

Appendix 4: Species Descriptions

Achillea millefolium – Western yarrow

This aggressive rhizomatous forb is a pioneer species in disturbed areas. Due to this extensive system of rhizomes, western yarrow is a good soil binder. It grows in open sites from sagebrush to aspen meadows from 5,000-12,000 feet elevation. It is adapted to coarse shallow soils and is good for erosion control. Western yarrow is an important food of 4- to 8-week-old sage grouse chicks. In Colorado, western yarrow provides good cover for small mammals and small nongame birds.

1. Shaw, Nancy L.; Monsen, Stephen B. 1983. Nonleguminous forbs for rangeland sites. In: Monsen, Stephen B.; Shaw, Nancy, compilers. Managing Intermountain rangelands--improvement of range and wildlife habitats: Proceedings of symposia; 1981 September 15-17; Twin Falls, ID; 1982 June 22-24; Elko, NV. Gen. Tech. Rep. INT-157. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station: 123-131.
2. Braun, Clait E.; Britt, Tim; Wallestad, Richard O. 1977. Guidelines for maintenance of sage grouse habitats. Wildlife Society Bulletin. 5: 99-106.

Astragalus amphioxys – Crescent milkvetch

Crescent milkvetch is a low, bushy perennial growing in salt desert to pinyon juniper open sites. It occurs at elevations of 3,000-6,500 feet in dry coarse soils. It blooms in early spring and forms pods by early summer. It is very drought tolerant. Crescent milkvetch is a can fix nitrogen from the soil.

Astragalus eastwoodiae Eastwood's milkvetch

Eastwood's milkvetch blooms in early spring and forms pods by early summer. It occurs in Semi-desert environments in Openings.

Astragalus mollissimus Woolly milkvetch

Woolly milkvetch is a native perennial found in pinyon-juniper and desert shrub communities. It grows in sandy soils. It can be toxic to horses.

Aster glaucoides - Blue aster

Blue aster is a native perennial that is well adapted to harsh sites. It occurs at elevations between 5,000 and 9,500 ft. It is adapted to calcareous and saline soils. Big game and livestock graze on blue aster.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Balsamorhiza sagittata – Arrowleaf balsamroot

Arrowleaf balsamroot is a long-lived, deep-rooted perennial growing in sagebrush to ponderosa pine zones. It occurs in well drained soils at elevations of 6000-9000 feet. Arrowleaf balsamroot begins growth early and is utilized on spring ranges. It is rated as fair forage for all classes of wildlife. Flowers are especially palatable. Game animals and domestic sheep may eat the seedheads before seed ripens. Deer and elk both use leaves and flowers before plants turn dry.

1. Stanton, Frank. 1974. Wildlife guidelines for range fire rehabilitation. Tech. Note 6712. Denver, CO: U.S. Department of the Interior, Bureau of Land Management. 90 p.
2. Gary A. Monroe @ USDA-NRCS PLANTS Database

Chaetopappa ericoides - Sand aster

Sand aster is a diminutive bushy perennial that prefers sandy/rocky soils in desert to pinyon-juniper sites. It occurs from 4,500-8,000 feet elevation. It spreads with short rhizomes, is abundant where found, and blooms in spring to early summer.

Cryptantha flavoculata - Roughseed cat's eye

Roughseed cat's eye is a common bushy perennial of rocky soils in pinyon-juniper to mountain shrub zones. It occurs at elevations of 5,500-9000 feet. It is a long-lived plant and very tolerant of heat and drought.

Erigeron pumilis - Shaggy fleabane

Shaggy fleabane is a widely distributed small perennial. It occurs at elevations from 3,000-9,000 feet. It is found in sagebrush, pinyon-juniper, and ponderosa pine areas. It returns quickly in disturbed sites and is tolerant of a wide range of soils and habitats and may bloom through the summer depending on precipitation.

1. USDA Plants Database

Eriogonum ovalifolium - Cushion buckwheat

Cushion buckwheat is a native perennial forb that occurs in desert to alpine communities from 4,500 to 11,000 feet elevation. It flowers in early to mid spring and seeds ripen in early summer.

