



Fire-Resistant Plants for Montana Landscapes

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Fires can damage soil and reduce its capacity to hold moisture. This can affect plants' ability to survive. However, there are a number of groundcovers, herbaceous plants, shrubs and trees that are fire-resistant and are listed here.

YARD AND GARDEN

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THE RISKS THAT WILDFIRES POSE TO HOMES AND landscaping can be diminished, though never completely eliminated, by careful selection and placement of landscape plants. Any plant will burn if it is dry enough and the fire slow enough and hot enough. The ability of a plant to survive a fire depends upon the speed and type of fire, the time of year, the tendency of the plant to accumulate dead and dry material within the plant, the presence of terpenes, oils or waxes in or on plant tissues, and the moisture-holding capacity of the plant species.

Slow-moving fires can do more damage than those that move rapidly across a site. In forest settings, crown fires that travel from the crown of one tree to another often are more damaging than other types because they destroy the foliage and thus reduce the plants' capacity to photosynthesize. This inability to manufacture carbohydrates weakens the plant and makes it more susceptible to subsequent winter damage and pest infestations. Young trees are more severely affected by this type of fire than older trees.

Ground fires kill the phloem and cambium (part of the plant responsible for its growth), often girdling or partially girdling the plant, which can lead to the death of the plant.

However, new tissue laid down in the following spring allows many damaged trees to survive.

Succulent plants and those full of water (for instance, in spring), survive fires better than trees with low moisture contents. Shrubs often survive by their ability to re-sprout from their bases.

Degradation of Site Quality

Fires burn soil organic matter, reducing the soil's capacity to store water and fostering compaction. They accelerate erosion and increase the magnitude of fluctuations in soil temperatures. As much as 70 percent of the nitrogen and some other nutrients are lost by volatilization, ash convection, and subsequent leaching after hot fires. However, the nitrogen is often replaced quickly by increased soil microbial activity and nitrogen fixation. Some nutrients are also released from

burned organic matter, often making the total availability of mineral nutrients to the plants higher after the fire than before. Site quality deteriorates more on coarse sands and heavy soils than on sandy and loamy soils.

Under forest conditions, tree species with thicker, corky bark – western larch, ponderosa pine, Douglas fir, and bur oak – often escape severe fire damage. Those with thinner bark, such as alpine fir, Engelmann spruce and lodgepole pine, and many younger trees, are more likely to be killed by ground fires. Conifers as a group are considered more susceptible to fire damage than deciduous species because of their high resin content.

Home Landscapes

Keeping weeds down, utilizing fire-resistant building materials and planting fire-resistant plant material around a home are a few of the important steps to help protect your home and family from wildfires.

As previously mentioned, some plants are highly flammable while others are fire-resistant. Fire-resistant plants have supple, moist leaves and water-like sap. The sap content is low, and it doesn't have a strong odor when leaves are crushed. Flammable plants generally have aromatic leaves, with gummy or resinous sap. Junipers are a good example of a highly flammable plant that should not be used as a foundation plant in the urban-wildland interface. Juniper foliage contains volatile oils, and beds around the plant accumulate much old, dead material. Most deciduous shrubs are fire-resistant and should be considered when planning a foundation planting.

Wildfire experts recommend to create what they call a "defensible space" around a home. This is an area, not necessarily bare of vegetation, but where the vegetation has been carefully planned or cleared to slow the spread of a wildfire toward a home. Firefighters also appreciate this defensible space as it gives them room to do their jobs.

Sparks and firebrands from a wildfire can ignite bark mulch, endangering a home. If there is a wildfire in your area,

keep wood mulch moist, or consider replacing it now with rock mulch. To keep the temperature of the environment around plants moderated, use wood mulch around the base of the plants.

In the event of a fire, prune out dead branches and be sure the remaining plants are watered well. There may be no reason to add huge quantities of fertilizer.

