COLORADO STATE UNIVERSITY
EXTENSION

COLORADO STATE FOREST SERVICE
COLORADO STATE UNIVERSITY

Ignition-Resistant Landscape Plants

Fact Sheet 6.305 | Wildfire Mitigation Series, Landscaping and Planting

Introduction

In Colorado's wildland-urban interface (WUI), it isn't a matter of if a wildfire will impact residences and properties, but when. The WUI includes any areas where structures and other human developments meet or intermingle with wildland vegetative fuels, including grasses, shrubs and trees. Wildfire is a natural part of Colorado's varied ecosystems. Planning ahead and taking action to reduce the risk of wildfire can increase the likelihood a home survives when wildfires do occur. Firefighters do their best to protect residents, but ultimately, it's residents' responsibility to protect their property and investments from wildfire.

Homeowners should focus on actions that are effective in reducing wildfire hazards on properties. These efforts should always begin with the home or structure and progress outward. Defensible space is the area around a home or other structure that has been modified to reduce fire hazards by creating space between potential fuel sources.

In the defensible space, both natural and engineered materials are treated, removed or reduced to slow the spread of wildfire and alter fire behavior. Ignition-resistant plants should be selected for planting, especially closer to the home.

Creating an effective defensible space involves establishing a series of management zones. Develop these zones around each building, including detached garages, storage buildings, barns and other structures. Recognize that fuel continuity and density play a critical role in wildfire behavior. Zones are defined from the structure edge in feet:

Zone 1: 0-5 feet
Zone 2: 5-30 feet
Zone 3: 30-100 feet

This fact sheet covers plants in zones 1 and 2; a different publication, Fire-Adapted Landscaping Practices (Fact Sheet 6.303), discusses plants in zones 2 and 3. For a defensible space plan for properties, contact the nearest Colorado State Forest Service field office or local CSU Extension office for guidance. Consult with a forester, fire department staff or community organization appropriately trained in wildfire mitigation practices.

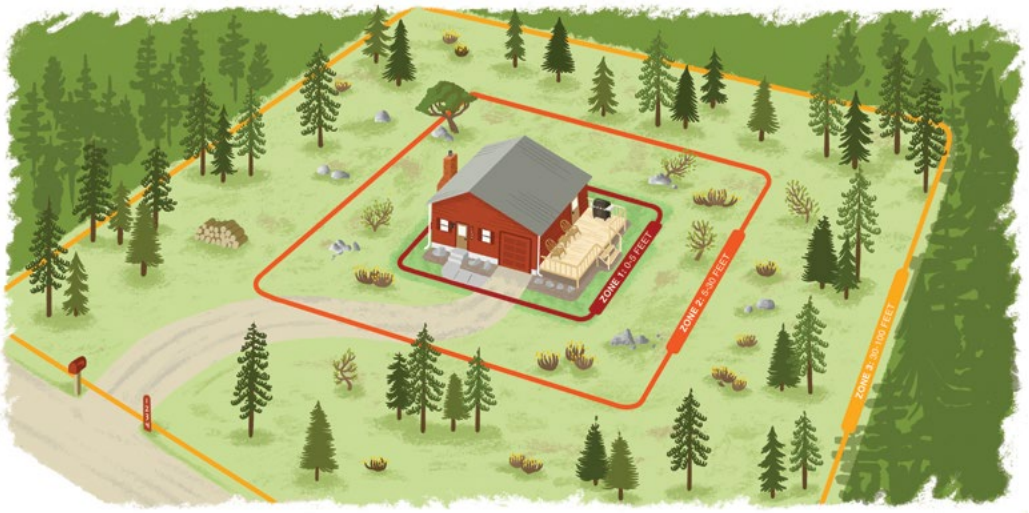


Illustration: Bonnie Palmatory, Colorado State University

Quick Facts

- The right plants around structures are important for wildfire safety.
- Management of defensible space and plant types is essential.
- Plants rated 10 have the least ignitability.
- This fact sheet recommends ignition-resistant plants for zones 1 and 2.