1. Meyer, Susan: USFS Rocky Mountain Research Station, Shrub Sciences Laboratory, Provo, Utah.

Eriogonum racemosum - Redroot buckwheat

Redroot buckwheat is a native perennial forb that occurs in openings from foothills to subalpine communities.

1. www.swcoloradowildflowers.com

Hedysarum boreale - Utah sweetvetch

Utah sweetvetch is a native perennial. It begins growth in early spring and provides a considerable amount of highly palatable forage to big game and livestock [1]. It is able to fix nitrogen from the soil. It occurs in big sagebrush, pinyon-juniper and ponderosa pine ecotypes in varied soil types. It is resilient to fire.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Hetertheca villosa - Hairy golden aster

Hairy golden aster is a perennial that occurs over a wide range of sites from sagebrush to aspen from 4000-9000 feet elevation. It grows in thick patches, is long-blooming (depending on precipitation) and a prolific seed producer. It thrives in hot dry rocky sites with shallow soils, but also found in deeper loam soils.

1. USDA Plants Database

Lesquerella rectipes - Straight bladderpod

Straight bladderpod is a native perennial forb that occurs at elevations of 6000-8000 feet.

1. www.nazflora.org
2. *Linum lewisii* - Blue flax

This perennial plant thrives in a wide range of conditions from sagebrush and pinyon juniper to aspen and ponderosa pine from 4000-11000 feet elevation [1]. It prefers open sunny conditions and thrives in disturbed sites, grows easily from seed. Also has good forage value, helps suppress fire, and competes well with cheatgrass.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Lupinus sericeus - Silky lupine

Silky lupine is a native perennial existing in dry sites from sagebrush to mountain shrub and aspen communities from 6,000-10,000 feet elevation. It is found in early seral to climax communities, can tolerate some shade, and is a nitrogen fixer and is useful in the rehabilitation of disturbed areas [2]. It is a good early season forage plant and has excellent drought tolerance. Silky lupine provides fair to good cover for small nongame birds and small mammals. [1]

1. Dittberner, Phillip L.; Olson, Michael R. 1983. The plant information network (PIN) data base: Colorado, Montana, North Dakota, Utah, and Wyoming. FWS/OBS-83/86. Washington, DC: U.S. Department of the Interior, Fish and Wildlife Service. 786 p.
2. Cotts, N. R.; Redente, E. F.; Schiller, R. 1991. Restoration methods for abandoned roads at lower elevations in Grand Teton National Park, Wyoming. Arid Soil Research and Rehabilitation. 5: 235-249.

Penstemon cyanocaulis - Bluestem penstemon

This penstemon is endemic in Colorado to the Uncompahgre Plateau, and is found in pinyon juniper to ponderosa pine in semi-shaded areas. It grows well in rocky well-drained soils from 5000-8000 feet elevation. It returns in abundance after fire and is commonly browsed by wildlife.

Penstemon palmeri – Palmer penstemon

Palmer penstemon is similar to *P. cyanocaulis*. It grows easily from seed and is a good pioneer plant for disturbed sites in sagebrush and pinyon juniper areas. It is also commonly browsed by wildlife. It is found in shallow rocky soils, a long-lived perennial, and persistent after disturbance.

Penstemon comarrhenus - Dusty beardtongue

This penstemon is commonly found in sagebrush and pinyon juniper, and preferred by wildlife. It is difficult to locate unbrowsed plants producing seed. It seems to prefer full sun and can grow well in disturbed areas with soils ranging from shallow rocky types to heavier loams.

Petradoria pumila - Rock goldenrod

Rock goldenrod is a very common plant in sagebrush to mountain shrub areas from 5,000-9,000 feet elevation. It returns easily after disturbance from the soil seedbank. It is long-lived and persistent, surviving fire well.

Senecio (Packera) multilobata – Many-lobed groundsel

Many-lobed groundsel grows in large patches in sagebrush to pinyon juniper sites. It is a biennial plant that goes to seed in early summer and grows new plants in late summer-fall. Elevation ranges from 4,000-9,000 feet. It can tolerate various soils from clay to sandy loam.

