

Town of Breckenridge Landscaping Guide

Introduction

The Town finds that it is in the public interest for all properties to provide landscape improvements for the purposes of: complementing the natural landscape and retaining our high alpine character; improving the general appearance of the community and enhancing its aesthetic appeal; preserving the economic base; improving quality of life; delineating and separating use areas; increasing the safety, efficiency, and aesthetics of use areas and open space; screening and enhancing privacy; mitigating the adverse effects of climate, aspect, and elevations; conserving energy; abating erosion and stabilizing slopes; deadening sound; and preserving air and water quality.

The following Guidelines are intended to assist with the selection of appropriate plant species, locating and spacing selected species, planting and maintenance. For specific landscaping requirements please refer to Policy 22 – Landscaping in the Town of Breckenridge Development Code.

- Section 1. Species Selection
- Section 2. Location and Spacing
- Section 3. Planting Details
- Section 4. Maintenance
- Section 5. Common Pests and Diseases

This guide is intended to assist property owners with landscaping. It is always recommended that a landscape professional be consulted in the planning and planting processes as well as for ongoing maintenance.

Section 1. Species Selection

It is encouraged that landscape plans be layered, achieved through the use of ground covers, shrubs, and trees that utilize diverse species and sizes. Landscaping materials should consist of those species that are native to the Breckenridge area, or are appropriate for use in Breckenridge's high alpine environment. Those species that are native will generally have a better chance of surviving in the high altitude environment of Breckenridge and require the least amount of maintenance. Additionally, planting with native species will help to perpetuate Breckenridge's mountain character. However, there are several non-native species that are adapted to high altitude that are acceptable and that can add variety of height, width, texture and color to landscape plans. It is also recommended that plants be purchased from a nursery that grows or collects plants at an altitude similar to Breckenridge. Plants not noted in the Town of Breckenridge Landscaping Guide will not likely do well in Breckenridge. However, experimentation with a small number of new species may be considered.

Species are categorized as either Class I or Class II. Class I Species are those that are native to the Breckenridge area and that are readily available and thrive in Breckenridge. Class II species are those that are native to the surrounding Summit County area and/or are adapted to a high alpine environment and do well in Breckenridge. Species are further denoted as to whether they are drought tolerant or require moisture. These guidelines also specify those species that are firewise to assist with selecting plants appropriate for planting within defensible space zones. Firewise plants are those species that have a higher moisture content and are less likely to ignite during a fire. In general, deciduous species have a higher moisture content than evergreens. Species that require a microclimate or special conditions, such as shelter from northwest winds, or need shade predominantly are also noted.

Drought Tolerant after establishment = D

Requires moisture after establishment = M

Those species that can tolerate seasonal moisture or drought are noted as SM-SD

FireWise = FW

Requires a microclimate (shelter from wind, prefers shade, etc.) to survive = MC

Mature Size - Height/Spread = H/S

Deciduous Trees

Class I

| Botanical Name | Common Name | Conditions | Mature Size |
|----------------------------|-----------------|------------|--------------------|
| <i>Alnus tenuifolia</i> | Thin-leaf Alder | M, FW | H=15-20', S=15-20' |
| <i>Populus tremuloides</i> | Quaking Aspen | SM-SD, FW | H=20-50', S=20-30' |

Class II

| | | | |
|--------------------------------------|-----------------------|--------------------|--------------------|
| <i>Populus angustifolia</i> | Narrowleaf Cottonwood | SM-SD, FW | H=30-50', S=20-30' |
| <i>Populus balsamifera</i> | Balsam Poplar | SM-SD, FW | H=60-80', S=20-30' |
| <i>Populus balsamifera candicans</i> | Balm of Gilead | SM-SD, FW | H=60-80', S=20-30' |
| <i>Betula occidentalis</i> | Mountain Birch | M, FW (small tree) | H=10-20', S=10-20' |

Evergreen Trees

Class I

| | | | |
|---------------------------------|------------------|-------|--------------------|
| <i>Abies lasiocarpa</i> | Subalpine Fir | SM-SD | H=40-70', S=15-20' |
| <i>Picea engelmanni</i> | Engelmann Spruce | SM-SD | H=40-60', S=20-30' |
| <i>Pinus aristata</i> | Bristlecone Pine | D, W | H=20-40', S=varies |
| <i>Pinus contorta latifolia</i> | Lodgepole Pine | D | H=50-70', S=10-15' |
| <i>Pinus flexilis</i> | Limber Pine | D, W | H=30-50', S=15-30' |
| <i>Pseudotsuga menziesii</i> | Douglas Fir | SM-SD | H=50-80', S=15-25' |

| Botanical Name | Common Name | Conditions | Mature Size |
|-----------------------|--------------------|-------------------|--------------------|
| Class II | | | |
| Abies concolor | White Fir | SM-SD, MC | H=40-60', S=20-30' |
| Picea pungens | Blue Spruce | SM-SD, MC | H=40-60', S=20-30' |