CSU Extension Staff

S. Carter - Chaffee County, Director

N. Goeckner - Jefferson County, Natural Resource Specialist

L. Langelo - Golden Plains Area, Horticulture Specialist

I. Shonle, Ph.D. - El Paso County, Horticulture Specialist, Extension Professor

Colorado State Forest Service Staff

C. Julian - Wildfire Mitigation Program Specialist

C. Dennis - Emeritus CSFS

K. Long - Urban and Community Forestry Specialist

Updated 7/2025

extension.colostate.edu

There are no "fireproof" plant species. Plant choice, spacing and maintenance are critical to reduce the risk adjacent to the structure.

Ignition-resistant plant characteristics

Recommendations on this list are based on a methodology developed by Idaho Firewise in Boise, Idaho. The methodology rates the ignitability of plants based on specific characteristics ranked on a scale of 0-10, with 0 the most ignitable and 10 the least ignitable. Plants have characteristics that either increase or decrease ignitability; plants that have higher ignitability are less resistant to wildfire.

Attributes that decrease ignitability

- **Low oil or resin content**
- **High moisture content**
- **Soap, latex or pectin content**
- **Compact growth form**
- **Green stems**
- **Drought tolerance**

Attributes that increase ignitability

- **High oil or resin content**
- **Low moisture content**
- **Tall growth**
- **Open form**
- **Fine wood (twiggy) stems**
- **High water need**

To create the highest degree of protection for structures, only plant plants with scores of 8, 9 and 10 for zones 1 and 2 (within the first 30 feet from the building). These species are the least ignitable and therefore most desirable plants to plant near structures; just remember that there are no truly "fireproof" plant species. Refer to Fire-Adapted Landscaping Practices (Fact Sheet 6.303) to learn how to address existing vegetation with ignitability scores below 8.

Many plants are highly ignitable during different seasons of the year. At such times, if left unmanaged, they can accelerate the spread of a wildfire that can harm communities. All vegetation, naturally occurring and otherwise, is potential fuel for fire. Its type, amount and arrangement have a dramatic effect on fire behavior.

Plant composition and ignitability

There are many concepts to consider when choosing ignition-resistant plants. A plant's moisture content is the single most important factor governing its volatility. However, resin content and other factors in some species render them ignitable even when the plant is well watered. Conifers tend to be ignitable due to their oil and pitch content, regardless of their water content. Deciduous plants tend to be more ignition resistant because their leaves have higher moisture content, and their basic chemistry is less ignitable. Also, when deciduous trees are dormant, there is less fuel to carry fire through their canopies.

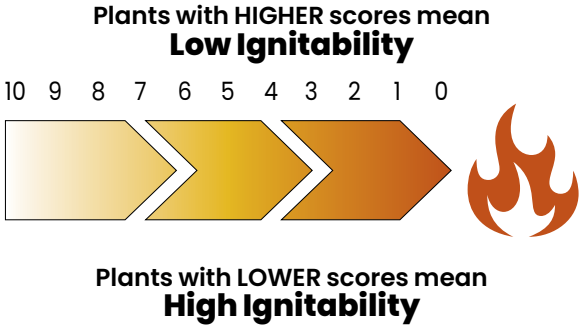
In some cases, there is a strong correlation between drought tolerance and ignition resistance. These plants offer less fuel or have a higher moisture content, both of which help reduce fire hazards. There also appears to be a correlation between a plant's salt tolerance and natural ignition resistance. Plants adapted to salty conditions, and that are actually growing in salty situations, may better resist burning.

Colorado's native vegetation and ignitability

Most of Colorado's native vegetation is adapted to fire and is ignitable. Common ignitable plants have ignition scores of less than 8. Common ignitable trees are junipers, pines, firs and spruces. Common ignitable shrubs are Gambel oak, three-leaf sumac and mountain mahogany.