Sphaeralcea coccinea - Scarlet globemallow

Scarlet globemallow is a perennial rhizomatous plant found in a wide range of sites and elevations from salt desert to mountain shrub. It thrives in disturbed sites such as roadsides and is an excellent pioneer plant, often one of the first plant to appear after disturbance or fire. Its spreading root system makes it a good soil stabilizer and it can have a long bloom season depending on the precipitation. Scarlet globemallow is commonly eaten by almost all species of herbivores where it occurs and is an important part of the diets of small mammals, pronghorn, sheep, and cattle [1]. Scarlet globemallow is also very drought tolerant [2].

1. Grygiel, Carolyn E; Bonham, Charles D.; Redente, Edward F. 1984. Combined effects of environmental and agronomic factors on the invasion patterns of *Sphaeralcea coccinea* (Nutt.) Rydb. (Malvacea). *Phytologia*. 56(3): 145-153.
2. Johnson, James R.; Nichols, James T. 1970. Plants of South Dakota grasslands: A photographic study. Bull. 566. Brookings, SD: South Dakota State University, Agricultural Experiment Station. 163 p.

Stenotus armeroides - Ring grass

Common perennial of dry open sites in pinyon juniper. It is long-lived and prefers sandy to rocky soils. Usually found in climax communities.

1. www.swcoloradowildflowers.com

Tetranneuris acaulis – Actinea

Actinea is a native perennial forb that occurs on dry, sandy soils. It occurs at elevations from 4000–7000 feet [1]. Its showy, yellow flowers attract butterflies and birds [2]. It is very cold hardy, heat tolerant, and drought tolerant.

1. www.hort.purdue.edu
2. www.wildflower.org

Shrubs

Amelanchier alnifolia - Saskatoon serviceberry

Saskatoon serviceberry is a valuable wildlife plant. Deer and elk browse twigs and foliage; fur and game mammals such as black bear, beaver, and hares consume twigs, foliage, fruits, and bark. Birds consume the fruits and buds, and many species of rodents eat the fruits [1,2]. Where available in quantity, Saskatoon serviceberry is often a primary or important component of the winter diet of big game species. Elk would often browse all available twigs before moving to another area [3]. Saskatoon serviceberry is used for reclamation [3] and for wildlife plantings. Saskatoon serviceberry grows on well-drained, relatively infertile soils but also occurs on nutrient-rich substrates [4]. Saskatoon serviceberry apparently does not tolerate prolonged drought.

1. Martin, Alexander C.; Zim, Herbert S.; Nelson, Arnold L. 1951. American wildlife and plants. New York: McGraw-Hill Book Company, Inc. 500 p.
2. Van Dersal, William R. 1938. Native woody plants of the United States, their erosion-control and wildlife values. Washington, DC: U.S. Department of Agriculture. 362 p.
3. Hemmer, Dennis M. 1975. Serviceberry: ecology, distribution, and relationships to big game. Missoula, MT: University of Montana. 76 p. Thesis.
4. Stanton, Frank. 1974. Wildlife guidelines for range fire rehabilitation. Tech. Note 6712. Denver, CO: U.S. Department of the Interior, Bureau of Land Management. 90 p.

Artemisia nova – Black sage

Black sagebrush is a small, spreading, native, aromatic, evergreen shrub. It has a scattered distribution throughout much of the western United States. Black sagebrush is a significant browse species within the Intermountain region. It is especially important on low elevation winter ranges where extended snowfree periods allow animals access to plants throughout most of the winter [1]. In these areas it is heavily utilized by pronghorn and mule deer [2,3] and is highly preferred by domestic sheep [4]. Black sagebrush is a highly nutritious winter forage. Black sagebrush provides valuable ground cover in areas where few other species are adapted. Black sagebrush is an excellent species to establish on sites where management objectives include restoration or improvement of domestic sheep, pronghorn, or mule deer winter range.

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2. Beale, Donald M.; Smith, Arthur D. 1970. Forage use, water consumption, and productivity of pronghorn antelope in western Utah. *Journal of Wildlife Management*. 34(3): 570-582.
3. McAdoo, J. Kent; Klebenow, Donald A. 1979. Native faunal relationships in sagebrush ecosystems. In: *The sagebrush ecosystem: a symposium: Proceedings; 1978 April; Logan, UT*. Logan, UT: Utah State University, College of Natural Resources: 50-61.
4. Clary, Warren P. 1986. Black sagebrush response to grazing in the east-central Great Basin. In: McArthur, E. Durant; Welch, Bruce L., compilers. *Proceedings--symposium on the biology of Artemisia and Chrysothamnus; 1984 July 9-13; Provo, UT*. Gen. Tech. Rep. INT-200. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station: 181-185.