Shrubs

Class I

| | | | |
|--------------------------------|------------------------|-----------|------------------|
| Artemisia tridentata 'vasyana' | Tall Western Sage | D | H=4-6', S=2-4' |
| Betula glandulosa | Bog Birch | M, FW | H=3-6', S=3-6' |
| Juniperus communis | Common Juniper | D | H=1-3', S=3-6' |
| Lonicera involucrate | Twinberry Honeysuckle | SM-SD, FW | H=3-6', S=3-6' |
| Potentilla fruticosa | Shrubby Cinquefoil | D | H=2-3', S=2-3' |
| Ribes aureum | Alpine Currant | D, FW | H=4-6', S=4-6' |
| Rosa woodsii | Woods Rose | D | H=3-6', S=3-6' |
| Rubus idaeus | Native Raspberry | D, FW | H=3-5', S=2-3' |
| Salix monticola | Yellow Mountain Willow | M, FW | H=8-12', S=6-8' |
| Salix wolfii | Wolfs Willow | M, FW | H=8-10', S=6-8' |
| Sambucus pubens | Redberried Elder | M, FW | H=4-12', S=6-12' |
| Shepherdia Canadensis | Silver Buffaloberry | D | H=3-9', S=3-8' |

| Botanical Name | Common Name | Conditions | Mature Size |
|------------------------|--------------------|-------------------|--------------------|
| Class II | | | |
| Amelanchier alnifolia | Serviceberry | D,MC | H=6-12', S=6-12' |
| Caragana arborescens | Siberian Peashrub | D | H=10-15', S=8-12' |
| Cotoneaster acutifolia | Peking Cotoneaster | D | H=8-12', S=12-15' |
| Juniperus sabina | Buffalo Juniper | D | H=12-18", S=6-8' |
| Pinus mugo | Mugo Pine | D | H=5-20', S=5-20' |
| Prunus virginiana | Chokecherry | D, FW | H=8-20', S=8-12' |
| Purshia tridentate | Antelope Brush | D, MC | H=2-6', S=6-8' |
| Salix arctica | Arctic Willow | M, FW | H=3-4', S=2-3' |
| Sorbaria sorbifolia | False Spirea | D | H=4-6', S=6-8' |
| Syringa vulgaris | Common Lilac | SM-SD, FW, MC | H=10-20', S=8-12' |

Perennials/Herbaceous Plants

Class I

| | | | |
|-------------------------|---------------|-------|--|
| Achillea spp. | Yarrow | D | |
| Aconitum columbianum | Monkshood | M | |
| Aquilegia spp. | Columbine | SM-SD | |
| Arctostaphylos uva-ursi | Kinnickinnick | D | |
| Aster spp. | Aster | D | |
| Astragalus spp. | Locoweed | D | |

| Botanical Name | Common Name | Conditions |
|--------------------------|---------------------|------------------------------|
| Campanula spp. | Harebells | D |
| Delphinium spp. | Larkspur | M |
| Dodecatheon spp. | Shooting Star | SM-SD |
| Duchesnea indica | Mock Strawberry | D |
| Epilobium spp. | Fireweed | D |
| Erigeron spp. | Aspen Daisy | D |
| Gentiana spp. | Gentian | D |
| Hedysarum occidentale | Sweetvetch | D |
| Helianthella spp. | Sunflower | D |
| Iris missouriensis | Rocky Mountain Iris | SM-SD |
| Linum lewisii | Blueflax | D |
| Lupinus spp. | Lupin | D |
| Mahonia repens | Holly-grape | D |
| Mertensia spp. | Bluebells | SM-SD |
| Pedicularis groenlandica | Elephanthead | M (may be difficult to find) |
| Penstemon spp. | Penstemon | D |
| Phlox spp. | Plox | D |
| Potentilla verna | Potentilla | D |
| Eriogonum umbellatum | Sulpher Flower | D |
| Sedum spp. | Stonecrop | D |

