

FOREST VEGETATION MANAGEMENT USING SHEEP – SPECIES PALATABILITY TABLES FOR SHEEP¹

COMMON NAME	SCIENTIFIC NAME	PREFERENCE ORDER	COMMENTS
FERNS			
Bracken fern	<i>Pteridium aquilinum</i>	Nil	<ul style="list-style-type: none"> • Can be a problem to horses but not recorded affecting sheep. • Will not graze unless in the early frond stage but the mature plant can be controlled by trampling.
Broad spinulose shield fern	<i>Dryopteris assimilis</i>	Nil	<ul style="list-style-type: none"> • Can trample ferns effectively without harming the conifer plantation if slowly and professionally herded.
Lady fern	<i>Athyrium filix-femina</i>	Nil	<ul style="list-style-type: none"> • Can trample ferns effectively without harming the conifer plantation if slowly and professionally herded.
Oak fern	<i>Gymnocarpium dryopteris</i>	Nil	<ul style="list-style-type: none"> • Can trample ferns effectively without harming the conifer plantation if slowly and professionally herded.
GRASS AND HERB SPECIES			
American vetch	<i>Vicia americana</i>	1 st	<ul style="list-style-type: none"> • Rarely a competitor on its own.
Bluejoint	<i>Calamagrostis canadensis</i>	1 st –3 rd	<ul style="list-style-type: none"> • Fresh stems and leaves are highly palatable. Becomes coarse and less palatable as it matures. • Withstands heavy grazing due to tenacious rhizomes. • Crude protein medium, crude fibre high during growing season.
Cow parsnip	<i>Heracleum lanatum</i>	1 st	<ul style="list-style-type: none"> • Does not withstand heavy grazing.
Fireweed	<i>Epilobium angustifolium</i>	1 st	<ul style="list-style-type: none"> • Highly palatable. Contains high protein levels (19%) before maturity. • After flowering, stalks turn woody and are not eaten. After seed-set, sheep may refuse leaves.
Forest wheatgrasses	<i>Agropyron</i> spp.	1 st	<ul style="list-style-type: none"> • Will disappear through repeated grazing. • Plants remain green and succulent late into the summer.
Hawkweed	<i>Hieracium</i> spp.	1 st	<ul style="list-style-type: none"> • Disappears quickly with repeated grazing.
Peavine	<i>Lathyrus</i> spp.	1 st	<ul style="list-style-type: none"> • High protein levels until it starts to cure. • Preferred forage plant.
Pinegrass	<i>Calamagrostis rubescens</i>	1 st	<ul style="list-style-type: none"> • Plant vigour decreases rapidly when grazed twice per season. • Protein levels and palatability decrease rapidly at maturity. A high priority for spring grazing.
Showy aster	<i>Aster conspicuus</i>	1 st	<ul style="list-style-type: none"> • Does not stand up to heavy grazing. • Rarely a competitor on its own.
Sitka valerian	<i>Valeriana sitchensis</i>	1 st	<ul style="list-style-type: none"> • Very high sheep preference. • Plant vigour is reduced with 2 years of single-pass grazing.
Western fescue	<i>Festuca occidentalis</i>	1 st	<ul style="list-style-type: none"> • Will disappear with repeated grazing.

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GRASS AND LEGUME MIXES (These are examples of low-growing species from which mixes can be prepared.)			
Birds-foot trefoil	<i>Lotus corniculatus</i>	1 st	<ul style="list-style-type: none"> The commonly used grass and legume mixes are more resistant to repeated grazing than are most shrub and herb species. Livestock grazing combined with sowing low growing forages can replace taller vegetation, such as fireweed, that restrict light to young conifers. Sheep prefer grass and legume mixes to native species, so a higher volume of overall vegetation removal occurs before the flock becomes interested in flushing conifer terminal buds and leaders.
Bluegrass	<i>Poa</i> spp.		
Colonial bentgrass	<i>Agrostis capillaris</i>		
Fescue	<i>Festuca</i> spp.		
White clover	<i>Trifolium repens</i>		

Aerial or ground seeding of grass and legume mixes

- Important to select low-growing grass and legume mixes. Seed the spring after site preparation to produce a cover to compete with the natural seeding-in of native herb, grass and shrub competitors. The usual sequence is soil disturbance or broadcast burning, spring seeding, planting, and grazing the following year.
- Trials in Oregon show that grass and legume seeding reduces sheep damage to flushing Douglas-fir terminals (broadcast burned 2 years earlier).

