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Water Wise

Wendy Mee

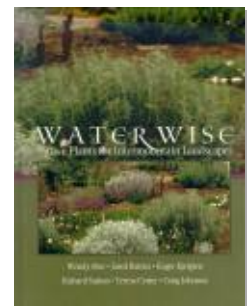
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Grasses

Achnatherum hymenoides
(*Oryzopsis hymenoides*)

INDIAN RICEGRASS

Poaceae (Grass family)
tribe *Stipeae*

Appearance

FORM/SIZE: Bunch, culms dense, erect, 1'–25' tall.

ROOTS: Fibrous, 18" minimum rooting depth. Suspected association with blue-green algae.

LEAVES: Leaf blades narrow, margins rolled inward. Sheaths open, partially enclosing the panicle.

INFLORESCENCE: Panicle, open, the spikelet branches spreading, dichotomous. Spikelets 1-flowered, lemmas dark to black at maturity, densely hairy, awned, the awn nonpersistent.

SEASON: Cool. Flowers in late spring.

Natural Habitat

HABITAT AND RANGE: Deserts, prairies, plains, foothills. British Columbia to Manitoba, south throughout western U.S., east through the Great Plains and TX.

ELEVATION: 2,500'–9,000'.

PLANT COMMUNITIES: Parkland, mountain brush, pinyon-juniper, shrub steppe, cool desert shrub, salt desert shrub, sand desert shrub.

SOIL: Medium to coarse, deep, sandy, sandy loam, well-draining, silty, alkaline soils, pH 6.6–8.6, low fertility.

EXPOSURE: Open sites, shade-intolerant.

Landscape Use

HARDINESS ZONES: Hardy to –38°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Seed planting depth of 2"–3" necessary, plant in fall or stratify. High seedling vigor, moderate spread.

MAINTENANCE: Moderate life-span, intolerant of anaerobic or saline conditions.

BEST USE: Dryland gardens; naturalized, restoration, or wildlife plantings; ornamental, airy quality.

WILDLIFE VALUE: Valuable for birds and small game, grazing, especially good in winter as cures well.

Seeds highly nutritious.

Comments

Indian ricegrass is one of the most attractive grasses native to the Intermountain West with its airy and luminous inflorescences, and it maintains its form even after going dormant in midsummer. It is also an important wildlife species due to its nutritious and relatively large seeds. There is a company in Montana that is marketing Indian ricegrass meal for human consumption. Given the value of seed for restoration and wildlife purposes, let alone the landscape, it is hard to imagine it being economically successful. Indian ricegrass does best on well-drained soils, as it is very short-lived on soils with slower drainage.



SUSAN MEYER



WENDY MEE



USU HERBARIUM



SUSAN MEYER



SUSAN MEYER

Achnatherum speciosum (*Stipa speciosa*)

DESERT NEEDLEGRASS

Poaceae (Grass family)
tribe *Stipeae*

Appearance

FORM/SIZE: Bunch. Culms erect, to 2' tall, with whitish coating throughout.

ROOTS: Fibrous, minimum rooting depth 10".

LEAVES: Leaf blades narrow, margins rolled inward, threadlike, stiffly erect, sheaths open.

INFLORESCENCE: Narrow panicle, branches erect or ascending, lemmas awned, the awns 1½" long, twisted and densely hairy.

SEASON: Cool.

Natural Habitat

HABITAT AND RANGE: Deserts, open, rocky sites. Southwestern U.S. and northern Mexico; South America.

ELEVATION: 2,600'–6,200'.

PLANT COMMUNITIES: Pinyon-juniper, shrub steppe, cool desert shrub, sand desert shrub.

SOIL: Coarse- to medium-textured, pH 6.0–8.0, low fertility.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: To –13°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Moderate growth rate.

MAINTENANCE: Moderate life-span, low tolerance to anaerobic or saline conditions.

BEST USE: Ornamental, revegetation desert sites.

WILDLIFE VALUE: Browsed and grazed, awns can be problematic.

Comments

Desert needlegrass is found in a wide geographic range, generally in very hot climates that extend into the Mojave Desert. It forms erect clumps crowned with whitish, nearly transparent flowers, with awns adding a wispy effect.

Aristida purpurea

PURPLE THREEAWN

Poaceae (Grass family)
tribe *Aristideae*

Appearance

FORM/SIZE: Bunch, dense. Culms erect, 12"–20" tall. Smooth.