| Botanical Name | Common Name | Conditions |
|----------------------------|--------------------|------------------------------|
| Senecio spp. | Senecio | M (may be difficult to find) |
| Viola spp. | Violets and Pansys | SM-SD |
| Class II | | |
| Artemisia frigid | Sage | D |
| Artemisia "Silver Mound" | Silver Mound | D |
| Chrysanthemum leucanthemum | Painted Daisy | D |
| Chrysanthemum maximum | Shasta Daisy | D |
| Delphinium elatum | Delphinium | M |
| Dianthus barbatus | Sweet William | D |
| Escholtzia spp. | California Poppy | D |
| Fragaria Americana | Wild Strawberry | D |
| Gaillardia aristata | Gaillardia Daisy | D |
| Lathyrus odoratus | Sweet Pea | D |
| Lychinics chalcedonia | Maltese Cross | D |
| Paeonia officinalis | Peony | M |
| Papaver nudicale | Iceland Poppy | D |
| Papaver orientalis | Oriental Poppy | D |
| Pulsatilla patens | Pasque Flower | D |
| Rudbeckia vulgaris | Black-eyed Susan | D |
| Tanacetum vulgaris | Tansy | D |

| Botanical Name | Common Name | Conditions |
|-----------------------|--------------------|-------------------|
| Viola kitaibeliana | Johnny Jumpup | D |

High Altitude Grasses

Recommended High Altitude Seed Mixture:

Thurber Fescue – *Festuca thurberi*
 Alpine Fescue – *Festuca brachphylla*
 Tufted Hairgrass – *Deschampsia cespitosa*

Additional optional species include:

Arizona Fescue – *Festuca arizonica*
 Alpine Bluegrass – *Poa alpine*

Other High Altitude Grasses:

Canby or Sandberg Bluegrass – *Poa secunda*
 Idaho Fescue – *Festuca idahoensis*
 Alpine Fescue – *Festuca brachyphylla*
 Sheep Fescue – *Festuca ovina*
 Rocky Mountain Fescue – *Festuca saximontana*
 Bluebunch Wheatgrass – *Pseudoroegneria spicata*
 Slender Wheatgrass – *Elymus trachycaulus*
 Western Wheatgrass – *Pascopyrum smithii*
 Blue Wildrye – *Leymus arenarius* (L. glaucus)
 Indian Ricegrass Rimrock – *Achnatherum hymenoides*
 June Grass – *Koeleria cristata*

These grasses can be used as seed mixtures or in a hydroseed mixture. If a naturalized lawn is preferred, grasses should not be cut back until they have gone to seed in the fall. High altitude grasses are preferred and will establish best with less water and maintenance in Breckenridge. Sod is generally cultivated using species that are not found naturally in the Breckenridge area. Large areas of sod are not recommended, as they require more water to maintain.

Noxious Weeds

Several species of non-native plants have become a threat to the economic and environmental value of land in Breckenridge and Summit County. These plants are not indigenous to this area and have no natural predators or diseases to keep them in check.

They are rapidly displacing native vegetation, causing a loss of native ecosystem stability and diversity, while affecting recreational resources. The following plants are considered noxious weeds in Breckenridge and Summit County. All List A weeds are required by Town Code to be eliminated or eradicated. All List B weeds are required by Town Code to be managed in accordance with the Colorado Noxious Weed Act. All List C weeds are required by Town Code to be controlled at a level determined by the Summit County Weed Management Plan. For additional information on Noxious Weeds in Summit County go to www.co.summit.co.us/weeds.

List A

Myrtle spurge – *Euphorbia myrsinintes*

Orange hawkweed – *Hieracium aurantiacum*

List B

Absinth wormwood – *Artemisia absinthium*

Black henbane – *Hyoscayamus niger*

Bull thistle – *Cirsium vulgare*

Canada thistle – *Cirsium arvense*

Chinese clematis – *Clematis orientalis*

Common tansy – *Tanacetum vulgare*

Dalmation toadflax – *Linaria dalmatica*

Dame's Rocket – *Hesperis matronalis*

Diffuse knapweed – *Centaurea diffusa*

Hoary cress – *Cardaria draba*

Houndstongue – *Cynoglossum officinale*

Leafy spurge – *Euphorbia esula*

Mayweed chamomile – *Anthemis cotula*

Musk thistle – *Carduus nutans*

Oxeye daisy – *Chrysanthemum leucanthemum*

Perennial pepperweed – *Lepidium latifolium*

Plumeless thistle – *Carduus acanthoides*

Russian knapweed – *Centaurea repens*

Saltceder – *Taariq* sp.

