habitats in the immediate vicinity to the west and north of the plantation on Gledfield, the level of herbivore impacts is clearly sustainable. Heather beetle impacts are not insignificant within the group area. Where muirburn has been carried out, in small patches, the resultant effects are clearly beneficial for deer and for the wider environment.

Concern exists for the future of these habitats and the population of deer occupying the plantation, which is likely to be larger than anticipated. How this will be managed once the timber is ready for harvesting may be a considerable challenge for the group members.

Map 3: browsing impacts, west map.

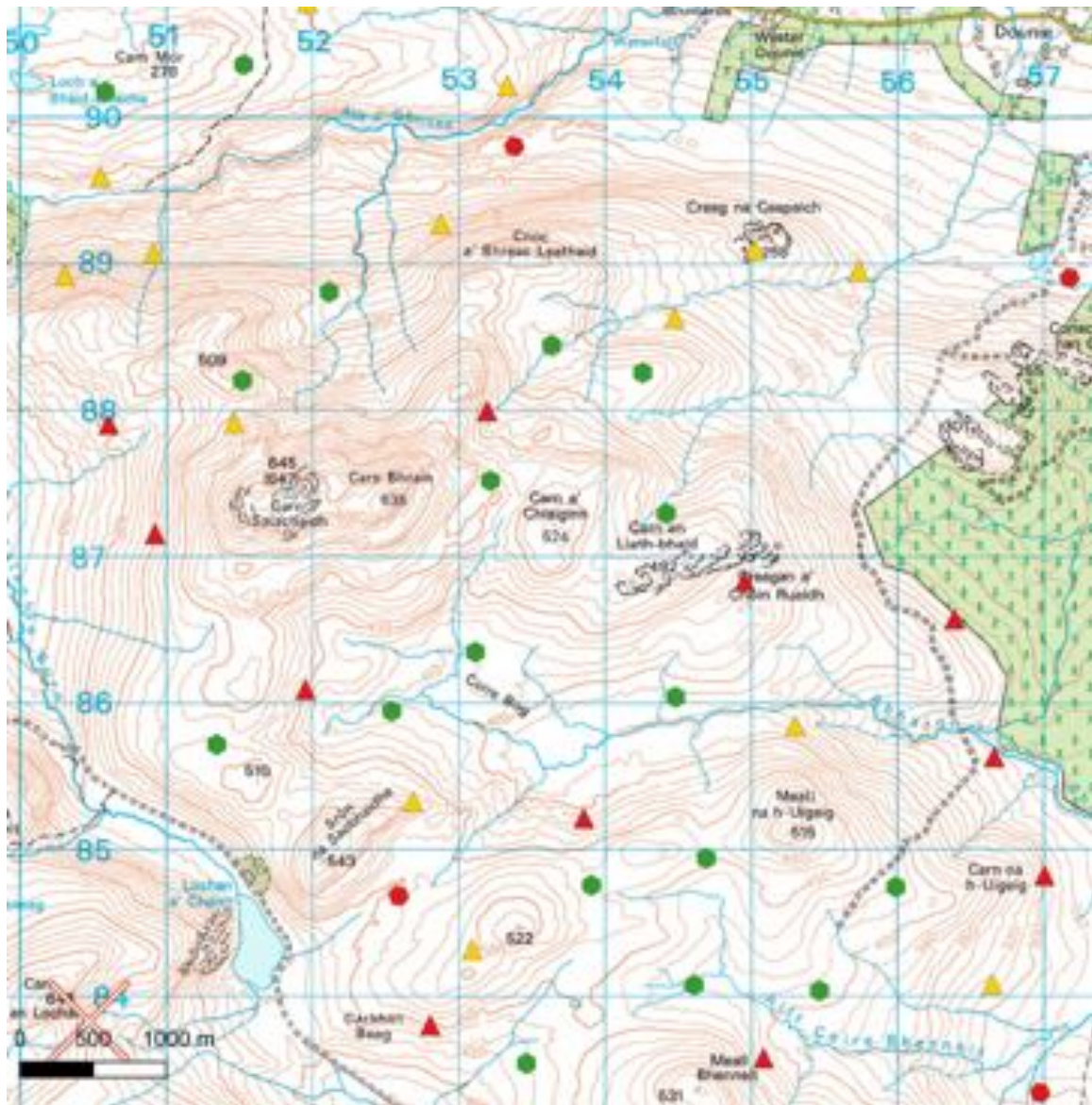


Map 4: browsing impacts east map.



