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## Ground cover plants for mountain communities

(excluding grasses)

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### Quick Facts

The ideal ground cover plant should help reduce soil erosion, be dense enough to exclude weeds and attractive year-round.

When selecting a ground cover, consideration should be given to the size of the area, exposure, steepness of slope, foot traffic and soil condition.

Most ground covers require at least two years to provide serviceable cover.

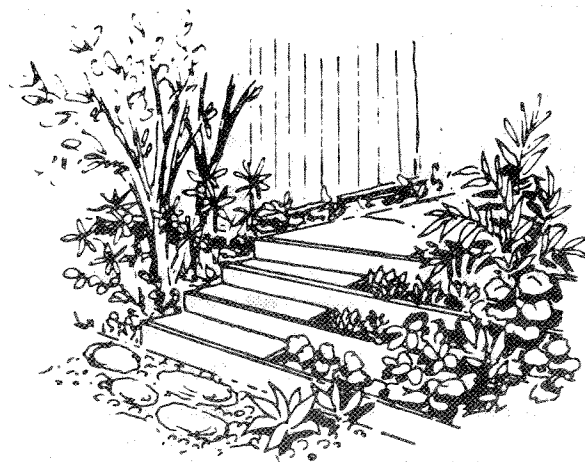
In some situations a "nurse crop" may be desirable to provide immediate soil stabilization on steep slopes; nurse crops should be selected carefully to avoid competition with permanent cover.

At high elevations, seeded ground covers can be planted in the fall or spring; rooted plants are best planted in the spring.

The ideal ground cover plant is one that will form a sufficiently dense mat of roots and foliage to reduce soil erosion, competitively exclude weeds and have an attractive, year-round appearance. For coverage of an area, a ground cover should have the capability of spreading. Species that spread by rhizomes (underground stems), stolons (like the "runners" on strawberries), offsets ("splits"), or by rooting of branches (tip-layering) generally are best suited for ground cover.

Sod-forming grasses fit most of the above requirements and have the additional benefit of withstanding considerable traffic abuse. There

are situations, however, when grasses may not be desired for certain aesthetic reasons or where mowing and other turf maintenance may not be practical.



### Considerations

No one species of ground cover plant is the solution to every landscape or soil stabilization problem. No ground cover is free of inherent faults. Before selecting a plant for ground cover, the following items should be considered:

**Size of area to be covered**—Ground covers are not limited to low, creeping types. When attempting to cover large areas, shrubs that attain a height of three or four feet (.9 to 1.2 meters) often are used.

**Exposure**—Select plants that will thrive best under site conditions of sun, shade and wind.

**Steepness of slope**—For steep grades, use species that produce dense, fibrous roots to help hold soil from surface erosion.

**Pedestrian traffic**—Few ground covers, other than grasses, will tolerate repeated foot traffic.

**Drainage and aeration**—Surface soils may appear loose and loamy, but heavy, poorly drained subsurface soil may be present. Few ground cov-

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ers thrive in poorly drained soils. A heavy clay soil, present on a steep grade, will have poor subsurface drainage and poor aeration.

**Maintenance**—Most ground covers require at least two years to establish and become sufficiently dense to control weeds. At higher altitudes most ground cover plants would take three or more years to provide serviceable cover. None can be completely neglected even after the planting is well established.

During abnormally dry periods, even established ground cover plantings will benefit from supplemental irrigation. Without additional water, the planting may tend to thin out and weed competition will be encouraged. A distinct disadvantage of most ground covers, other than grasses, is the lack of selective weed control chemicals. Maintaining the cover as a dense stand is, therefore, of utmost importance to reduce or exclude weeds.

## Soil Preparation

Ground cover plants will spread best when the soil is loose and loamy. Extremes, such as too heavy (clay soils) or too light (sandy), should be improved by adding organic matter, such as peat, compost or aged manure. Such amendments will help absorb and hold moisture and contribute to better aeration and nutrition. The organic matter should be thoroughly worked into the soil to a minimum depth of 6 inches (15 centimeters).