Scentless chamomile – *Matricaria perforata*

Spotted knapweed – *Centaurea maculosa*

Sulfur cinquefoil – *Potentilla recta*

Wild caraway – *Carum carvi*

Yellow toadflax – *Linaria vulgaris*

List C

Common mullein – *Verbascum Thapsus*

Downy brome – *Bromus tectorum*

Field Bindweed – *Convolvulus arvensis*

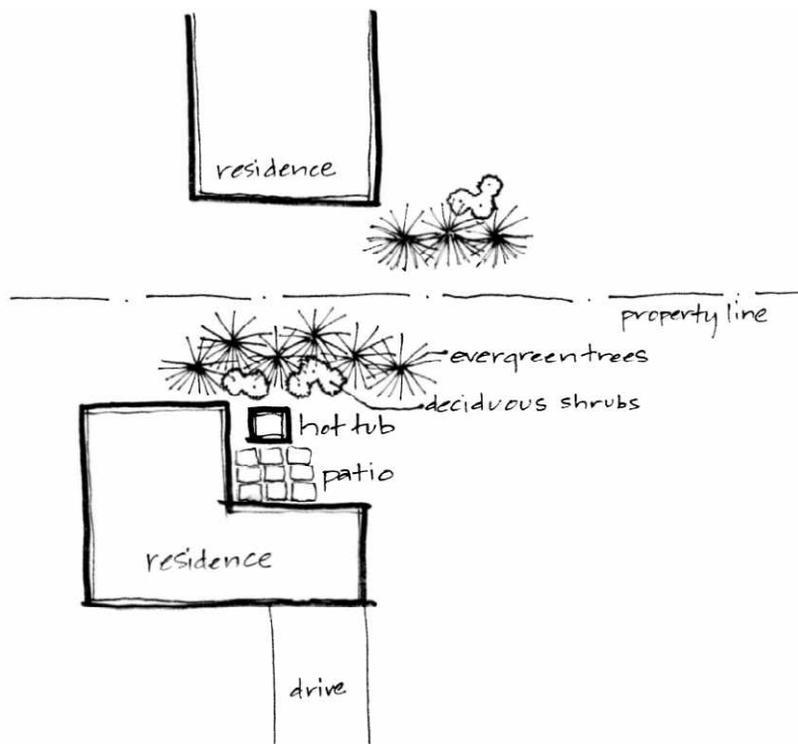
Poison hemlock – *Conium maculatum*

Section 2. Location

The careful location of plant materials can create a landscape that provides privacy from adjacent uses, shade, sun exposure, wind breaks, wildlife habitat and interest. The location of plant materials can also create a naturalized looking landscape or a more formal landscape.

It is important to consider a plant's form and size (height and spread) at maturity when locating plants to allow for appropriate space for plants to thrive.

Privacy – To create privacy, plant materials should be located between use areas. Planting trees between structures to screen windows, patios, hot-tubs, etc. can create privacy even on sites that have minimal setbacks from adjacent properties. Using a mixture of evergreen and deciduous shrubs and trees is recommended. If space allows, planting more than one row or layer of shrubs and trees will create more privacy and a more natural look.



Shade – Shade can be created by planting trees with broad canopies. Generally deciduous trees have the largest canopies, but mature evergreen trees can also provide shade. If shade is desired, locating trees along the southern and western exposures will block the sun when it is the strongest.

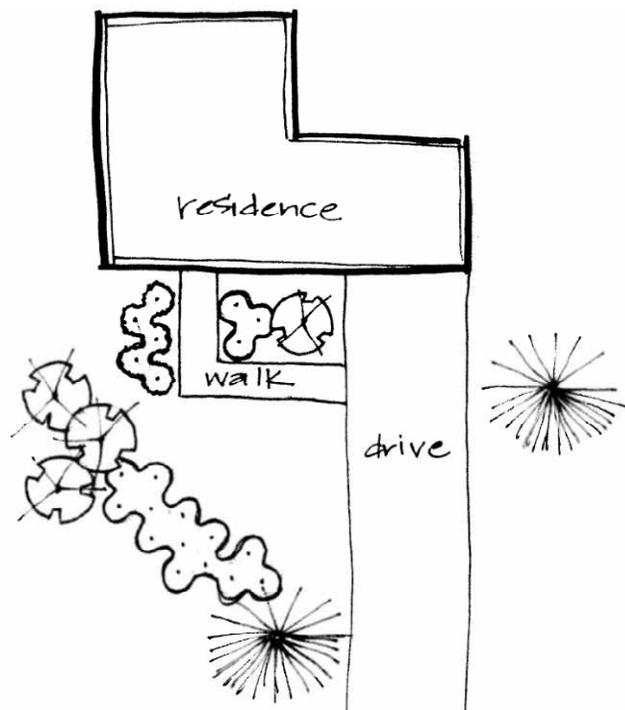
Sun Exposure – To allow for sun exposure trees should be located to allow southern and western exposure to windows or patios. Some eastern exposure may also be desirable for morning sun. Planting deciduous trees along southern or western exposures will still allow for sun exposure in the winter as they drop their leaves.