Evergreen trees can create a substantial amount of heat and firebrands (embers produced from woody vegetation and structures including fences). Do not plant new evergreens in zone 2; existing evergreens should be in very good condition (with little to no deadwood) and thinned to a minimum canopy separation of 10-15 feet.

Healthy deciduous trees are less likely to ignite, so they are a better choice for defensible space zones 2 and 3. These trees tend to have a higher moisture and lower resin content than evergreens, thus making them a more favorable choice for planting near structures. The most important aspect of managing plants in a fire-prone landscape is to make sure they are well maintained: water regularly, prevent accumulation of dead material and provide clearance between limbs and the ground-regardless of the plant's ignitability status. See Fire-Adapted Landscaping Practices (Fact Sheet 6.303) for more information on these mitigation measures.



Don't forget maintenance

A landscape is a dynamic, constantly changing system. Plants considered ignition resistant and landscapes that have low amounts of ignitable vegetation can lose these characteristics over time. Landscapes, and the plants in them, must be maintained to retain their ignition-resistant properties. Maintenance is addressed in further detail in Fire-Adapted Landscaping Practices (Fact Sheet 6.303).

Supporting publications from CSU Extension, the Colorado State Forest Service and Idaho Firewise

The CSFS Home Ignition Zone guide, Fire-Adapted Landscaping Practices (Fact Sheet 6.303) and Ignition-Resistant Landscape Plants (Fact Sheet 6.305) are considered a package that help guide actions to reduce wildfire risk and impacts. The CSFS Home Ignition Zone guide describes the concepts of structural ignitability and defensible space. Fire-Adapted Landscaping Practices (Fact Sheet 6.303) recommends design features for zones 1, 2 and 3 and recommends plants and mitigation measures for existing vegetation in zone 3. This publication, Ignition-Resistant Landscape Plants (Fact Sheet 6.305), recommends ignition-resistant plants for zones 1 and 2 identified in the defensible space section of the CSFS HIZ guide.

The Idaho materials provided the basis for the addition of the ignitability scoring and approach for this update.

1. Home Ignition Zone: A Guide to Preparing Your Home for Wildfire and Creating Defensible Space
2. Fire-Adapted Landscaping Practices (Fact Sheet 6.303)
3. Idaho Firewise, Fire-Resistant Landscapes – Plant Materials

Opuntia. Photo: Irene Shonle, CSU Extension

Rocky Mountain Penstemon. Photo: Irene Shonle, CSU Extension

Purple Ice Plant. Photo: Irene Shonle, CSU Extension

KEY				
Water needs	VL = very low	L = low	M = medium	H = high
Sun/shade	S = sun	PS = part sun	Sh = shade	Prt Sh = part shade