Artemisia tridentata ssp. *tridentata* – Basin big sagebrush

Big sagebrush is one of the most widespread and economically important shrubs in western North America [1]. In Colorado and Utah, it occurs at an elevation range of 2,001-7,019 feet. Considerable quantities of big sagebrush are eaten by sage grouse, mule deer, and pronghorn [2]. Basin big sagebrush generally is not preferred by sage grouse; however, the birds do exhibit preferences for certain individual plants. Sage grouse readily feed on basin big sagebrush where mountain and Wyoming big sagebrush are absent [112]. Basin big sagebrush may serve as emergency food during severe winter weather, but it is not usually sought out by livestock or wildlife [7]. However, researchers emphasize that although basin big sagebrush is not preferred by wildlife, it is nevertheless, heavily used particularly during winter when preferred taxa are not available. Basin big sagebrush shows high potential for range restoration and soil stabilization [4]. Big sagebrush grows rapidly and spreads readily from seed. Basin big sagebrush is an erect, rounded or somewhat spreading evergreen shrub which normally grows 3 to 10 feet (1-2 m) in height [110]. It can reach a height of 16 feet on deep, well-drained soils in sheltered areas.

1. Freeman, D. C.; Turner, W. A.; McArthur, E. D.; Graham, J. H. 1991. Characterization of a narrow hybrid zone between two subspecies of big sagebrush (*Artemisia tridentata*: Asteraceae). *American Journal of Botany*. 78(6): 805-815.
2. Shaw, Nancy L.; Monsen, Stephen B. 1990. Use of sagebrush for improvement of wildlife habitat. In: Fisser, Herbert G., ed. *Wyoming shrublands: Aspen, sagebrush and wildlife management: Proceedings, 17th Wyoming shrub ecology workshop; 1988 June 21-22; Jackson, WY*. Laramie, WY: Wyoming Shrub Ecology Workshop, University of Wyoming, Department of Range Management: 19-35.
3. Welch, Bruce L.; Wagstaff, Fred J.; Roberson, Jay A. 1991. Preference of wintering sage grouse for big sagebrush. *Journal of Range Management*. 44(5): 462-465.
4. McArthur, E. Durant; Giunta, Bruce C.; Plummer, A. Perry. 1977. Shrubs for restoration of depleted range and disturbed areas. *Utah Science*. 35: 28-33.

Artemisia tridentata spp. *vaseyana* - Mountain big sagebrush

Mountain big sagebrush is a common sagebrush pinyon-juniper woodlands. In Colorado, it occurs at an elevation of 7,760 to 8,480 feet [3]. Mountain big sagebrush is a highly preferred and nutritious winter forage for mule deer [1]. Mountain big sagebrush is a long-lived (50+ years), woody, aromatic, native, evergreen shrub [2].

1. Welch, Bruce L.; Wagstaff, Fred J. 1992. 'Hobble Creek' big sagebrush vs. antelope bitterbrush as a winter forage. *Journal of Range Management*. 45(2): 140-142.
2. Beetle, Alan A.; Johnson, Kendall L. 1982. Sagebrush in Wyoming. Bull. 779. Laramie, WY: University of Wyoming, Agricultural Experiment Station. 68 p.
3. Bonham, C. D.; Cottrell, T. R.; Mitchell, J. E. 1991. Inferences for life history strategies of *Artemisia tridentata* subspecies. *Journal of Vegetation Science*. 2(3): 339-344.

Artemisia tridentata spp. *wyomingensis* - Wyoming big sagebrush

Wyoming big sagebrush occurs in pinyon-juniper woodlands and ponderosa pine forests, often as a dominant shrub [1]. Wyoming big sagebrush communities are important winter ranges for big game [2,3]. Wyoming big sagebrush is generally the most palatable of the big sagebrush subspecies. Wyoming big sagebrush provides cover for a variety of wildlife including pronghorn [4,5], bighorn sheep [6], shrub-nesting birds, and some ground-nesting birds including sage grouse. Cover of mature shrubs is especially important to pronghorn fawns and sage grouse brood [7]. Wyoming big sagebrush is used for stabilizing slopes and gullies and for restoring degraded wildlife habitat, rangelands, mine spoils, and other disturbed sites [3]. It is the most drought tolerant of the 3 major big sagebrush subspecies [8]. Plants are generally 18 to 30 inches (46-76 cm) tall, with rounded, uneven crowns. In Colorado and Utah, it occurs at an elevation of 5,030 to 6,530 feet.