Wind Breaks – Predominant winds in the winter generally come from the north-west. Wind breaks can be created by locating trees along the north-west sides of a property. Evergreen trees are generally the best wind blocks as they have dense branching and foliage that is persistent in winter. Planting species that are tolerant of wind is recommended. Some species such as Colorado Spruce can be susceptible to wind burn, whereas Bristle Cone Pine and Limber Pine can thrive in windy exposed conditions. It is always best to plant trees in groupings to provide them with some stability. A single tree is more susceptible to windthrow than a group of trees.

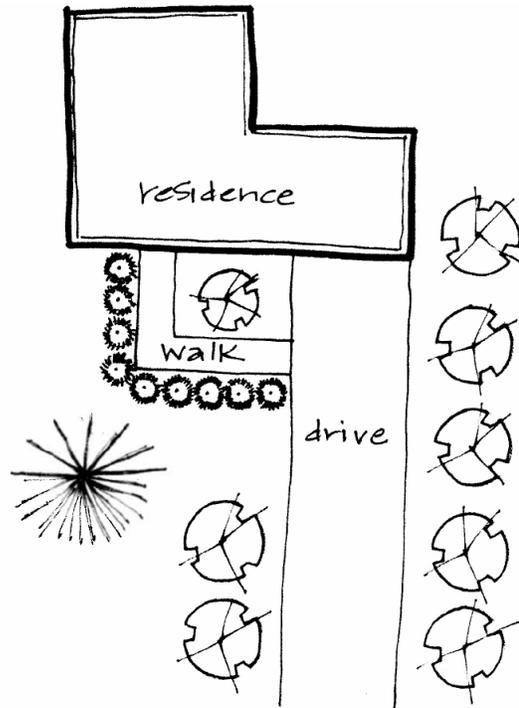
Wildlife Habitat – To provide wildlife habitat, a variety of plant materials should be planted to allow for foliage, berries and nesting/habitat opportunities.

Interest – Interest is created by using a variety of plant species. Plants that have ornamental qualities such as flowers, fruit, berries or vibrant fall color should be considered. The careful location of these plants adds to interest by having them located in areas where views exist, such as at the end of a walkway or to frame a window.

Naturalized Landscaping – Curvilinear or non-linear groupings of shrubs and trees appear to be more natural. To achieve this, plants are generally planted in groups in a triangular pattern. Natural landscapes are often asymmetrical. A naturalized landscape plan is more appropriate outside of the Conservation District.

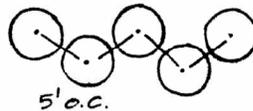


Formal Landscaping – To create a more formal landscape, plants are planted in a linear fashion. Formal landscape plans also tend to be more symmetrical. A formal landscape plan is ideal for the Conservation District.

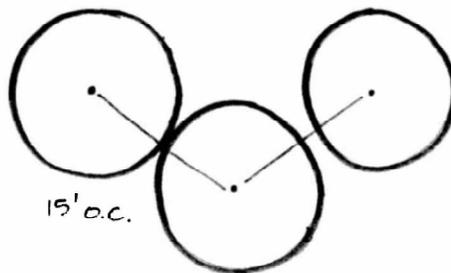


Spacing

Trees and shrubs should be spaced to allow for species to reach mature sizes. The height and spread or canopy width of each species should be considered. The mature height and spread of native and high altitude species has been included in the notes under the Section 1. - Species. In general, shrubs should be spaced 3' to 5' on center (o.c.), deciduous trees 10' to 15' on center, and evergreen trees 15' to 20' on center.



shrub spacing 1" = 10'



tree spacing 1" = 10'

Defensible Space

Defensible Space is an area around a structure where fuels and vegetation are pruned, thinned and removed to reduce the chances of wildfire reaching a structure. It also reduces the chance of a fire moving from a structure to the surrounding forest. Defensible space creates room for firefighters to do their jobs more safely. A structure is more likely to withstand a wildfire if grasses, shrubs and trees are treated to reduce a fire's intensity. Creating defensible space is required for all new construction and major remodels that affect the exterior of a structure and/or a structure's footprint. Some Home Owners Associations (HOAs) may have requirements for defensible space as well. No plant material should be planted under roof eaves and decks. If plants are planted close to a structure, it is recommended that they be firewise plants in irrigated planting beds. All trees shall be planted to provide a minimum of 10' between canopies for individual trees or groupings of trees at maturity. For additional information on creating defensible space please see the Town's Development Code, Policy 22. The Colorado State Forest Service has also developed guidelines for creating defensible space that are very helpful.

