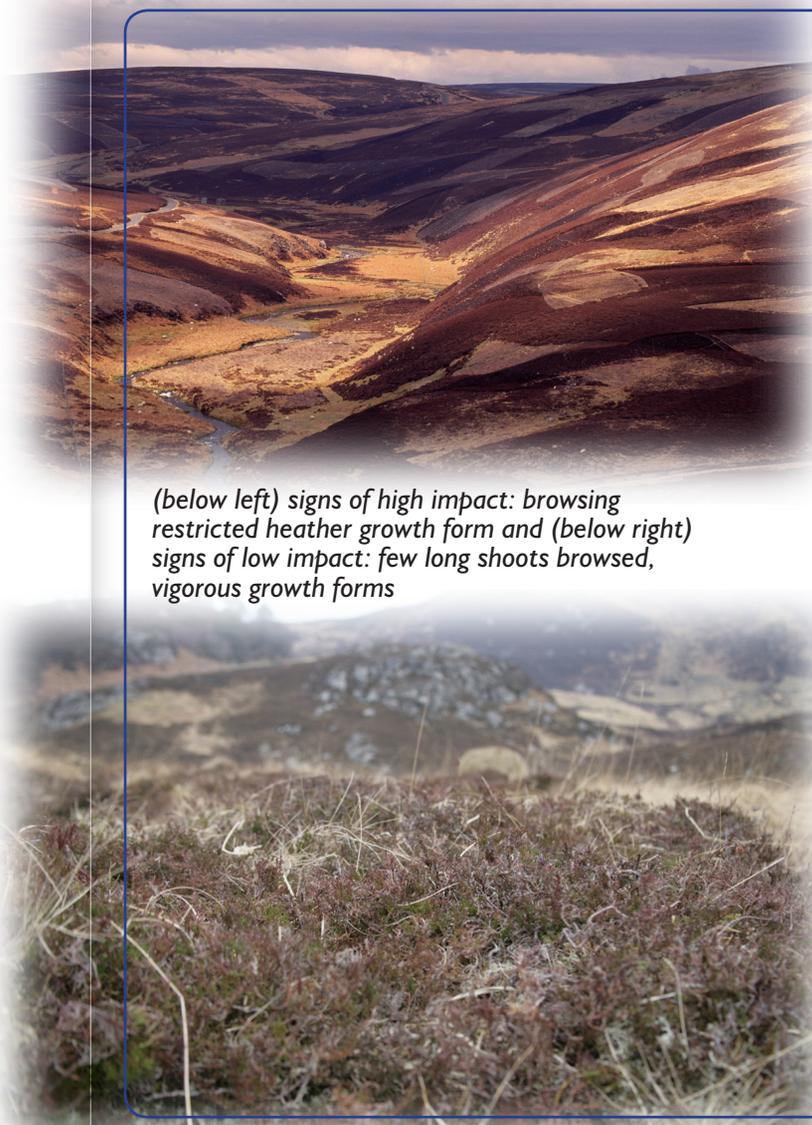




DWARF SHRUB HEATH



(below left) signs of high impact: browsing restricted heather growth form and (below right) signs of low impact: few long shoots browsed, vigorous growth forms

Aim

The aim of this guide is to describe methods of assessing Dwarf Shrub Heath relevant to deer managers.*

Habitat description

Heather moorland or dwarf shrub heath is made up of a mix of 'dwarf shrubs' (heathers, blaeberry, cowberry and so on) with some grasses (such as purple moor-grass and deer grass – see species list overleaf). The exact mix depends on the soil type and amount of rainfall on the area, as well as the history of burning and browsing. Heather moorland has two types: 'dry heath' mainly in the east with 'wet heath' (with more cross-leaved heath) more frequent in the west.



Key indicators

The main impacts that deer have on dwarf shrub heath are browsing and trampling.¹ Browsing is measured by looking at the percentage of 'long shoots' of heather browsed (see illustration overleaf). This indicates the 'off-take'. If unpalatable species such as cross-leaved heath show signs of

browsing this indicates heavy impact likely to cause a deterioration in habitat condition.

Other impacts

The following factors may also have an impact on heather moorland:

- ◆ Burning (which affects age structure²);
- ◆ Heather beetle or magpie moth;
- ◆ Other herbivores – sheep, hares, rabbits.

Bell heather
Shrub. Height to 60cm. Leaves 5-7mm

Cross-leaved heath
Dwarf shrub. Height to 60cm. Leaves 2-4mm

Ling heather
Evergreen shrub. Height to 60cm (rarely to 1m). Leaves 1-2mm

Purple moor-grass
Wiry perennial often forming tussocks. Height 15-150cm. Long narrow purple spikelets 4-9mm