1. Eddleman, Lee E.; Miller, Patricia M.; Miller, Richard F.; Dysart, Patricia L. 1994. Western juniper woodlands (of the Pacific Northwest): Science assessment. Walla Walla, WA: Interior Columbia Basin Ecosystem Management Project. 131 p
2. Hironaka, M.; Fosberg, M. A.; Winward, A. H. 1983. Sagebrush-grass habitat types of southern Idaho. Bulletin Number 35. Moscow, ID: University of Idaho, Forest, Wildlife and Range Experiment Station. 44 p
3. McArthur, E. Durant; Giunta, Bruce C.; Plummer, A. Perry. 1977. Shrubs for restoration of depleted range and disturbed areas. *Utah Science*. 35: 28-33.
4. Sundstrom, Charles; Hepworth, William G.; Diem, Kenneth L. 1973. Abundance, distribution and food habits of the pronghorn: A partial characterization of the optimum pronghorn habitat. Bulletin No. 12. Boise, ID: U.S. Bureau of Sport Fisheries and Wildlife, Division of River Basin Studies. 59 p.
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6. Krausman, Paul R.; Valdez, Raul; Bissonette, John A. 1996. Bighorn sheep and livestock. In: Krausman, Paul R., ed. Rangeland wildlife. Denver, CO: The Society for Range Management: 237-243.
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8. Meyer, Susan E.; Monsen, Stephen B. 1993. Genetic considerations in propagating native shrubs, forbs, and grasses from seed. In: Landis, Thomas D., ed. Proceedings, Western Forest Nursery Association; 1992 September 14-18; Fallen Leaf Lake, CA. Gen. Tech. Rep. RM-221. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 47-54

Atriplex canescens - Fourwing saltbush

Fourwing saltbush is a native woody shrub that is erect and round in form, with rigid, brittle stems. Fourwing saltbush is salt, cold, and drought resistant [1,2]. Fourwing saltbush is adapted to desert climates. In Colorado, it

occurs at an elevation range of 4,000-8,000 ft [3]. Fourwing saltbush is fire-resistant compared to most associated shrubs.

1. Aldon, Earl F.; Cavazos Doria, J. Rafael. 1995. Growing and harvesting fourwing saltbush (*Atriplex canescens* [Pursh] Nutt.) under saline conditions. In: Roundy, Bruce A.; McArthur, E. Durant; Haley, Jennifer S.; Mann, David K., compilers. Proceedings: wildland shrub and arid land restoration symposium; 1993 October 19-21; Las Vegas, NV. Gen. Tech. Rep. INT-GTR-315. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station: 299-304.
2. Schultz, Brad W.; Ostler, W. Kent. 1995. Effects of prolonged drought on vegetation associations in the northern Mojave Desert. In: Roundy, Bruce A.; McArthur, E. Durant; Haley, Jennifer S.; Mann, David K., compilers. Proceedings: wildland shrub and arid land restoration symposium; 1993 October 19-21; Las Vegas, NV. Gen. Tech. Rep. INT-GTR-315. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station: 228-235.
3. Harrington, H. D. 1964. Manual of the plants of Colorado. 2d ed. Chicago: The Swallow Press, Inc. 666 p.

Cercocarpus montanus - True mountain-mahogany

True mountain-mahogany commonly occurs as a dominant shrub or small tree in almost-pure stands, as a codominant in mountain shrub communities, and as an understory species in pinyon-juniper communities. True mountain-mahogany is good forage for all classes of browsing animals in both summer and winter [1,2,3]. Livestock and big game browse new growth in the spring [3]. Deer and elk consume the leaves and twigs of true mountain-mahogany in the summer and browse the twigs in winter [3]. True mountain-mahogany provides cover for a wide variety of wildlife species. True mountain-mahogany can be used to improve ranges or rehabilitate mountain shrub and pinyon-juniper communities [4,5], although it may be difficult to establish [6]. True mountain-mahogany exhibits relatively low seedling vigor and initial growth rates [6]. Regional seed sources should be used in revegetation work [7].