Section 3. Planting Details

Soil Preparation

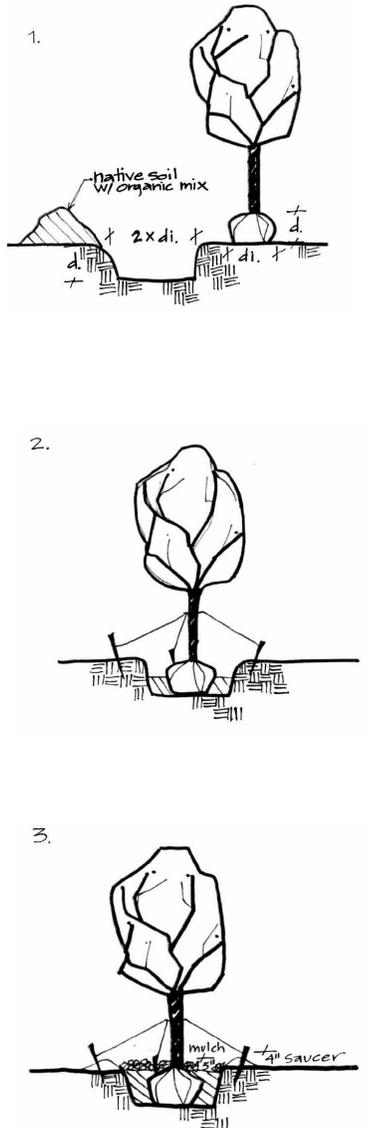
The soils around Breckenridge are generally rocky, well-drained, deficient in nutrients and shallow. Most local soils are deficient in nitrates and phosphorus. If you are interested in finding out the pH and nutrient levels of the soil on your property, testing of soils is available through Colorado State University. Care should be taken to preserve any top soils that exist during topographic modification or disturbance from construction. Existing soil should be loose and can be modified with new topsoil. The addition of peat moss can increase water retention and sand and organic matter can be added to heavy clay soils. Care should be taken to make sure that all soil and other materials added to existing soils are weed free. As noted previously, native species will require less modification because they are adapted to the high altitude environment.

Best Times to Plant

The best time to plant shrubs and trees is generally mid May after the ground thaws to mid October before the ground freezes. This can vary year to year depending on snow fall. When transplanting existing vegetation it is best to transplant in the spring (May) before new growth begins, or fall (September/October) once growing has stopped. This timing is true for grasses as well. It is never ideal to plant something unless there is water available, especially in the summer when our high altitude sun exposure is intense.

Planting Details

Tree Planting Detail



1. Dig the hole two times the diameter (di) and the same depth (d) as the root ball.

- The top of the root ball should be the same height as existing grade when the tree is planted.
- Pile native soil that is removed from the hole next to the hole.
- Remove any rocks larger than 4" in diameter.
- Amend the native soil that was removed from the hole with organics to a mixture of 40% organics and 60% native soil.
- Native peat moss and aged manure are good sources of organics.
- Mix the native soil and organics well.

2. Carefully set the tree in the hole.

- Someone should hold the tree steady until the tree is staked and the hole is backfilled.
- Fill the hole half way with the amended soil mixture around the tree.
- Use a shovel blade to mix, settle and remove any air pockets.
- Place stakes around tree.
- Once staked remove top wire, rope and burlap as necessary. Fold burlap down the side of ball.

3. Add the remaining amended soil around the tree ball up to existing grade.

- Use a shovel blade to settle and remove any air pockets.
- Construct a 4" saucer with amended soil around the tree well (diameter of hole).
- Use a shovel blade to mix, settle and remove any air pockets.
- Fill saucer with water and allow to soak in, water again to thoroughly saturate.
- Fill the saucer with 3" of mulch.

Section 4. Maintenance

A well thought out and planted landscape still requires maintenance on a regular basis. Providing new plantings with some sort of irrigation is necessary to improve the survivability of the plant especially in our harsh high altitude environment. Because our soils are generally nutrient deficient, fertilization can also assist with survivability and increased growth. Pruning to remove dead and diseased branches and to promote growth that is consistent with a species natural form is also necessary to promote a plant's health, as well as safety and aesthetic quality.

Irrigation – Hand watering of newly planted plants is acceptable, but often unsustainable. Installation of a water efficient drip irrigation system is recommended for shrubs and trees. Lawn areas may require a spray system. All irrigation systems should be maintained on a regular basis for efficiency. Irrigation systems also need to be drained and lines blown free of water in the fall to reduce the risk of freezing and cracking.