ROOTS: Fibrous.

LEAVES: Mostly basal, blade margins usually rolled inward, sharply pointed. Sheaths open, hairy at top, nonauriculate.

INFLORESCENCE: Slender panicle, nodding, loose, purplish.

Spikelets with single, cylindrical floret, terminally three-awned, the awns equal and spreading.

SEASON: Warm. Begins growth in late spring. Strong competitor. Produces many seeds.

Natural Habitat

HABITAT AND RANGE: Prairies, dry hills, disturbed sites.

Southwestern Canada, south in the western and central U.S., and in northern Mexico.

ELEVATION: 2,700'–7,600'.

PLANT COMMUNITIES: : Mountain brush, pinyon-juniper, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Dry, sandy, alkali- and salt-tolerant.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Range indicates cold hardiness.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Quick.

MAINTENANCE: Care-free, minimal requirements, self-spreading.

BEST USE: Disturbed, dry, alkaline, salty, sandy site revegetation. Medium to short grass for prairie or sandy garden.

WILDLIFE VALUE: Cover. Limited forage value once awns have developed.

Comments

Purple threeawn is a lower-elevation, drought-tolerant grass that is distinguished by an inflorescence with awns protruding horizontally at sharp angles to one another. The common name stems from the purplish tone of the flowers.



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Bouteloua curtipendula

SIDEOATS GRAMA

Poaceae (Grass family)
tribe *Cynodonteae*

Appearance

FORM/SIZE: Bunching-tufted or sod-forming, spreading. Culms mostly simple, decumbent to erect, smooth, 1'–3' tall, purplish at nodes.

ROOTS: Scaly, slender to stout rhizomes.

LEAVES: Leaf blades rough, flat, blue-green, mostly basal. Sheaths open.

INFLORESCENCE: Panicle, with spicate branches twisted to one side of the axis. Spikelets crowded on spicate branches, 2-flowered with 1 perfect flower. Flowers 3-awned, purplish.

SEASON: Warm. Growth period begins in early spring. Flowers July–September.

Natural Habitat

HABITAT AND RANGE: Dry plains, prairies, rocky hills, slopes. South-central Canada, most of the U.S., and in Mexico, South America.

ELEVATION: 3,200'–7,400'.

PLANT COMMUNITIES: Parkland, pinyon-juniper, cool desert shrub.

SOIL: Various, prefers medium-textured, well-draining, calcareous. Alkaline-tolerant.

EXPOSURE: Open to partially shaded.

Landscape Use

HARDINESS ZONES: Fully hardy.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Excellent from seed, rapid.

MAINTENANCE: Long-lived, doesn't compete well with taller grasses, increases in response to disturbance.

BEST USE: Erosion control, wildlife forage plantings, wild lawn areas, naturalized turf.

WILDLIFE VALUE: Good forage summer–fall, moderate in winter. Seeds utilized by birds and small mammals.

Comments

Sideoats grama spills over into the Intermountain West in southeastern Utah from its dominant position in the shortgrass prairie. It is a very drought-tolerant species, being a warm-season grass that does not green up until midspring and goes dormant in midautumn. It therefore has a shorter growing season than cool-season grasses, and is inherently well adapted to dry soils. It possesses interesting, dangling flower heads, and has fair tolerance to wetter soils. It is often used in shortgrass prairie mixtures with blue grama (*B. gracilis*) and little bluestem (*Schizachyrium scoparium*).

Bouteloua gracilis

BLUE GRAMA

Poaceae (Grass family)
tribe *Cynodontae*

Appearance

FORM/SIZE: Bunch, densely tufting in the south, sometimes mat-forming, spreading, sod-forming in the north. Culms erect, 8"–20" tall, purplish at nodes, smooth.

ROOTS: Fibrous and/or short, stout rhizomes.

LEAVES: Leaf blades linear, flat, mainly basal. Sheaths open, with long hairs at collar.

INFLORESCENCE: Panicle with 1–3 spicate primary branches crowded with 40–90 spikelets, comblike, the branches curving and spreading at maturity. Spikelets with one fertile flower, hairy and 3-awned.

SEASON: Warm. Dormant until summer rains, flowering July–August.