Fire Resistant Species

Following are lists of plant species adapted to Montana that have been noted to be fire resistant. Not all species on this list will grow in all parts of the state. Refer to *Tree and Shrub Selection Guide* (Montana Extension Bulletin EB123), and *Perennials and Biennials for Montana Gardens* (MT199903AG) for more information on growing site conditions for selected species.

We have also avoided categorizing plants as “fast-growing” or “slow-growing” since this can be misleading – there

are too many variables that can affect the rate of growth of a plant. Some information in the tables pertains only to observations on a single cultivar, but there is little reason to believe that other cultivars of the same species might not be equally resistant. In one case, an entire family (Rose) is generally considered to be fire-resistant. This family includes apples, pears, peaches, plums, apricots, nectarines, hawthorn, cotoneaster, juneberry, raspberry, blackberry and, of course, rose. Some entries include an entire genus (ash, for example). This is because some references list only a genus while others list particular species as being resistant.

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Aspen (*Populus tremuloides*)
BY CHERYL MOORE-GOUGH



Currants (*Ribes* spp.)
BY CHERYL MOORE-GOUGH



Coral Bells (*Heuchera sanguinea*)
BY CHERYL MOORE-GOUGH



Daylily (*Hemerocallis* spp.)
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Lupine (*Lupinus* spp.)
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Mock Orange (*Philadelphus* spp.)
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Fire Resistant Plant Species Adapted to Montana

Groundcovers and Herbaceous Plants

COMMON NAME	GENUS AND SPECIES
Alfalfa	<i>Medicago sativa</i>
Bergenia	<i>Bergenia</i> spp.
Blanket Flower	<i>Gaillardia x grandiflora</i>
Bluegrass, Kentucky	<i>Poa pratensis</i>
Buffalograss	<i>Buchloe dactyloides</i>
Bugleweed	<i>Ajuga reptans</i>
Calliopsis (Tickseed)	<i>Coreopsis</i> spp.
Candytuft, Evergreen	<i>Iberis sempervirens</i>
Cinquefoil	<i>Potentilla</i> spp.
Cinquefoil, Spring	<i>P. tabernaemontani</i> , <i>P. neumanniana</i>
Columbine	<i>Aquilegia</i> spp.
Coral Bells	<i>Heuchera sanguinea</i>
Cotoneaster, Rock	<i>Cotoneaster horizontalis</i>
Cotoneaster, Bearberry	<i>Cotoneaster dammeri</i>
Cottage Pink	<i>Dianthus plumarius</i>
Daylily	<i>Hemerocallis</i> spp.
Dusty Miller	<i>Artemisia stelleriana</i>
Fescue	<i>Festuca</i> spp.
Fescue, Blue	<i>Festuca ovina</i> var. <i>glauca</i>
Fescue, Tall	<i>Festuca arundinacea</i>
Fescue, Creeping Red	<i>Festuca rubra</i>
Flax	<i>Linum</i> spp.
Fleabane	<i>Erigeron</i> spp.
Four O'clock	<i>Mirabilis</i> spp.
Geranium	<i>Geranium</i> spp.
Geranium, Bloody	<i>Geranium sanguineum</i>
Ginger, Wild	<i>Asarum caudatum</i>
Hen and Chicks (Houseleek)	<i>Sempervivum tectorum</i>
Iris	<i>Iris</i> spp.
Kinnickinnick	<i>Arctostaphylos uva-ursi</i>
Lamb's Ear	<i>Stachys byzantina</i>
Lavender	<i>Lavandula</i> spp.
Lupine	<i>Lupinus</i> spp.