True mountain-mahogany is a native, deciduous shrub or small tree growing up to 19.8 feet (6 m) tall [1]. In Colorado, It occurs at an elevation range of 4,000 to 10,000 feet. True mountain-mahogany is somewhat shade tolerant. True mountain-mahogany burns less readily than other shrubs [8] and sprouts vigorously from the root crown after most fires [9,10].

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2. Davis, James N. 1990. General ecology, wildlife use, and management of the mountain mahoganies in the Intermountain West. In: Johnson, Kendall L., ed. Proceedings, 5th Utah shrub ecology workshop: The genus *Cercocarpus*; 1988 July 13-14; Logan, UT. Logan, UT: Utah State University, College of Natural Resources: 1-13.
3. Stanton, Frank. 1974. Wildlife guidelines for range fire rehabilitation. Tech. Note 6712. Denver, CO: U.S. Department of the Interior, Bureau Land Management. 90 p.
4. Monsen, Stephen B.; McArthur, E. Durant. 1985. Factors influencing establishment of seeded broadleaf herbs and shrubs following fire. In: Sanders, Ken; Durham, Jack, eds. Rangeland fire effects: a symposium: Proceedings of the symposium; 1984 November 27-29; Boise, ID. Boise, ID: U.S. Department of the Interior, Bureau of Land Management, Idaho State Office: 112-124.
5. Stevens, Richard. 1983. Species adapted for seeding mountain brush, big, black, and low sagebrush, and pinyon-juniper communities. In: Monsen, Stephen B.; Shaw, Nancy, compilers. Managing Intermountain rangelands--improvement of range and wildlife habitats: Proceedings; 1981 September 15-17; Twin Falls, ID; 1982 June 22-24; Elko, NV. Gen. Tech. Rep. INT-157. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station: 78-82.
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UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station: 316-329

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9. Bradley, Anne F.; Noste, Nonan V.; Fischer, William C. 1991. Fire ecology of forests and woodlands in Utah. Gen. Tech. Rep. INT-287. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 128 p.
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Chrysothamnus depressus, Dwarf rabbitbrush

Dwarf rabbitbrush is a common small shrub found in sagebrush to mountain shrub sites from 3,300-6,900 feet elevation [1]. It is found in a variety of soils. It grows well after disturbance and often used to revegetate poor soils. It has a high forage value and is used by wildlife year-round. Often stands are found very heavily browsed.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Chrysothamnus nauseosus - Rubber rabbitbrush

Rubber rabbitbrush grows in openings in sagebrush, pinyon-juniper, and ponderosa pine stands [1]. In general, wildlife and livestock forage only lightly on this species during the summer, but winter use can be heavy in some locations [2]. Rubber rabbitbrush provides good cover for several species of nesting birds. Rubber rabbitbrush is excellent for soil stabilization and erosion control [3]. Rubber rabbitbrush has a deep root system and can establish rapidly, even on severe sites [5]. Plants produce large quantities of leaf litter which produces soil mulch. On poor sites litter is important as a means of recycling nutrients to the soil surface from the deeper rooting profile. In the Great Basin, rubber rabbitbrush grows from 3,000 to 8,000 feet [4].

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Chrysothamnus viscidiflorus - Green rabbitbrush

Green rabbitbrush is most commonly found in big sagebrush communities with other subspecies of low rabbitbrush. Green rabbitbrush provides an important source of browse for livestock and wildlife, particularly in the late fall and early winter after more palatable species have been depleted. Green rabbitbrush is well suited for revegetating disturbed sites such as road cuts, strip mines, and depleted rangelands due to its prolific seed production and relatively high germination rates [1]. It can be used for erosion control and to stabilize mass soil slippage and increase surface stability [2]. Once plants are established, growth is rapid.

