Brief Summary Report on the Progress of the Habitat Survey in the Lochalsh DMG

Overview:

Abbreviations and general information

BB: Blanket Bog

DSH: Dwarf Shrub Heath

Subplot: This term was used to refer to any one of the 16 sections of a plot.

Data from the plots in Inverinate, Benula & Killilan was transferred into the same Excelfile for this analysis. As some of the plot numbers are identical, they were slightly changed for identification reasons. “I”, “I/B” and “I/K” respectively were added in front of the numbers. For example, a plot from Killilan with the number 3 would have been named I/K3 in the Excelfile.

To calculate the average of the percentages in the table for the Total DMG, the averages of the estates were used and then weighed according to the number of relevant plots.

Specific comments

In a few cases the boxes were not ticked in the manner suggested by the Excel file – for example none or both "Yes" and "No" options for a subplot. Grid references were also missing from some of the files – although for a basic analysis, these are not needed. Most important is that the plot numbers stay the same in the future. If an illustration on a map (e.g. different browsing pressures over the area) should be required, then the coordinates / grid references would be necessary.

More issues also arose due to the relatively fixed nature of the Excel-file provided. Amongst others, these were the following:

1) If, in one subplot of a site, no heather or cowberry (BB) / blaeberry (DSH) was present, vegetation height can of course not be measured. This is presumably the reason for the missing vegetation height measurements in some subplots. ("Presumably", because only the details on the Attadale estate are known explicitly to me.) The calculation of the average vegetation height per plot seems to work nonetheless.
2) In a related issue however, in order for the file to calculate average browsing pressure per plot (BB & DSH), for each of the 5 detailed subplots a tick needs to be put in one of the boxes denoting the percentage of browsed heather or cowberry shoots. This does or course not make much sense in subplots where there are none of these plants. In those cases, to get an assessment of the average browsing pressure for the whole plot, one of the boxes was ticked anyway. Where it was known to me, or where I could infer it, I added an appropriate remark in the "Comments" field below. This was especially necessary since sometimes the box that is chosen makes a difference in the average browsing pressure of the plot.
3) If – in DSH - all 5 of the subplots where more details are needed (or perhaps all 16, this is not quite clear to me) do not have any heather, another problem is created. Then, no matter what boxes of the browsing assessment are chosen, the assessment of the *average for the whole plot* results in an error message. If this was the case, a possible suggestion for the next year might be to slightly move these respective plots (and appropriately comment this in the comments field at the bottom of the sheet). This could be considered especially relevant in the very few cases were none of the subplots had any heather/cowberry/blaeberry, as the habitat type does not seem to be quite ideal for the survey sheet used. Another option might be to ask Sinclair/SNH how to proceed there?
4) The Summary Sheets are helpful because they show the average results of each plot on one sheet. However, the calculations at the bottom, the site summary data, are not correct. This is because the Excel sheets that are not needed cannot be deleted and are (incorrectly) included in those calculations by the Excel file. The percentages in the summary report have therefore been calculated by hand.

Perhaps one final remark: From the perspective of monitoring of the development of Blanket Bog and Dwarf Shrub Heath in the future, it is helpful to have data sheets that are completely filled out. (Which was indeed mostly the case!) In sites where there is a special case concerning one of the aspects to be assessed - when e.g. a subplot does not have any heather/cowberry/blaeberry but vegetation height, etc. is required – "N/A" (not applicable) could be entered in the "Vegetation height" field and e.g. a clarifying remark could be made in the comment field. By doing these things, the task of entering the data into the Excel files and creating a summary for the DMG becomes easier, as there are less exceptions and unclear issues to be explained and dealt with. Especially if the summary and the habitat survey are not done by the same people. (The percentages are a bit cumbersome to calculate if some of the answers are missing.)

Table 1: Main data for both habitat types

Estate	Habitat	Sites	% Heather or Bog Moss Present, respectively	% Shoots Browsed	Average Vegetation Height
Achnash. (South)	DSH	4/4	99%	Light: 3 sites (75%) Moderate: 1 (25%)	11cm (average from 2 plots) Missing values: plot 5 Unsure if read correctly: plot 9 (average 152 cm, much higher than others)
Achnash. (South)	BB	5/5	98%	Light: 4 sites (80%) Moderate: 1 (20%)	12 cm
Arineckaig	DSH	2/2	100%	Light: 2 sites (100%)	14 cm
Arineckaig	BB	7/7	88.8% (average from 5 plots) Some missing values from 2 plots: 3 & 6 (plots excluded in calculation of average.)	Light: 3 sites (43%) Moderate: 4 (57%)	10 cm (No info for 1 subplot in plot 6 – N/A?)
Attadale	DSH	16/16	97.75%	Light: 9 sites (56%) Moderate: 5 (31%) Heavy: 2 (13%)	18 cm
Attadale	BB	16/16	100%	Light: 9 sites (56%) Moderate: 5 (31%) Heavy: 2 (13%)	17 cm
Inverinate	DSH	19/23	69.5% (average of 18 plots) No info from 1 plot: I/B 10 (Excel wrongly presumes value to be 0% for this plot, this was corrected in re-calculation) *1	Light: 7 sites (37%) Moderate: 9 (47%) Heavy: 1 (5%) Undefined: 2 (11%) *2	19 cm
Inverinate	BB	14/16	100%	13 sites light (93%) 1 moderate (7%)	16 cm
TOTAL DMG		**DSH: 41/45** **BB: 42/44**	(490+444+1600+1400)/40 **BB: 98%, some missing info** (396+200+1564+1320.5)/40 = **DSH: 87%, some missing info**	**BB light: 29 (69%)** **BB moderate: 11 (26%)** **BB heavy: 2 (5%)** **DSH light: 21 (51%)** **DSH moderate: 15 (37%)** **DSH heavy: 3 (7%)** **DSH undefined: 2**	(60+70+272+224)/42 = **BB: 15 cm** (22+28+288+361)/39 = **DSH: 18 cm, some missing info**