## Using Nurse Crops

A "nurse crop" of grasses and legumes may be needed to provide immediate soil stabilization on steep slopes. The kind of seed needed for a nurse crop will depend upon elevation, exposure, type of permanent ground cover desired and availability of supplemental water. Consult the Coop-

erative Extension office in your county or the nearest Forest Service office for assistance.

It is important to select a nurse crop carefully. If the wrong one is selected, the nurse crop may become too aggressive and compete with the permanent ground cover.

Nurse crops are best planted in early spring or late fall when natural rainfall and snows are the most likely. Avoid planting during the hotter, dry periods unless supplemental irrigation can be provided.

Soils should be prepared as suggested in the preceding section on soil preparation.

After seeding, lightly rake the area to help place seed in close contact with the soil and, if available, cover with a one-fourth-inch (.6-cm) layer of mountain topsoil, peat, straw or similar material. Commercial hydromulch also may be available in your area.

## Planting Ground Covers

Ground covers are planted in the same manner as annual and perennial bedding plants. Spacing of plants will vary with the type of plant used. (See Table 1 for suggested spacing.) Planting too close together usually is worse than too far apart because the plants will crowd too quickly, restricting spread. Be sure to provide water to newly planted ground covers immediately after planting. The first growing season is the most critical in getting a ground cover established. Keep the soil in the root zone moist but not too wet as this can slow down root growth and may encourage disease.

Except for plants established from seed, avoid fall planting. Plant as early in spring as the soil can be worked to allow time for root growth before cold weather arrives.

**Table 1: A selection of ground covers for mountain communities.**

Botanical & common names	Herbaceous Perennials (Useful for small-area coverage; under 50 square feet*)			
	Height*	Spacing*	Exposure	Remarks
<i>Achillea tomentosa</i> Wooly Yarrow	8-10"	12-15"	Sun	Rockerries. Spreads rapidly. Foliage lacy and grayish.
<i>Aethionema pulchellum</i> Stonecrest	12"	12-15"	Sun	Rockerries, sunny slopes.
<i>Ajuga reptans</i> vars. Curly Bugle	Foliage prostrate	10-12"	Shady spots	Cultivated varieties include 'Bronze-leaf' (bronzed foliage), 'Harlequin' (multicolored), 'Purpleleaf' (deep red foliage) and 'Variegated' (yellow-white blotch). A tufted alpine species with fragrant, yellow flowers.
<i>Alyssum montanum</i> Mountain Alyssum	2-3"	12-14"	Sun	
<i>Antennaria</i> sp. Pussytoes	6"	12-18"	Full sun	A native. Best on loose, rocky ground.
<i>Arabis alpina</i> Alpine Rockcress	6"	8-10"	Sun	Rockerries, sunny slopes of poor but well-drained soil.
<i>Arenaria verna caespitosa</i> Moss Sandwort	1-3"	6"	Sun or light shade	Rockerries. Makes a dense moss-like mat. Other species available.
<i>Arenaria maritima</i> Common Thrift	Foliage to 4"	6-8"	Sun	Grown for cutting. White flowered variety. Common in rockeries.
<i>Cerastium tomentosum</i> Snow-in-Summer	4-6"	18-20"	Sun or Shade	Foliage silvery. A very rapid grower which must be contained.
<i>Dianthus deltoides</i> Maiden Pink	Foliage 5" to 6"; flowers to 10"	10-15"	Sun	Flowers show up well against the mat of foliage. Cut flower, rockeries.
<i>Dianthus plumarius</i> Cottage Pink or Grass Pink	Foliage 6"; flowers 12"	15-18"	Sun	Foliage gray-green in creeping mats. Large rockeries. Rock walls.