Green rabbitbrush is a low native shrub. It is well adapted to drought and occurs in desert or semi-desert environments [3]. It grows on dry, well-drained medium to coarse-textured soils and exhibits fair salt tolerance [4]. Green rabbitbrush is most commonly found at elevations between 2,600 and 11,000 feet [5].

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Cowania (Purshia) stansburiana - Cliffrose

Cliffrose is a long-lived shrub found in rocky well-drained soils from 4,000-9,000 feet elevation. It is often mixed with mountain shrub and pinyon-juniper. It has highest forage value in winter, when it has high protein content [1]. It is not tolerant of fire, mechanical treatment, or weed invasion, but can function well as a pioneer plant in native communities [2], as long as it is protected from overgrazing. It can be used as a winter range plant.

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Ephedra viridis – Green ephedra

Green Ephedra is a component of shrub communities from 3,000-9,000 feet elevation. It occurs in hot rocky areas. It is valuable as a forage and seed plant for many wildlife species. It is adapted to many soil types and very drought tolerant. Green ephedra is an important browse species for big game and domestic livestock [1]. It is heavily browsed by livestock and big game on winter range but only moderately or lightly browsed during other seasons [2]. Green ephedra is listed as a successful shrub for restoring western rangeland communities [3] and can be used to rehabilitate disturbed lands [4]. It also has value for reducing soil erosion on both clay and sandy soils.

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Purshia tridentate – Antelope bitterbrush

Antelope bitterbrush is a long-lived shrub usually found in mountain shrub to ponderosa pine community types from 6,000-8,000 feet elevation. It is a very desirable forage plant and seeds are also used by wildlife [1]. Soil preferences can vary with plant ecotypes, varying from coarse shallow soils to deeper loams. It is a good pioneer species for revegetation of harsh disturbed sites.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Rosa woodsii – Woods rose

Woods rose is a deciduous shrub that occurs at elevations from 2,800 to 11,00 feet. [1] It occurs from sagebrush to spruce-fir zones in varied, well drained soil types from loam to sandy [2]. It can grow in shade to full sunlight. Woods rose resprouts following fire. It is a useful plant for disturbed areas. It is browsed by big game during most seasons and provides excellent nesting for birds and small mammals [3].

2. Welch, B.L.; McArthur, E.D.; Rodrigues, R.L. 1987. Variation in utilization of big sagebrush accessions by wintering sheep. Journal of Range Mgt. 40: 343-346.
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Grasses

Agropyron smithii – Western wheatgrass

Western wheatgrass is a native, rhizomatous, long-lived, cool-season perennial grass. Livestock and big game graze it during most seasons. It occurs in heavy clay soils. It can be an important understory grass in the openings of pinyon-juniper and ponderosa pine communities. It occurs at an elevation range of 3,600 to 10,000 feet in Colorado. Western wheatgrass is a good soil binder and is well suited for reclamation of disturbed sites such as surface coal mines, erosion control, and soil stabilization.

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Bouteloua gracilis – Blue grama

Blue grama is a low-growing, densely tufted, warm-season perennial grass [1]. It is adapted to a variety of soils but is most abundant on well-drained, sandy soils. It is highly fire tolerant but it is not shade tolerant. It occurs at elevations of 3,500 to 10,500 feet [2]. In grass to sagebrush communities and sometimes in pinyon-juniper and ponderosa pine communities. It provides high-quality forage for livestock and wildlife and is drought tolerant.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.
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Bromus marginatus – Mountain brome

Mountain brome is a tall, short-lived native perennial grass. It occurs in high elevation sites from mountain shrub to spruce-fir zones. Mountain brome occurs on a wide variety of soils but most often occurs on medium-textured to loamy soils. It is winter hardy. It is palatable to livestock and big game.

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Elymus cinereus – Basin wildrye

Basin wildrye is a perennial bunchgrass. It occurs in deep, silty to clayey soils. Basin wildrye occurs in salt desert shrubland to ponderosa pine communities from elevations of 1,970 to 9,840 feet. It is an important forage species for wildlife and domestic livestock. It is valuable for erosion control because of its deep, spreading root system.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. Restoring Ranges and Wildlands, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.