Fertilization – Many well-chosen Breckenridge native plants will thrive without fertilization. Quick release synthetic fertilizers should be avoided. Synthetic, quick-release fertilizers frequently wash through the soil before they are even taken up by the plant. Plant nutrient requirements can be met with compost, naturally derived fertilizers such as aged manure, blood and bonemeal, fishmeal, kelp, or slow-release synthetic fertilizers. Slow-release fertilizers make nutrients available to the plants when they are needed.

Composting – Composting on site can return valuable nutrients and organic matter to the soil and reduce waste. Lawn and tree trimmings along with other organic matter such as fruit and vegetable scraps, coffee grounds, egg shells etc. can be composted. Colorado State University has created a fact sheet “ Home Yard Composting” to assist those interested in composting in Colorado. This guide can help to break down plant wastes in a few months instead of a year, especially in Colorado’s environment.

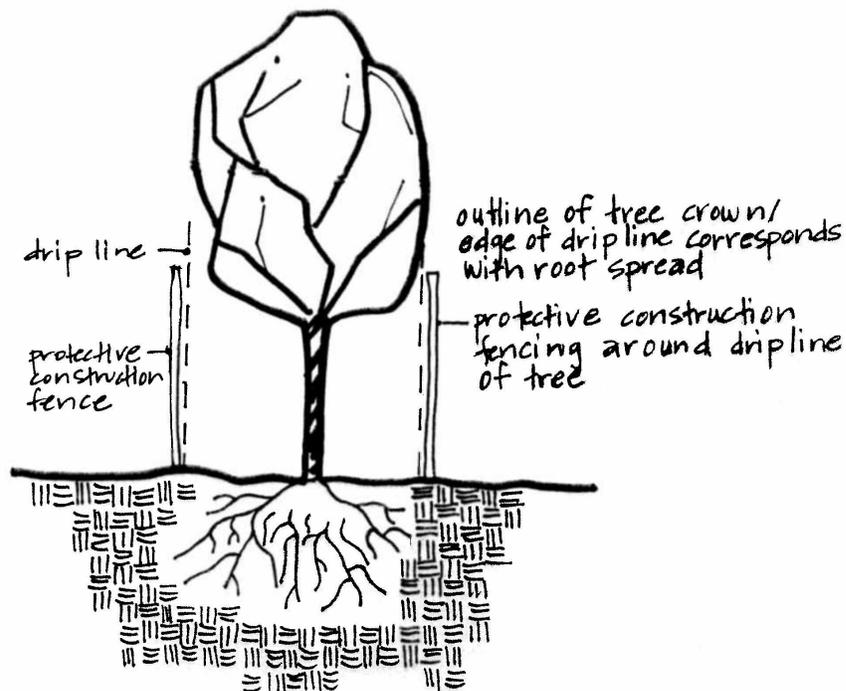
Manure – Horse manure can be used to amend soil and fertilize plants. However, not more than one inch (1”) of dried and decomposed manure that is thoroughly mixed into the soil within twenty four hours of delivery to the site is allowed in Breckenridge.

Mulching – Mulch is any material spread evenly over the surface of the soil. Organic materials, including chipped landscape debris, are preferable over inorganic materials. Mulch conserves water, enhances the growth of plants and the aesthetics of the landscape. Mulch can also suppress weed growth. Mulch should not exceed 3” in depth.

Pruning – It is best to prune when a plant is dormant and not under stress. Do not top trees, but rather remove branches at their point of origin or shorten branches back to a lateral. This is true for removing dead branches as well. Plants that are pruned properly are stronger and more likely to resist pests. Under no circumstances should a tree be pruned to remove more than 2/3 of its crown.

Cutting Back Wildflowers and Grasses – Wildflowers and grasses should be cut back in the fall after the plants have gone to seed.

Protecting Trees During Construction – It is important to remember that the root zone of a tree is where the tree performs vital functions. Roots absorb and transport water and nutrients from the soil to the tree. Soil compaction restricts water and oxygen uptake by roots. Compacting the root zone during construction can kill a tree. The outline of the tree crown or dripline of a tree corresponds to the root spread. To protect trees during construction, a protective fence should be placed around the drip line of the tree at a minimum. The more room the tree can have the better. The fence reminds people about the sensitive root zone and also protects the tree above ground.



Section 5. Common Pests and Diseases

Some of the common pests and diseases that affect trees in the Breckenridge area are noted below. We have included descriptions of common symptoms and recommended treatments. Please note that a landscape professional should be consulted to best identify and treat trees that are not doing well.