Native, low-water plants

Native, low-water flowers and ground covers

Scientific name	Common name	Approx. water needs	Sun/shade preference	Approx. mature height	Flower color	Elevation in 1,000' increments	Approx. bloom time	Ignitability rating
Achillea lonulosa, now A. millefolium	common yarrow	**L-H**	**S/PS**	1.5-2'	white	5-10	Jul	9.5
Allium cernuum	nodding onion	**L-H**	**S/PS**	1'	pink/purple	5-10	Jun	10
Allium geyeri	Geyer's onion	**L-H**	**S/PS**	1'	pink	5-10	Jun	10
Antennaria parvifolia	small-leaf pussytoes	**M**	**S/PS**	<0.5'	creamy white	5-10	Jun	8
Antennaria rosea	rosy pussytoes	**M**	**S/PS**	<0.5'	rose	5-10	Jun	8
Aquilegia chrysantha	golden columbine	**M-H**	**S/PS**	1-2'	yellow	5-10	Jun-Aug	8
Asclepias tuberosa	common butterfly weed	**L**	**S**	1-2'	orange	5-6	Summer	8
Symphyotrichum (f. Aster) laeve	smooth aster	**L-H**	**S/PS**	1-3'	blue/lavender	5-10	Aug-Sep	8
Symphyotrichum (f. Aster) porteri	porter aster	**L-M**	**S**	1'	white	5-10	Aug-Sep	8
Astragalus utahensis	Utah milkvetch	**L**	**S**	0.5'	pink/purple	5-6	Spring	8
Callirhoe involucrata	poppy mallow	**L**	**FS**	0.5'	pink/white	5-8	Summer	8
Calochortus gunnisonii	Gunnison's mariposa lily	**M-H**	**S**	0.5-2'	white	5-10	Jul-Aug	8
Campanula rotundifolia	harebell; bluebells of Scotland	**M-H**	**S**	0.5-1'	blue	5-10	May-Oct	9.5
Claytonia lanceolata	western spring beauty	**M**	**Sh**	0.5-1.5'	white	5-10	Mar-Apr	9.5
Coreopsis tinctoria	plains coreopsis	**L-M**	**FS**	3'	yellow	5-9	Summer	8
Erysimum capitatum	western wallflower	**M**	**S/PS**	1'+	yellow	5-10	Jun-Jul	9
Gaillardia aristata	blanketflower	**L-M**	**S**	1-1.5'	yellow-reddish	5-10	Jul-Sep	8
Galium boreale	northern bedstraw	**M-H**	**Sh**	<1'	white	5-10	May-Jun	8
Geranium caespitosum	Rocky Mountain geranium	**M**	**Sh/PS**	2'	pink/purple/ white	5-10	May-Oct	8
Geum triflorum	prairie smoke	**M-H**	**S/PS**	1.5'	reddish pink	5-10	Jun	8
Leucocrinum montanum	sand lily	**L-M**	**S**	<1'	white	5-8	May	10
Linum lewisii	Lewis or blue flax		**FS**	2.5'	blue	5-8	Late Spring-Early Summer	8
Lupinus argenteus	silvery lupine	**M**	**Sh/PS**	1-3'	blue	5-10	Jun-Jul	8
Mertensia lanceolata	prairie bluebell	**M**	**Sh/PS**	1-2'	blue	5-10	May-Jun	10
Oenothera speciosa	evening primrose	**L-M**	**FS**	1-1.5'	white-pink	4-7	May-Jul	8
Penstemon caespitosus	mat penstemon	**L-M**	**S**	<0.5'	purple	5-10	Jun	8

Native, low-water plants

Native, low-water flowers and ground covers

Scientific name	Common name	Approx. water needs	Sun/shade preference	Approx. mature height	Flower color	Elevation in 1,000' increments	Approx. bloom time	Ignitability rating
Penstemon secundiflorus	sidebells penstemon	**L-M**	**S**	1-2'	blue/violet	5-9	May-Jun	8
Penstemon teucrioides	germander beardtongue	**L-M**	**S**	0.5'	purple/violet	5-10	Jun-Jul	8
Penstemon spp.	penstemon species, cultivars	**L-M**	**S**	1-2.5'	blue/purple/ violet	5-9	Summer	8
Penstemon strictus	Rocky Mountain penstemon	**L-M**	**S**	2-2.5'	purple/violet	5-10	May-Jul	8
Penstemon virens	Front Range beardtongue	**M**	**S/PS**	0.5'	blue	5-10	May-Jun	8
sedum lanceolatum	yellow stonecrop	**M**	**S/PS**	0.5'	yellow	5-10	Jul-Aug	10
Thermopsis rhombifolia var. divaricarpa	spreadfruit golden banner	**M-H**	**S/PS**	2'	yellow	5-10	May	8