Elymus elymoides – Bottlebrush squirreltail

Bottlebrush squirreltail is a cool season, perennial bunchgrass. It occurs at elevations from 3,510 to 11,400 feet. Bottlebrush squirreltail inhabits a wide variety of soil types and is tolerant of saline and alkaline soils. It is widely

distributed in salt-desert shrub ranges of the west, on dry, gravelly soils, or within alkaline conditions. Bottlebrush squirreltail is tolerant of disturbance. It is browsed by wildlife and livestock although mature awns may penetrate flesh around the mouth of grazing animals, producing inflammation.

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Elymus salinus – Salina wildrye

Salina wildrye is an erect, densely tufted perennial bunchgrass. It is found from salt desert shrublands to aspen and conifer communities. Salina wildrye is drought resistant and adapted to dry, loamy soils. It is palatable when it is green but unpalatable after that.

1. Monsen, Stephen B.; Stevens, Richard; Shaw, Nancy L. 2004. *Restoring Ranges and Wildlands*, Gen. Tech. Rep. RMRS-GTR-136-vol-2. Fort Collins, Co; US. Dept. of Ag., Forest Service, RMRS. 295-698.
2. Vallentine, J.F. 1989. *Range development and improvements*. 3d ed. San Diego, CA: Academic Press, Inc. 524 p.

Hilaria jamesii – Galleta

Galleta is a rhizomatous, warm-season, perennial grass. It occurs in dry desert shrublands to pinyon-juniper and ponderosa pine communities from elevations of 4,000 to 8,000 feet. It grows in a variety of soils, requiring low soil fertility. It is tolerant of salinity and alkalinity. It is also tolerant of drought and cold. Galleta produces considerable nutritious forage and withstands heavy grazing.

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Koeleria macrantha – Prairie junegrass

Prairie junegrass is a perennial bunchgrass. It is found in a variety of soil types from dry to moist clay loam to sandy or sometimes rocky soils. It occurs at elevations of 5,000 to 8,000 feet. It is utilized by wildlife and livestock as forage. Prairie junegrass may be useful for reestablishing vegetation resistant to annual weed encroachment due to the early spring emergence of its seedlings.

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Oryzopsis hymenoides – Indian ricegrass

Indian ricegrass is a densely-tufted perennial bunchgrass with a deep root system. It can be found at elevations ranging from 2,000 to 10,000 feet. It is commonly found on sandy soils on drier sites. Indian ricegrass is one of the most drought-tolerant native range grasses. Indian ricegrass is highly palatable to wildlife and livestock, providing good nutrition in winter.

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Poa fendleriana - Muttongrass

Muttongrass is a perennial bunchgrass. It occurs from the pinyon-juniper zone to ponderosa pine and aspen communities. It is best adapted to clay loam soils. Muttongrass begins growth in early spring and is grazed by wildlife and livestock. Plants green up in the fall and offer good-quality forage at this period. It is considered drought-tolerant.

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Poa secunda – Sandberg bluegrass

Sandberg bluegrass is an early perennial bunchgrass. It grows at elevations of 980 to 12,000 feet. It occurs on dry plain and foothills to aspen and conifer communities. Sandberg bluegrass occurs on a wide range of soil types but is most productive on deep, well-drained sandy clay, silt, and sandy loam soils. It is one of the earliest grasses to be grazed in the spring. It provides high-quality forage for livestock and wildlife.

1. U.S. Department of Agriculture, Forest Service. 1937. Range plant handbook. Washington, DC: U.S. Department of Agriculture, Forest Service. Variously paginated.
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Sporobolus cryptandrus – Sand dropseed

Sand dropseed is a drought-tolerant, native bunchgrass. It occurs most often in deserts or lowlands in sandy soils. It is especially palatable for wildlife and livestock in spring to midsummer. Plants will respond to fall rains and provide succulent forage into the winter months. Sand dropseed is an important species that can be used to slow the spread of cheatgrass due to its competitive nature.

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Stipa comata – Needle-and-threadgrass

Needle-and-threadgrass is a long-lived, native, perennial, cool-season bunchgrass. It occurs in sagebrush, pinyon-juniper and ponderosa pine communities from 3,500 to 10,000 feet elevation. It is most often found on well-drained soils. It is drought-tolerant. Needle-and-threadgrass is an important range grass for livestock and wildlife because of its early spring and late fall greenup. Its palatability is rated very high in early spring before the sharp awns develop.

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