Blaeberry
Deciduous shrub. Height up to 60cm. Leaves 1-3cm

Deer grass
Densely tufted perennial. Height 5-35cm. Spikelet 3-6mm

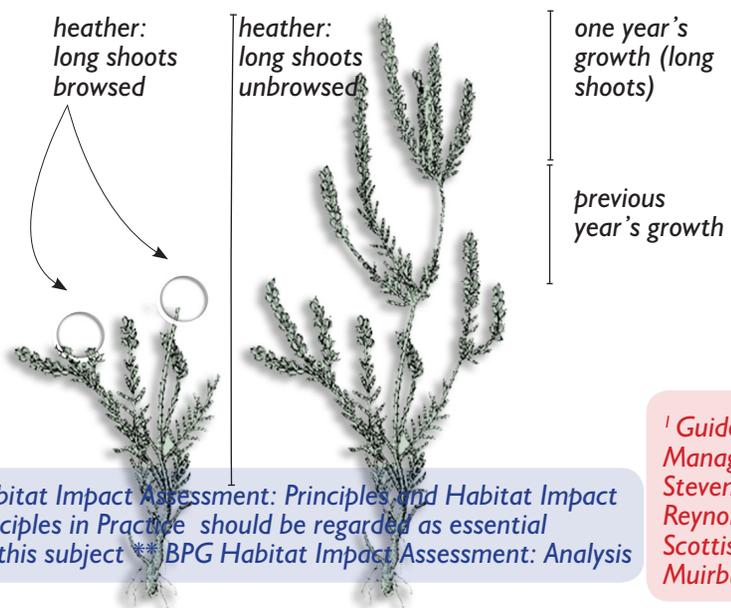




measuring vegetation height in selected quadrats. For information on the number and size of plots and what time of year to measure, see BPG Habitat Impact Assessment: Principles in Practice

Impacts: Dwarf Shrub Heath

What to measure	How to analyse
<p>For browsing look at three or four handfuls of ling heather within each of quadrats 1, 4, 10, 13 and 16 as shown in the diagram in BPG Habitat Impact Assessment: Principles in Practice. If ling not present then use blaeberry. Look at the browsing on the long shoots and classify as:</p> <ul style="list-style-type: none"> • LIGHT: less than 33% of long shoots in the sample browsed; • MODERATE: 33 – 66% long shoots browsed; • HEAVY: greater than 66% long shoots browsed. 	<p>For each plot, summarise the frequency** of quadrats in each class (for example: 3/5 quadrats LIGHT; 2/5 quadrats MODERATE; 0/5 quadrats HEAVY browsing.</p> <p>In this example, the plot would be described as having LIGHT browsing as this was the class with the highest frequency.</p> <p>For each site, summarise the frequency of plots in each class (for example, in a site with 30 plots: 25/30 plots LIGHT; 3/30 plots MODERATE; 2/30 plots HEAVY browsing.</p>
<p>For trampling, if plots are > 50 m away from a supplementary feeding site, assess the amount of heather stem breakage as a result of trampling and assign as classes for the whole plot:</p> <ul style="list-style-type: none"> • LIGHT / MODERATE: inconspicuous; • HEAVY: conspicuous. 	<p>For each site, summarise the frequency of plots in each class (for example, in a site with 30 plots, 14/30 plots LIGHT/MODERATE, 16/30 plots HEAVY heather stem breakage.</p>
<p>For heather distribution, record presence or absence of heather (or blaeberry) within each of the 16 quadrats.</p>	<p>For each plot, summarise the frequency of quadrats with presence or absence of heather (or blaeberry) (for example: 5/16 quadrats, heather PRESENT; 11/16 quadrats, heather ABSENT).</p> <p>For each site, summarise the frequency of quadrats with heather (or blaeberry) present or absent (for example, in a site with 10 plots (a total of 10 x 16 quadrats): 60/160 quadrats, heather PRESENT; 100/160 quadrats, heather ABSENT).</p>
<p>For vegetation height take three or four measurements with a tape measure within each of quadrats 1, 4, 10, 13 and 16.</p>	<p>For each plot average the height of the vegetation.</p> <p>Average the vegetation height for all plots.</p>
<p>Record presence of deer and/or hare dung in each plot.</p>	<p>For each site, summarise the frequency of quadrats with deer dung present or absent. For example, in a site with 10 plots: 80/160 quadrats deer dung PRESENT; 80/160 quadrats, deer dung ABSENT. Repeat exercise for hare dung.</p>
<p>Take digital photo of whole plot from fixed point.</p>	<p>Will enable detection of changes in heather distribution over time.</p>



- Dwarf Shrub Heath species:**
- Ling heather/ *Calluna vulgaris*
 - Cross-leaved heath/ *Erica tetralix*
 - Bearberry/ *Arctostaphylos uva-ursi*
 - Blaeberry/ *Vaccinium myrtillus*
 - Cowberry/ *Vaccinium vitis-idaea*
 - Crowberry/ *Empetrum nigrum*
 - Purple moor-grass/ *Molinia caerulea*
 - Deer grass/ *Tricophorum cespitosum*
 - Bell heather/ *Erica cinerea*

* The guides Habitat Impact Assessment: Principles and Habitat Impact Assessment: Principles in Practice should be regarded as essential introductions to this subject ** BPG Habitat Impact Assessment: Analysis

¹ Guide to Upland Habitats, Surveying Land Management Impacts. Angus Macdonald, Penny Stevens, Helen Armstrong, Philip Immirzi and P Reynolds. 384 pages, 2 volume set, 50 col photos. Scottish Natural Heritage. See BP Contacts ² See Muirburn code: www.scotland.gov.uk/Publications.