**Table 1: A selection of ground covers for mountain communities.**

<b>Herbaceous Perennials</b>				
<i>(Useful for small-area coverage; under 50 square feet*)</i>				
<b>Botanical &amp; common names</b>	<b>Height*</b>	<b>Spacing*</b>	<b>Exposure</b>	<b>Remarks</b>
<i>Papaver nudicale</i> Iceland Poppy	10"	13"	Sun or shade	Colorful. Seed in early fall.
<i>Penstemon caespitosus</i> Creeping Penstemon (Mat Penstemon)	4"	18"	Partial shade	Native. A low mat with purple flowers. Performs best where soils have some natural humus.
<i>Saponaria ocymoides</i> Rock Soapwort	9-10"	12-15"	Sun	Widely cultivated. Useful in rockeries.
<i>Teucrium canadense</i> American Germander	12-24"	24-30"	Sun or shade	Best used in low sites where moisture is relatively constant.
<i>Viola cornata</i> Tufted Pansy	6-10"	10-12"	Sun	Many named varieties and hybrids available. Sometimes fails to survive winter but reseeds readily.
<b>Broadleaved Evergreens</b>				
<i>(Useful for small-to-medium-sized areas; 50 to 100 square feet*)</i>				
<i>Arctostaphylos uva-ursi</i> Kinnikinnick or Bearberry	6-8"	18-24"	Shade or partial sun	Does best in mountain and foothill areas. Protect from winter sun. Fruit, a red berry; showy in winter.
** <i>Euphorbia</i> Spp. Spurge	Variable to 12"	15-18"	Sun	Rockeries. Many species available.
<i>Euonymus fortunei radicans</i> Wintercreeper Euonymus	4-6"	18-24"	Shade	Performs best where sites are cool and moist.
<i>Mahonia repens</i> Creeping Holly-Grape	6-8"	12-15"	Shade, protected	For best results, use in protected spots. Fruit is a blue-gray.
<i>Sedum</i> Spp. Stonecrop	All under 6"	6-12"	Sun	See individual species below.
<i>S. acre</i> Goldmoss	Forms a dense, bright green mat only an inch (2.5 cm) or so high. Leaves are thick and more or less wedge-shaped. Flowers bright yellow. Very common in rock gardens. A more dwarf variety, <i>S. acre minus</i> also is available.			
<i>S. album</i> White Stonecrop	Normally a rather loose mat which turns bronze color in poor soils. Leaves are about the size and shape of rice kernels. Flowers are tiny and may be white but most often tinged with pink. Variety <i>murale</i> is slightly more dwarf and has deeper pink flowers.			
<i>S. divergens</i> (No common name)	Leaves are fleshy and egg-shaped. Color of foliage varies from glossy green to coppery red. This species, unfortunately, closely resembles a common annual weed, purslane, and may be accidentally destroyed in the garden.			
<i>S. hybridum</i> Evergreen Sedum	A much used, fast creeper. Leaves are three-fourths to one inch (1.9 to 2.5 cm) long, flat, oval, with deep to shallow, rounded teeth. Flowers are bright yellow. Fruit a showy orange-red.			
<i>S. oreganum</i> Oregon Sedum	An Oregon native with rosettes of thick, glossy leaves on reddish stems. Leaves become a striking coral-red in summer. Flowers are yellow.			
<i>S. sexangulare</i> Hexagon Sedum	This species is much planted in rock gardens. It is similar to and often classed as a subspecies or variety of <i>S. acre</i> but differs in having leaves in six spiraling rows when viewed from top. Leaves often develop a coppery tinge. Flowers are yellow.			
<i>S. spurium</i> Tworow Sedum	Undoubtedly, this is the most widely used sedum in rock gardens. It is very aggressive and often overgrows rockeries. It is better used as a ground cover. Leaves are fan-shaped with small teeth at the tips. Flowers are lavender. Variety 'Dragon's Blood' has deep reddish-purple flower; 'Album' has pure white flowers and 'Roseum' has light pink flowers.			
<i>Sempervivum</i> Spp. Houseleek	Variable 2-12"	6-15"	Sun	Rockeries. Stoloniferous. Many species available.
<i>Vinca minor</i> Common Periwinkle or "Myrtle"	6" but not definite; vinelike	12-15"	Shade or Sun	Performs best in rather deep shade. Sometimes difficult to establish but spreads well once established.
<b>Narrow-Leaved Evergreens</b>				
<i>Juniperus communis</i> Rocky Mountain Juniper	12-18"	24-36"	Sun or shade	Steep, rocky slopes. Large rockeries.
<i>Juniperus horizontalis</i> Creeping Juniper varieties; 'Andorra,' 'Bar Harbor,' 'Plumosa,' 'Wilton'	6-15"	36-48"	Sun	Variety 'Wilton' is excellent for rockeries and also wall overhangings.
<i>Juniperus sabina</i> Savin Juniper varieties; 'Broadmor,' 'Buffalo'	12-14"	36-48"	Partial shade or sun	Foliage is rather soft and bright green in color.