SHRUB SPECIES

Beaked hazelnut	<i>Corylus cornuta</i>	1 st –2 nd	<ul style="list-style-type: none"> Not always grazed in the 1st pass. Usually found at low volumes.
Bigleaf maple	<i>Acer macrophyllum</i>	1 st	<ul style="list-style-type: none"> Studies in Oregon recommend maple and other deciduous plantings be protected from sheep grazing.
Black cottonwood	<i>Populus balsamifera</i>	2 nd	<ul style="list-style-type: none"> Cottonwood cannot withstand continued grazing. Heavy mortality occurs with 2 years of grazing.
Black twinberry	<i>Lonicera involucrata</i>	2 nd –3 rd	<ul style="list-style-type: none"> Sheep will graze young shoots. Ineffective control of mature plant communities.
Blueberry	<i>Vaccinium</i> spp.	2 nd	<ul style="list-style-type: none"> Difficult to graze due to many small leaves. Rarely a major competitor with conifers on its own.
Devil's club	<i>Oplopanax horridus</i>	2 nd –nil	<ul style="list-style-type: none"> Capable of 80–90% leaf removal with patient herding. Graze leaves in May or June before spines mature and harden on the underside of the leaves.
Douglas maple	<i>Acer glabrum</i>	1 st –2 nd	<ul style="list-style-type: none"> Will be grazed in the first pass when found with less palatable species.
Paper birch	<i>Betula papyrifera</i>	2 nd	<ul style="list-style-type: none"> Sheep will also graze bog birch (<i>Betula glandulosa</i>).
Raspberry	<i>Rubus</i> spp.	2 nd –3 rd	<ul style="list-style-type: none"> Palatability declines as plants mature. Densities may be reduced with 2 years of single-pass grazing.
Red alder	<i>Alnus rubra</i>	3 rd	<ul style="list-style-type: none"> Trials in Oregon demonstrated reduction in alder with 2 years of repeated sheep grazing. Sheep attention was taken from the flushing Douglas-fir terminal leaders through grass–legume aerial seeding of sites which were broadcast burned 2 years earlier.
Red elderberry	<i>Sambucus racemosa</i>	2 nd	<ul style="list-style-type: none"> Can be completely grazed. Rarely a primary competitor. Usually occurs in isolated clumps.

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SHRUB SPECIES (CONTINUED)			
Red-osier dogwood	<i>Cornus stolonifera</i>	2nd	<ul style="list-style-type: none"> Leaves may be consumed during first passes. Usually encountered in low volumes.
Rose	<i>Rosa</i> spp.	1st	<ul style="list-style-type: none"> Rose is highly palatable. However, dense thorny stems restrict complete leaf removal.
Salal	<i>Gaultheria shallon</i>	Nil	<ul style="list-style-type: none"> Sheep cannot graze the leathery leaves or trample the thick stems.
Salmonberry	<i>Rubus spectabilis</i>	3rd	<ul style="list-style-type: none"> Can be controlled with well-managed grazing. Terminal nipping may occur.
Sitka alder	<i>Alnus viridis</i>	2nd–3rd	<ul style="list-style-type: none"> Sheep flocks must be closely managed to completely graze all alder species.
Spirea	<i>Spiraea</i> spp.	2nd	<ul style="list-style-type: none"> Readily grazed shrub staying high in protein until fall. Not often abundant on plantations.
Thimbleberry	<i>Rubus parviflorus</i>	3rd	<ul style="list-style-type: none"> Can be controlled with managed grazing. Densities may be reduced with 2 years of single-pass grazing.
Trailing black currant	<i>Ribes laxiflorum</i>	3rd	<ul style="list-style-type: none"> Leaf removal is complete with careful herding.
Trailing blackberry	<i>Rubus urinus</i>	3rd	<ul style="list-style-type: none"> Can be grazed with skillful herding techniques.
Trembling aspen	<i>Populus tremuloides</i>	1st	<ul style="list-style-type: none"> Excellent control achieved with 2 grazing/season over 2 years. Regraze very soon after leaf resprout. Palatability, protein and crude fibre levels remain high-medium throughout season. Sheep have traditionally removed aspen from cattle range as they more readily consume the leaves.
Vine maple	<i>Acer circinatum</i>	1st–2nd	<ul style="list-style-type: none"> Both interior maples will be grazed in the first pass when found with less palatable species. Rarely a plantation threat due to their low volume and infrequency.
Willow	<i>Salix</i> spp.	2nd	<ul style="list-style-type: none"> Most palatable of the brush species. More resistance to mortality than aspen under heavy grazing.
POISONOUS SPECIES			
Baneberry	<i>Actaea rubra</i>	Unknown	<ul style="list-style-type: none"> All plant parts are highly poisonous.
Bog-laurel	<i>Kalmia occidentalis</i>	Unknown	<ul style="list-style-type: none"> Grows together with and is somewhat similar in appearance to Labrador tea. Found in bogs, muskeg, wet mountain meadows and on peaty soils.
Choke cherry	<i>Prunus virginiana</i>	Unknown	<ul style="list-style-type: none"> Unpalatable leaves. Excess toxins are produced in leaves and new shoots during stress (frost, drought).
Common horsetail	<i>Equisetum arvense</i>	Unknown	<ul style="list-style-type: none"> No recorded ill effects to sheep. Has been reported as a problem in horses and cattle.