***1**: There are two further plots with “no heather” in all subplots. They were both included in the calculation. See also the section “Specific Comments”. Probably this also leads to the error message for the respective plots in the “% shoots browsed” column.

***2**: See also previous column and *1. Probably wrongly (?) considered as undefined/error by Excel because none of the subplots had any heather. As the vegetation height and browsing pressure can be measured by blaeberry instead – which was presumably the case in these plots? – these values would have falsely been considered an error by Excel. As I am not sure how the average browsing pressure per plot is calculated out of the light/medium/heavy assessments for all subplots, I have not assigned any average value to them. They therefore remain “undefined” in this table.

Table 2: Additional data for the habitat type "Dwarf Shrub Heath"

Estate	Sites	Other Herbivores	Signs of Burning	Trampling	Deer Dung	Hare Dung
Achnash. (South)	4/4	No: 4 (100%)	No: 4 (100%)	Light/Mod: 4 (100%)	No: 3 (75%) Undefined: 1 (plot 9)	No: 1 (25%) Undefined: 3 (plots 4, 5, 9)
Arineckaig	2/2	No: 2 (100%)	No: 2 (100%)	Light/Mod: 2 (100%)	No: 2 (100%)	No: 2 (100%)
Attadale	16/16	No: 16 (100%)	No: 16 (100%)	Light/Mod: 8 (50%) Heavy: 8 (50%)	Yes: 12 (75%) No: 4 (25%)	No: 16 (100%)
Inverinate	19/23	Yes: 2 (11%) No: 17 (89%)	No: 19 (100%)	Light/Mod: 17 (89%) Heavy: 2 (11%)	Yes: 8 (42%) No: 11 (58%)	No: 19 (100%)
TOTAL DMG	**41/45**	**Yes: 2 (5%)** **No: 39 (95%)**	**No: 41 (100%)**	**Light/Mod: 31 (76%)** **Heavy: 10 (24%)**	**Yes: 20 (49%)** **No: 20 (49%)** **Undefined: 1**	**No: 38 (93%)** **Undefined: 3**

Table 3: Additional data for the habitat type "Blanket Bog"

Estate	Sites	% Bare Ground with Prints	Deer Dung	Hare Dung	Signs of Burning	Cross-Leaved Heath Browsed
Achnash. (South)	5/5	On average 0% of subplots per plot have bare ground with hoof prints (average of 2 plots). Not defined for all subplots: 3 plots	Yes: 2 (40%) No: 3 (60%)	No: 4 (80%) Undefined: 1 (plot 3)	No: 5 (100%)	Low: 3 (60%) Moderate: 2 (40%)
Arineckaig	7/7	On average 19% of subplots per plot have bare ground with hoof prints (average of 6 plots). Not defined for all subplots: plot 3	Yes: 1 (14%) No: 5 (71%) Unidentified: 1 (plot 6)	No: 6 (86%) Unidentified: 1 (plot 6)	No: 6 (86%) Unidentified: 1 (plot 6)	High: 5 (71%) Undefined: 2 (plots 2&7)
Attadale	16/16	On average 3% of subplots per plot have bare ground with hoof prints.	Yes: 10 (62.5%) No: 6 (37.5%)	No: 16 (100%)	No: 16 (100%)	Low: 6 (37.5%) Moderate: 4 (25%) High: 6 (37.5%)
Inverinate	14/16	On average 34% of subplots per plot have bare ground with hoof prints. In the case of plot I12, for one subplot both boxes where ticked. If this subplot was excluded in the calculation, the rounded average still remains the same (33.5%).	Yes: 4 (29%) No: 10 (71%)	No: 14 (100%)	Yes: 1 (7%) No: 13 (93%)	Low: 4 (29%) Moderate: 10 (71%)
TOTAL DMG	**42/44**	(467+48+114+0)/38 = **On average 17% of subplots per plot have bare ground with hoof prints (average of 38 plots, data for 4 plots missing).**	**Yes: 17 (40%) No: 24 (57%) Unidentified: 1**	**No: 40 (95%) Unidentified: 2**	**Yes: 1 (2%) No: 40 (95%) Unidentified: 1**	**Low: 13 (31%) Moderate: 16 (38%) High: 11 (26%) Unidentified: 2**