\*\*Do not use Cypress Spurge (*Euphorbia cyparissias*) because of its potential to escape as a weed in pasture and rangeland.

**Table 1: A selection of ground covers for mountain communities.**

Narrow-Leaved Evergreens				
Botanical & common names	Height*	Spacing*	Exposure	Remarks
<i>Juniperus sabina</i> <i>tamariscifolia</i> Tamarix Juniper	18-24"	48"	Sun or partial shade	Develops a neat, symmetrical branching habit. Confinement will cause growth in height and discourage spreading.
Deciduous Shrubs and Herbs				
(For medium-to-large area coverage, over 100 square feet*)				
<i>Cornus stolonifera</i> Vars. <i>redosierj</i> Dogwood	4-6'	30-36"	Sun	Var. <i>coloradadensis</i> , stems red. Var. <i>flaviramea</i> , stems yellowish. Fruit white to bluish in midsummer. Spreads by stolons in moist soils. Winter stem color shown. Steep banks.
<i>Coronilla varia</i> Crown Vetch	18-24"	18-24"	Sun	Also establishes well from innoculated seed.
<i>Duchesnea indica</i> Mock Strawberry	3-4"	18-24"	Sun	Resembles strawberry but flowers are yellow. Fruit red but not edible. An aggressive creeper.
<i>Potentilla fruticosa</i> Shrubby Cinquefoil	8-12"	18-24"	Sun	Foliage pleasing, fine texture. Makes dense mats once established. Yellow flowers. Rocky slopes.
<i>Rhus cismontana</i> Mountain Sumac	24-36"	30-36"	Sun	Striking red fall color. Use on rocky, dry hillsides.
<i>Rhus trilobata</i> Three-leaved Sumac	24-36"	30-36"	Sun	Useful on sunny, dry hillsides. Flowers yellow, fruit red.
** <i>Tanacetum vulgare</i> European Tansy	24-35"	24"	Sun	Establishes readily from rooted cutting or rhizomes. Yellow flowers. May become too aggressive at low elevations.

\*\*European Tansy is a herbaceous perennial but is treated here as a deciduous shrub. Under protection of deep snow this species may even act as an evergreen.

Deciduous Vines				
(For large area coverage, especially steep slopes)				
<i>Humulus americanus</i> Hop Vine	Indeterminate growth habit	48"	Sun or partial shade	Native twining vine.
<i>Lycium halimifolium</i> Matrimonyvine	Indeterminate growth habit	48"	Sun	Rapid growing and readily naturalized. Not recommended in shrub borders. Known to invade attics of homes.
<i>Parthenocissus quinquefolia</i> 'Englemann' Englemann Virginia Creeper	Indeterminate growth habit	48"	Sun or partial shade	Wall covering. As ground cover use in large areas. Steep slopes.

\*To convert to metrics, use the following conversions: 1 inch = 2.5 centimeters; 1 square foot = .09 square meters.