Native, low-water shrubs and cacti

Amelanchier alnifolia v. utahensis	Utah serviceberry	**VL-M**	**S**	4-6'	white	5-7	May	7.5
Cylindropuntia spp.	Cholla	**VL-M**	**S**	3-5'	pink	5-6	Jun	8
Opuntia spp.	prickly pear	**VL**	**S**	0.5-1'	yellow/pink	5-7.5	May	10
Philadelphus lewisii	Cheyenne mock orange	**M**	**S**	2-3'	white	5-9	Jun	8
Rhus glabra	smooth sumac	**L**	**S**	3-5'	yellow	5-8	Apr	8
Rhus trilobata 'Autumn Amber'	Autumn Amber sumac	**L**	**S/PS**	1'	yellow	5-7.5	Apr	8
Symphoricarpos albus	snowberry	**M**	**S/PS**	2-3'	white/pink	5-9	n/a	8
Yucca baccata	banana yucca	**VL-L**	**S/PS**	2-3'	white	5-6	Jun	8
Yucca glauca	soapweed, Great Plains yucca	**VL-L**	**S/PS**	2-3'	white	5-7	Jun	8

Non-native, low-water plants

Non-native, low-water flowers and ground covers

Aegopodium podagraria "Variegatum"	variegated bishop's weed, goutweed	**M**	**S/PS**	<1'	white	5-8	not showy	8
Ajuga reptans	bugleweed	**H**	**Sh**	<0.5'	blue	5-10	Jun-Jul	8
Alchemilla mollis	Lady's mantle	**M-H**	**PS/Sh**	1'	yellow	5-9	Jun-Jul	8
Arabis spp.	rockcress	**L-H**	**S**	<1'	white	5-10	May-Jun	8
Armeria maritima	sea thrift	**L-H**	**S/PS**	0.5'	white	5-10	Apr-Jun	8
Aubrieta spp.	false rockcress	**M**	**S**	1'	pink/white/ purple	5-9	Apr-May	8
Aurinia saxatilis	basket of gold	**M**	**S/PS**	1'	yellow	5-9	Apr-May	8

Non-native, low-water plants

Non-native, low-water flowers and ground covers

Scientific name	Common name	Approx. water needs	Sun/shade preference	Approx. mature height	Flower color	Elevation in 1,000' increments	Approx. bloom time	Ignitability rating
Bergenia cordifolia	heartleaf bergenia, pigsqueak	**M**	**PS/Sh**	1'	pink/purple	5-9	Spring	8
Centranthus ruber	Jupiter's beard	**L-H**	**S/Sh**	2-2.5'	red	5-9	May-Oct	10
Cerastium alpinum v. lanthanum	alpine mouse-ear	**M**	**S/PS**	1'	white	5-10	May-Jun	8
Cerastium tomentosum	snow-in-summer	**L-M**	**S/PS**	1'	white	5-9	May-Jun	8
Ceratostigma plumbaginoides	plumbago	**L**	**FS-Sh**	0.5'	blue	5-6	Fall	8
Convallaria majalis	Lily-of-the-valley	**H**	**Sh**	<1'	white	5-9	May-Jun	8
Coreopsis spp.	tickseed, coreopsis	**M**	**FS**	1.5-2'	yellow	5-8	Summer	8
Delosperma nubigenum	hardy yellow ice	**M-H**	**S**	0.5'	chartruese-yellow	5-8	Jun	10
Delosperma spp.	ice plant	**L**	**FS**	1.5-2'	yellow	varies	Spring	10
Dianthus spp.	pink	**L-H**	**S**	<0.5'-2'	pink	5-10	May-Aug	9
Diascia integerrima 'Coral Canyon'	Coral Canyon	**M**	**FS-Prt Sh**	1-1.5'	rose-pink	4-7	Summer	9
Doronicum spp.	Leopard's bane	**H**	**S/PS**	2-3'	yellow	5-9	Jul-Aug	10
Echeveria spp.	hens-n-chicks	**L**	**FS-Prt Sh**	1-2'	varies	5-9	Summer	8
Ephedra regeliana	Regel's jointfir	**L**	**FS**	0.5-1'	yellow	5-12	Spring	8
Erysimum linifolium	wallflower	**L**	**FS**	1-3'	varies	4.5-12	Spring-Summer	9
Euonymus fortunei	winter creeper	**M**	**FS-Prt Sh**	3'	green-white	4.5-8	Spring	8
Euphorbia polychroma	cushion spurge	**L**	**FS**	1-1.5'	yellow	5-8	Spring	10
Euphorbia × martini 'Mini Martini'	Martini's spurge	**L-H**	**FS**	1.5-2'	chartruese	4-6	Late Spring	10
Fragariaspp.	wild strawberries	**M**	**FS-Prt Sh**	0.25-0.75'	white	5-11	Summer	9
Geranium spp.	hardy geraniums	**M**	**Sh/PS**	2'	blue/pink/purple/white	5-10	May-Oct	8
Helianthemum nummularium	rockrose, sunrose	**M-H**	**S**	<1'	pink	5-8	May-Jun	8
Hemerocallis sp.	daylilies	**L-M**	**S/PS**	1-3'	yellow/red/orange	5-7.5	Summer	10
Iberis sempervirens 'Little Gem'	Little Gem evergreen	**M**	**FS**	0.5-1'	white	4.5-9	Spring	8
Iris germanica	bearded iris	**L-M**	**S**	1-3'	numerous colors	5-10	May-Jun	8
Kniphofia uvaria	red hot poker	**L**	**S**	3'	red/yellow	5-6	Summer	8
Lamium spp.	spotted deadnettle	**M-H**	**Sh**	<1'	white/purple/pink	5-10	May-Jun	8
Lilium spp.	lilies	**M**	**FS-Prt Sh**	1-8'	varies	4-6.5	Summer	10
Lupinus spp.	lupine	**L-M**	**FS-PS**	2-3'	lavender blue	5-10	Summer	8