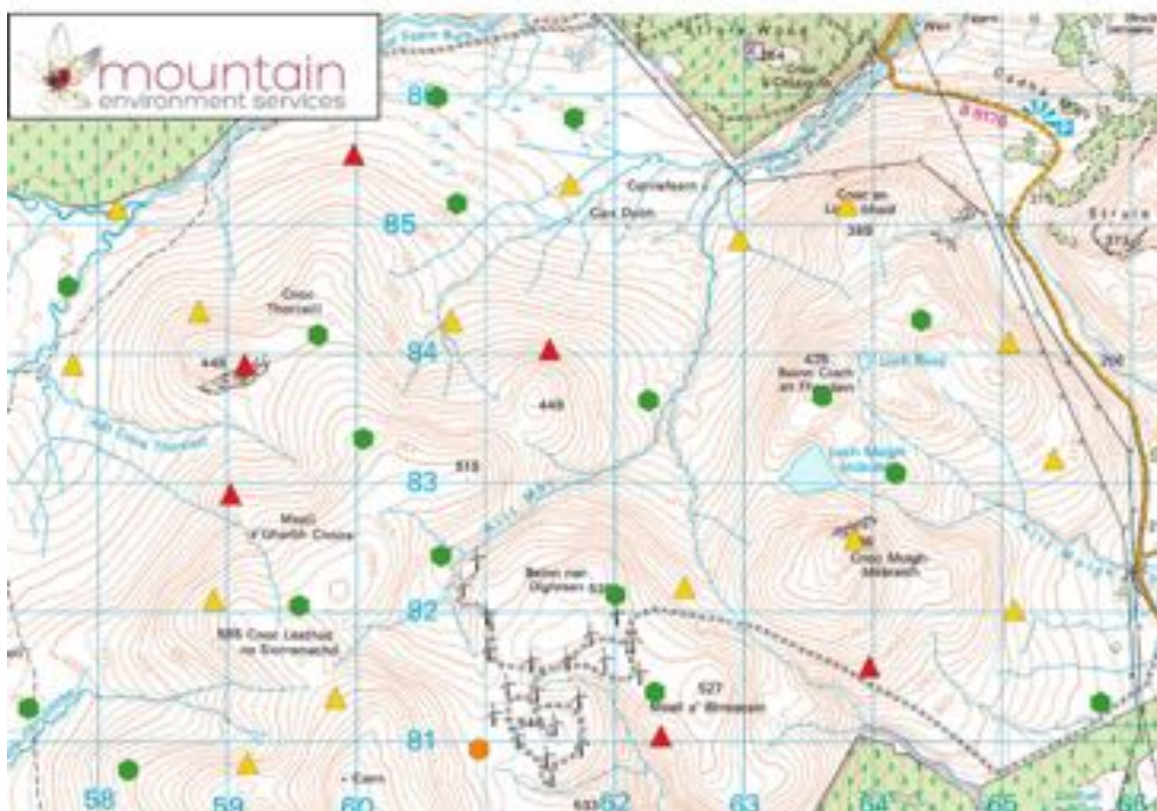
Map 5: trampling impacts west map.

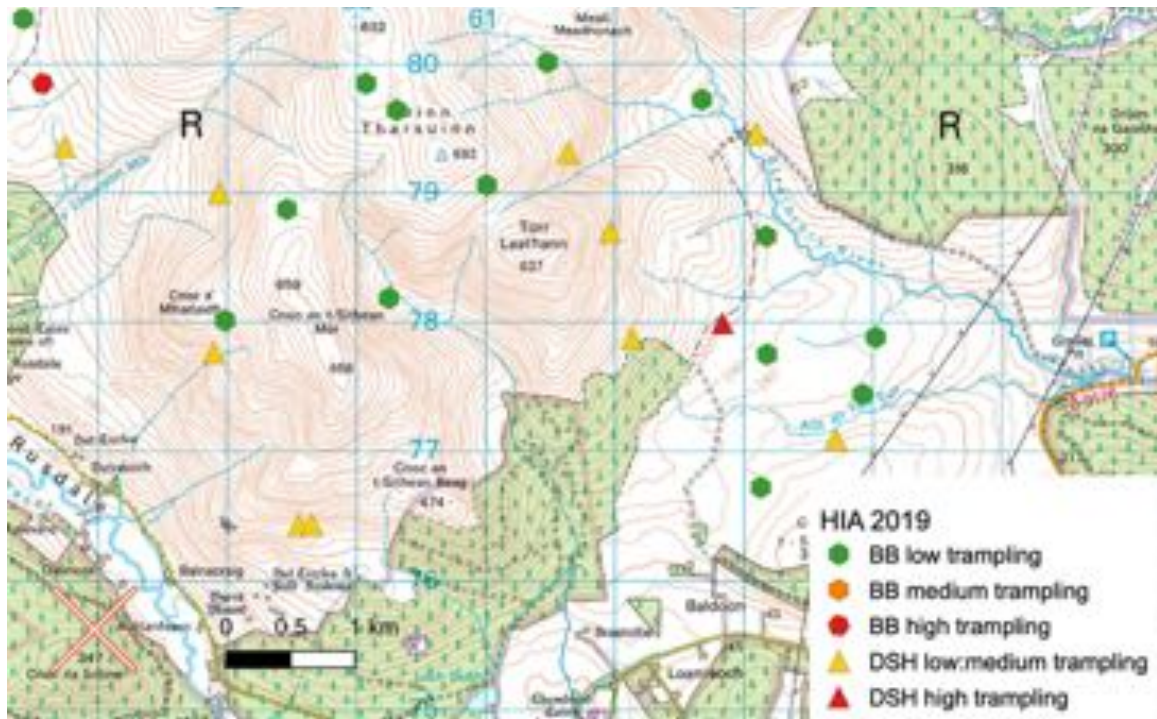




Map 6: trampling impacts east map.

East Ross DMG HIA 2019 - trampling impacts east
 Contains data available through the government Open License v3.0





1 Burnside, Spean Bridge PH34 4EE;
07789007625



www.mountainenvironmentservices.com
cathy@mountainenvironmentservices.com