Groundcovers and Herbaceous Plants

COMMON NAME	GENUS AND SPECIES
Mahonia, Creeping	<i>Mahonia repens</i>
Oceanspray	<i>Holodiscus</i> spp.
Orchardgrass	<i>Dactylis glomerata</i>
Periwinkle, Common	<i>Vinca minor</i>
Poppy	<i>Papaver</i> spp.
Poppy, California	<i>Eschscholzia californica</i>
Primrose	<i>Oenothera</i> spp.
Pussytoes	<i>Antennaria</i> spp.
Red Hot Poker	<i>Kniphofia uvaria</i>
Ryegrass	<i>Lolium</i> spp.
Sage	<i>Salvia</i> spp.
Shasta Daisy	<i>Leucanthemum x superbum</i>
Silver Spreader	<i>Artemisia caucasica</i>
Snow-in-Summer	<i>Cerastium tomentosum</i>
Stonecrop	<i>Sedum</i> spp.
Stonecrop, Broadleaf	<i>Sedum spathulifolium</i>
Stonecrop, Goldmoss	<i>Sedum acre</i>
Stonecrop, Green	<i>Sedum album</i>
Strawberry, Beach	<i>Fragaria chiloensis</i>
Strawberry, Mock	<i>Duchesnea indica</i>
Thrift, Common	<i>Armeria maritima</i>
Thyme, Woolly	<i>Thymus praecox</i> ssp. <i>britannicus</i>
Valerian, Red	<i>Centranthus ruber</i>
Violet, Canadian	<i>Viola canadensis</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Wheatgrass, Fairway Western	<i>Agropyron cristatum</i>
Winterfat	<i>Eurotia lanata</i>
Yarrow	<i>Achillea</i> spp.
Yarrow, Common	<i>Achillea millefolium</i>
Yarrow, Fernleaf	<i>Achillea filipendulina</i>
Yarrow, Woolly	<i>Achillea tomentosa</i>
Yucca	<i>Yucca filamentosa</i>

Fire Resistant Plant Species Adapted to Montana

Trees

Shrubs

COMMON NAME	GENUS AND SPECIES
Alder, White	<i>Alnus rhombifolia</i>
Ash	<i>Fraxinus</i> spp.
Ash, Green	<i>Fraxinus pennsylvanica</i>
Aspen, Quaking	<i>Populus tremuloides</i>
Birch	<i>Betula</i> spp.
Cherry	<i>Prunus</i> spp.
Cottonwood	<i>Populus</i> spp.
Cottonwood, Narrowleaf	<i>Populus angustifolia</i>
Hackberry	<i>Celtis occidentalis</i>
Locust, Black	<i>Robinia pseudoacacia</i>
Maple	<i>Acer</i> spp.
Maple, Boxelder	<i>Acer negundo</i>
Maple, Rocky Mountain	<i>Acer glabrum</i>
Olive, Russian	<i>Elaeagnus angustifolia</i>
Poplar	<i>Populus</i> spp.

COMMON NAME	GENUS AND SPECIES
Buckthorn	<i>Rhamnus</i> spp.
Buffaloberry	<i>Shepherdia</i> spp.
Buffaloberry, russet	<i>Shepherdia argentea</i>
Cherry	<i>Prunus</i> spp.
Cherry, Nanking	<i>P. tomentosa</i>
Chokecherry	<i>P. virginiana</i>
Cinquefoil, Shrubby	<i>Potentilla fruticosa</i> <i>Pentaphylloides floribunda</i>
Currant	<i>Ribes</i> spp.
Dogwood, Redosier	<i>Cornus sericea</i> <i>C. stolonifera</i>
Gooseberry	<i>Ribes</i> spp.
Honeysuckle	<i>Lonicera</i> spp.
Lilac, Common	<i>Syringa vulgaris</i>
Mahogany, Mountain	<i>Cercocarpus</i> spp.
Mock Orange	<i>Philadelphus</i> spp.
Mock Orange, False	<i>Fendlera rupicola</i>
Plum, Native	<i>Prunus Americana</i>
Raspberry	<i>Rubus</i> spp.
Rose, most members of this family	<i>Rosaceae</i>
Sumac, Skunkbush	<i>Rhus trilobata</i>



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