Non-native, low-water plants

Non-native, low-water flowers and ground covers

Scientific name	Common name	Approx. water needs	Sun/shade preference	Approx. mature height	Flower color	Elevation in 1,000' increments	Approx. bloom time	Ignitability rating
Marrubium rotundifolium	silver-edged horehound	**VL-L**	**FS**	1.5-2.5'	white	5-6	E. Summer	8
Muscari armeniacum	grape hyacinth	**M**	**FS-PS**	<1'	blue	4.5-10	Spring	10
Nierembergia gracilis 'Starry Eyes'	Starry Eyes' cupflower	**M**	**FS**	<1'	purple (lt. lav.)	4.5-5.5	Summer-L. Summer	8
Nierembergia repens	creeping white cup	**M-H**	**FS-PS**	<0.5'	white	4.5-5.5	July-Sep	8
Oenothera berlandieri	Berlander's sundrop	**L-M**	**FS**	1'	yellow	4.5-6.5	E. Summer-Fall	8
Pachysandra terminalis 'Green Sheen'	Green Sheen pachysandra	**M-H**	**SH**	6-8"	white	4-8	April-May	8
Papaver orientale	Oriental poppy	**H**	**S/Sh**	2-3'	orange/pink/red	5-10	May-Jun	9
Polemonium spp.	Jacobs ladder	**H**	**S/PS**	1-2'	blue/white	5-10	May-Aug	8
Polygonatum commutatum	great Soloman's seal	**M-H**	**PS-SH**	2'	white	4-10	May-Jun	8
Salvia officinalis	common or garden sage	**L-M**	**S/PS**	2'	blue-lavender/pink/lavender	5-8	Jun	7.5
Saxifraga hirsuta	saxifrage	**H**	**S/PS**	0.5'+	white	5-10	May-Jun	8
Scutellaria alpina'Moonbeam'	alpine skullcap	**M**	**FS-PS**	0.5-1'	white/purple	4-8	May	8
Sedum spp.	stonecrop	**M**	**S/PS**	1-1.5'	yellow	5-10	Jul-Aug	10
Sempervivum spp.	hens and chicks, houseleeks	**L-M**	**S/PS**	0.5'	pink	5-10	n/a	10
Solidago sphacelata 'Golden Fleece'	Golden Fleece goldenrod	**VL-M**	**FS**	1-1.5'	yellow	4-8	Aug-Sep	8
Thymus serpyllum 'Minus'	Elfin thyme	**L**	**FS**	<0.5'	pink	4-10	early-late summer	8
Trifolium spp.	clover	**M**	**FS-PS**	1-2'	white/purple/pink	varies/spp.	varies: May-Oct	8
Veronica pectinata	woolly creeping speedwall	**L-M**	**S**	<0.5'	blue	5-9	Apr-Jul	8
Vinca minor	common periwinkle	**H**	**Sh**	<1'	white	5-10	Apr-Jun	8
Waldsteinia spp.	Barren strawberry	**M-H**	**Sh/PS**	<1'	yellow	5-9	May-Jun	8