Pests

Mountain Pine Beetle

Dendroctonus ponderosae or the Mountain Pine Beetle (MPB) is native to the forests of western North America. The MPB develops in pine trees, particularly ponderosa, lodgepole, scotch and limber pines. Outbreaks can kill millions of trees. In early stages of an outbreak, MPB attacks are primarily seen on pine trees which are under stress due to, poor site conditions, overcrowding, root disease or old age. However, as MPB populations increase, most pine trees in the outbreak area may become infected.

Signs and symptoms include; popcorn shaped masses of resin called “pitch tubes” on the trunk. Pitch tubes are generally brown, pink or white in color, boring dust in bark crevices and on the ground around the base of the trunk, evidence of woodpecker feeding, needles turning yellowish to red throughout the entire crown, presence of live MPB (eggs, larvae, pupae and/or adults) as seen in galleries under the bark and bluestained sapwood.

The MPB has a one-year life cycle in Colorado. In early to mid-summer (June-July), adults leave the dead trees where they developed. The beetles will seek out new trees, where they tunnel under the bark to mate. One pair of beetles can produce about 75 eggs. MPB larvae spend the winter under the bark. They continue to feed in the spring and transform into pupae and then into adults in early summer.

Once the MPB infests a tree, nothing practical can be done to save the tree. Enough beetles can emerge from one infested tree to infest multiple trees.

Treatment of infested trees is achieved by cutting and chipping an infested tree before beetles can mature and leave the tree to infest other trees. Preventing the spread of MPB can be achieved through spraying. Spraying should only be done by a professional during the appropriate season (early summer), without wind conditions and not near to any piles of snow or bodies of water. Groundwater contamination is a concern if not done properly. Pheromone bags have also been successful in deterring MPB attacks. Prevention of MPB outbreaks can be achieved through creating healthy forests. Selective thinning to create age diversity in a tree stand helps to create a more resilient forest.

Aphids

Aphidae or Aphids are the most common insect found on plants in the west. Aphids are generally attracted to deciduous trees. Aphids have a very high reproduction rate which makes it easy for a few aphids to become a huge infestation. Aphids pierce and suck a plant, causing significant damage to the plant.

Signs and symptoms include a curling and browning of leaves. Aphids also secrete a substance called “honeydew” which attracts ants. The presence of ants is a sign that aphids are present.

Treatments for aphids include ladybugs, insecticidal soap like Schultz or Safer's and if the infestation is serious a systematic insecticide like Orthene.

Diseases

Dwarf Mistletoe

Arceuthobium spp. or Dwarf Mistletoe is a common disease for ponderosa, lodgepole, douglas-fir pinon and limber pine. Dwarf Mistletoe are small parasitic flowering plants. The seeds, explode at nearly 60mph, are sticky and attach to any surface that they come in contact with. Seeds adhere to the branches of susceptible trees, germinate and the mistletoe rootlet penetrates the bark of the tree. Mistletoe spread slowly from tree to tree. The parasite takes water and nutrients from the host tree, killing the tree slowly.

Signs and symptoms include a slight swelling of the bark at the infection site, distorted branching patterns called "witches broom" and yellowing foliage.

Treatment of Dwarf Mistletoe includes pruning infected branches with a sterile sharp tool and tree removal. Once a tree is infected with Dwarf Mistletoe there is no known treatment to remove the parasite. Because the parasite moves slowly, trimming the infected branches can extend the life of the tree.

Cytospora Canker

Cytospora canker is caused by several species of the fungi in the genus Cytospora. The disease occurs in shrubs and trees that are injured or slightly stressed. The disease especially affects trees that have root damage, which are often found in areas under construction. The fungus grows in the living bark and kills the tree by girdling the branch or tree. Generally, aspen, cottonwood, poplars, cherry, birch, willow, honeylocust and spruce are affected in the Breckenridge area.

Signs and symptoms of this disease include yellow or orange-brown to black discolored areas on the bark of the trunk and branches. Liquid ooze on aspen is common. Cankers, or sunken dead areas of the bark with black pinhead-sized speckling or pimples may be visible as well. The pimples are the reproductive structures of the fungus. Under moist conditions, masses of spores (seeds) may ooze out of the pimples in long orange, coiled, thread-like tendrils. Reddish brown discoloration of the wood and inner bark may also be evident.

Control of the disease can start with preventing stress on a tree. Once infection occurs, the best treatment is to increase plant vigor and sanitation. Remove all infected branches with a sterile sharp tool.

Note: Information included in this Section was obtained from the Colorado State University Cooperative Extension and "Insects and Diseases of Woody Plants of the Central Rockies".