Habitat description

Native semi natural woodland includes a range of woodlands dominated by native species such as Scots pine, silver and downy birch, sessile oak and ash (see species list overleaf). Other tree species found in these woods may include aspen, rowan and juniper. Scottish woodlands are 'semi' natural because they have been subject to a range of management (felling, burning and planting) over time. More 'ancient' woodlands tend to contain richer associated lichens, mosses and characteristic flora. Where more commercial species or objectives exist (for example to establish trees to specific density or to maintain a set proportion of un-forked leaders), additional impacts may be measured.

(below left) signs of high impact: growth of rowan restricted due to browsing pressure and (below right) signs of low impact: seedling growth above that of vegetation

Key indicators

The key impacts that deer can have are browsing on seedlings, fraying on saplings and bark stripping of mature trees. In addition, browsing can affect the structure and composition of groundcover such as blaeberry. Information on the age, structure and condition of the woodland will indicate the timescale over which seedlings are needed to replace existing mature trees. A direct measure of deer browsing can be made on seedlings or saplings below deer browse height (approximately 1.3 m).

Other impacts

Herbivores other than deer browse seedlings, particularly insects, rabbits, hares and voles. Factors other than herbivores (such as soils or seed viability) may also impede regeneration.

Birch
Tree. Height to 25m. Leaves 5-7cm x 2-2.5cm

Oak
Large deciduous tree. Height to 30m. Leaves 5-12cm

Juniper
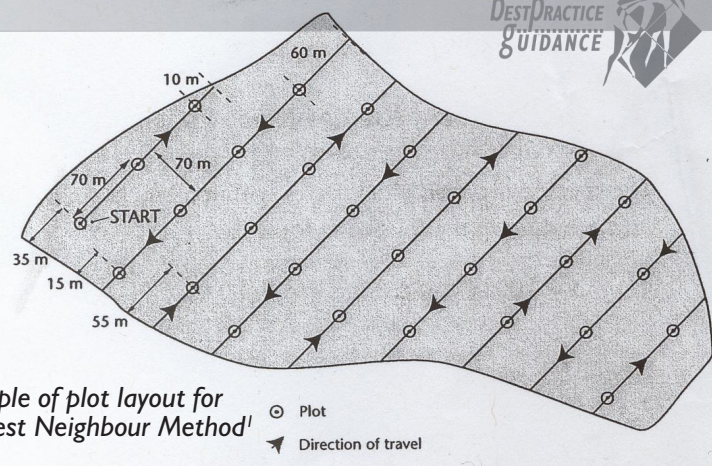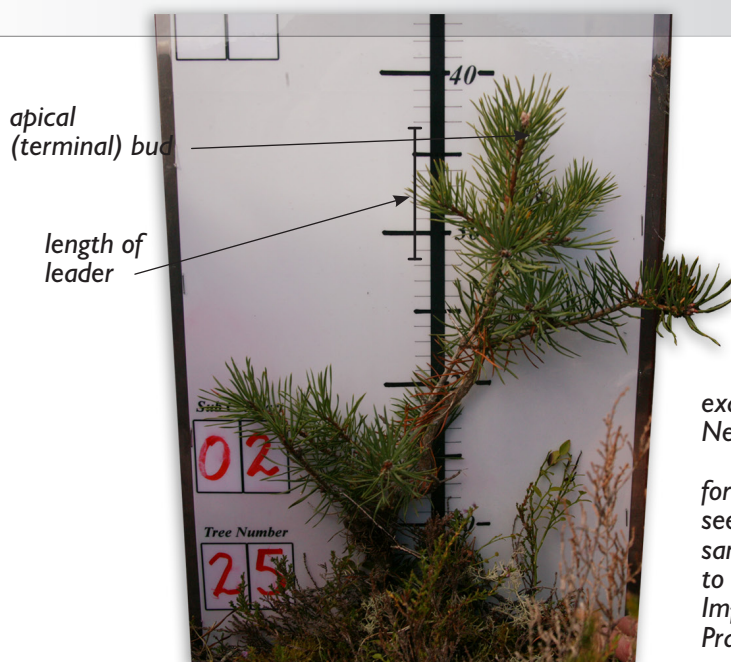*Shrub. Height: small tree to 10m. Leaves: whorls of 3, 5-19mm with spiny point*

Scots Pine
Tree. Height to 30m. Leaves 2 on each short shoot, 3-8cm x 1-2mm

Rowan
Slender tree. Height to 15m. Leaves 10-25cm

apical (terminal) bud

length of leader

example of plot layout for Nearest Neighbour Method[1]

⊙ Plot

➤ Direction of travel

for information on how many seedlings, trees and plots to sample and what time of year to measure, see BPG Habitat Impact Assessment: Principles in Practice

Method	What to measure	What to analyse
Plot based approach.	The number, size and location of plots is based on area and distribution of mature trees.[1] Plots are circular with an area of between 0.01 and 0.05 ha (i.e. using a string of 5-12 m from the central post). The centre of each plot is marked by a post and co-ordinates recorded by GPS.	Summarise the frequency of seedlings/ saplings, trees damaged by deer for each compartment.[2] Graph the age profile of all mature trees for each compartment.
	Within each plot, record: a. Number and species of all seedlings / saplings less than 1.3 m tall and or less than 7 cm diameter at breast height); b. Number and species of all trees greater than 1.3 m tall and or greater than 7 cm diameter at breast height); c. Number of seedlings / saplings with deer damage;* d. Number of trees with deer damage; e. Number of standing dead, fallen dead and tree stumps; f. 'Age class' of all mature trees.	Calculate the frequency** of leaders browsed for each species of seedling / sapling for each compartment. Calculate the frequency of other shoots browsed for each species of seedling / sapling for each compartment.
	Assess whether saplings have been frayed by deer.*	Average the number of saplings frayed per species per compartment.
	Assess whether trees have been bark stripped by deer.*	Average the number of saplings frayed per species per compartment.
Marked seedlings approach.	Mark at least one seedling / sapling within each plot OR randomly select a minimum of 30 seedlings within each compartment. Measure seedling / sapling height (straight vertical distance from ground to highest point on the seedling without lifting or stretching — see illustration above. Assess whether the leader and other shoots on each seedling are browsed by deer (based on clean cut/ragged cut).*	Average the height of seedling for each compartment. Summarise the number of seedlings/ saplings, trees and dead trees per compartment.

* BPG Woodland Damage: Recognition of Cause
** BPG Habitat Impact Assessment: Analysis

[1] Nearest Neighbour Method for Quantifying Wildlife Damage to Trees in Woodland. Forestry Commission Practice Note. See BP Contacts [2] A 'compartment' is a unit within the forest, demarcated (for administrative purposes) by permanent features e.g. roads and streams.

Woodland species:

Scots pine/ Pinus sylvestris
Juniper/ Juniperus communis
Birch/ Betula pendula
Rowan/ Sorbus aucuparia
Aspen/ Populus tremula

Oak/ Quercus robur
Hazel/ Corylus avellana
Holly/ Ilex spp.
Hawthorn/ Crataegus spp.
Bird-cherry/ Prunus padus
Willow/ Salix spp.
Ash/ Fraxinus spp.