Non-native, low-water shrubs

Berberis thunbergii 'Atropurpurea Nana'	crimson pygmy Japanese barberry	**M**	**S**	2-3'	yellow	5-7.5	Spring	8
Ceanothus americanus	New Jersey tea' ceanothus	**M**	**S/PS**	2-3'	white	5-7.5	Summer	8
Lonicera tatarica	Tatarian honeysuckle	**M**	**S/PS**	4-6'	white/pink	5-10	May-Jun	8
Yucca filamentosa	Adam's needle	**M**	**S/PS**	2-3'	white	5-8	Jun	8

Turf grasses								
Scientific name	**Common name**	**Approx. water needs**	**Sun/shade preference**	**Approx. mature height**	**Flower color**	**Elevation in 1,000′ increments**	**Approx. bloom time**	**Ignitability rating**
Bouteloua dactyloides	buffalograss	**L**	**FS**	mow to 4″	n/a	5-6.5	n/a	9
Bouteloua gracilis	blue grama	**L**	**FS**	mow to 4″	n/a	4.5-7.5	n/a	9
Festuca ovina	sheep fescue	**M**	**FS**	mow to 4″	n/a	5-9	n/a	9
Lolium perenne	perennial ryegrass	**M**	**FS**	mow to 4″	n/a	5-8	n/a	10
Poa compressa	Canada bluegrass	**M**	**FS**	mow to 4″	n/a	5-8	n/a	9
Poa pratensis	Kentucky bluegrass	**M**	**FS**	mow to 4″	n/a	5-9	n/a	10

Ignition-resistant plants with higher water needs								
Aconitum columbianum	Columbian monkshood	**M-H**	**S**	2′	blue/purple	5-10	Jun-Jul	7.5
Aconitum spp.	monkshood	**M-H**	**S**	2′	blue/purple	5-10	Jun-Jul	7.5
Aquilegia caerulea	Colorado blue columbine	**M-H**	**S/PS**	1-2′	blue-lav./ white	5-10	Jun-Jul	8
Aquilegia spp.	columbine	**M-H**	**S/PS**	1-2′	varies	5-10	Jun-Jul	8
Corylus cornuta	beaked hazelnut	**H**	**S/Sh**	5-6′	yellow-brown	5-7.5	inconspic-uous	8
Hosta spp.	hosta	**M-H**	**PS**	2-3′	varies	varies	Summer-Fall	8
Iris missouriensis Missouri or native iris	Missouri or native iris	**M-H**	**S**	1-2′	violet blue	5-10	May	9.5

Blue Grama Grass. Photo: Larry Allain, USGS NWRC @ USDA-NRCS PLANTS Database

Geranium and Rocky Mountain Columbine. Photo: Irene Shonle, CSU Extension

Wallflowers and Blue Mist Penstemons. Photo: Irene Shonle, CSU Extension

COLORADO STATE UNIVERSITY
EXTENSION

Colorado State University Extension
State Administration Office
Campus Delivery 4040
Fort Collins, CO 80523-4040

COLORADO STATE FOREST SERVICE
COLORADO STATE UNIVERSITY

5060 Campus Delivery
Fort Collins, CO 80523-5060
970-491-6303
csfs.colostate.edu