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Poisonous species continued on page 4.

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POISONOUS SPECIES (CONTINUED)			
Douglas water-hemlock	<i>Cicuta douglasii</i>	Unknown	<ul style="list-style-type: none"> Most of the poisonous oils are concentrated in tuberous roots. Starts growth before grass in the spring and stays green well into fall. Avoid early turnout without sufficient spring forage, fall grazing and overgrazing.
False azalea	<i>Menziesia ferruginea</i>	Nil	<ul style="list-style-type: none"> Mildly poisonous. Not consumed during the graze.
Indian hellebore	<i>Veratium viride</i>	3rd–nil	<ul style="list-style-type: none"> Sheep can ingest toxic concentrations. Move the flock when palatable species have been grazed to prevent consumption. Poisons are concentrated in young shoots and roots.
Labrador tea	<i>Ledum groenlandicum</i>	3rd–nil	<ul style="list-style-type: none"> Suspected as mildly toxic. Ledum is extremely unpalatable, which discourages consumption.
Lupine	<i>Lupinus</i> spp.	1st	<ul style="list-style-type: none"> Seeds and pods were once reported to cause sheep poisoning. No recurrence in 50 years. High crude protein changing to medium as seeds mature.
Mountain death-camas	<i>Zygadenus elegans</i>	Unknown	<ul style="list-style-type: none"> Bulb and leaves are poisonous to humans and sheep.
Mountain monkshood	<i>Aconitum delphinifolium</i>	Unknown	<ul style="list-style-type: none"> All plant parts are highly poisonous (contains aconitin).
Rhododendron	<i>Rhododendron</i> spp.	3rd–nil	<ul style="list-style-type: none"> Suspected of being mildly poisonous. Sheep might graze leaves when no other forage is present. Loss of muscular control results.
Seaside arrow-grass	<i>Triglochin maritimum</i>	Unknown	<ul style="list-style-type: none"> Young shoots and re-growth are the most toxic. Starts growth earlier and is green later than other species.
Snowberry	<i>Symphoricarpos albus</i>	1st	<ul style="list-style-type: none"> Readily grazed by sheep. The berries of this plant are considered toxic.
Tall larkspur	<i>Delphinium glaucum</i>	1st	<ul style="list-style-type: none"> Apparently not toxic to sheep but poisonous to cattle (contains delphinine).
Trapper's tea	<i>Ledum glandulosum</i>	3rd–nil	<ul style="list-style-type: none"> Toxic to livestock, especially sheep (contains a poisonous alkaloid).

PRECAUTIONS

- Experienced sheep tend to avoid some poisonous plants. Areas with some poisonous plants may be grazed with proper herding.
- Map and report poisonous species so that herders can take the necessary precautions.

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