Natural Habitat

HABITAT AND RANGE: Plains, foothills, open woodlands. Southwestern Canada, throughout the southwestern and central U.S. to Mexico

ELEVATION: 3,200'–9,700'.

PLANT COMMUNITIES: Parkland, pinyon-juniper, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Mostly on sandy, gravelly, medium-textured, well-draining soils, neutral to basic pH preference.

EXPOSURE: Open, shade-intolerant.

Landscape Use

HARDINESS ZONES: Fully hardy.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Poor to fairly easy.

MAINTENANCE: Long-lived, tolerant of grazing and low fertility soils. Not tolerant of high water tables, flooding, shading, or acid soils.

BEST USE: Erosion control, low maintenance open turf.

WILDLIFE VALUE: Seeds utilized by birds and small mammals. Retains forage nutrient value when dry.

Comments

Blue grama is the first cousin of sideoats grama, and it is a bit more interesting in that its inflorescences wave horizontally, resembling Groucho Marx eyebrows. It is a very nice alternative lawn, either mown or left to flower. It too is very drought-tolerant and works well in a low-maintenance lawn.



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Bromus marginatus (*B. carinatus*)

MOUNTAIN BROME

Poaceae (Grass family)
tribe *Bromeae*

Appearance

FORM/SIZE: Bunch-tufting, culms erect, 2'–4' tall.

ROOTS: Fibrous, 20" minimum rooting depth.

LEAVES: Leaf blades flat, rough-hairy or smooth. Sheaths closed, nonauriculate.

INFLORESCENCE: Narrow panicle, the branches erect, spreading, or drooping. Spikelets 6- to 10-flowered, florets separate along the rachilla. Some florets self-fertilizing, nonopening. Florets awned, rough to densely soft-hairy.

SEASON: Cool. Growth period from early spring to August or September. Seeds mature from late summer to early fall.

Natural Habitat

HABITAT AND RANGE: Valleys, meadows, disturbed areas, slopes and ridgetops. AK to Alberta and Ontario, the western U.S. and Mexico.

ELEVATION: 6,000'–10,500'.

PLANT COMMUNITIES: : Meadows, coniferous forest, aspen forest, mountain brush, shrub steppe.

SOIL: Medium to coarse, pH 5.5–8.0, medium fertility. Not tolerant of saturated, anaerobic soils.

EXPOSURE: Open to partial shade.

Landscape Use

HARDINESS ZONES: Hardy to –28°F.

DROUGHT TOLERANCE: Low.

ESTABLISHMENT: Quick, high seedling vigor. Can take three years to reach full productivity.

MAINTENANCE: Short to medium life-span. Not tolerant of heavy grazing. Reduce during reproduction so that stands can sufficiently reproduce themselves. Regrows well from early-season grazing.

BEST USE: Revegetation, disturbed sites, erosion control, wildlife forage planting, pine or aspen understory.

WILDLIFE VALUE: High. Good forage for grazers, seed for birds and small mammals.

Comments

Mountain brome is a very widely adapted species, found throughout western North America and Mexico. It is sometimes listed as *B. carinatus*, and is appropriately named as it is well suited to the heavier rainfall conditions higher up in the mountains. It is a modestly attractive bunchgrass that would probably work best in a naturalized setting. Several selections for restoration are available in the trade, and two other species to consider are nodding brome (*B. anomalus*) and fringed brome (*B. ciliatus*). Both are important for wildlife and are indicative of a healthy montane range.

Buchloe dactyloides

BUFFALOGRASS

Poaceae (Grass family)
tribe Cynodonteae

Appearance

FORM/SIZE: Sod-forming, mat-forming. Culms densely tufted from subsurface branches or at stolon nodes, 2"–8" tall.

Separate male and female plants.

ROOTS: Stoloniferous, extensive, 12" deep.

LEAVES: Leaf blades flat to rolled inward or curly, sparsely hairy, soft, gray-green. Sheaths open.

INFLORESCENCE: Staminate (male) plants with an elevated panicle with 1–4 primary, spicate branches all turned to one side of the axis, branches erect with 6–12 spikelets per branch.

Spikelets 1-flowered, falling as a unit. Pistillate (female) plants with clusters of 3–5 spikelets near midculm or lower, within the leaves. Spikelets 2-flowered.

SEASON: Warm. Growth begins in midspring (depending upon moisture). Flowers during summer.

Natural Habitat

HABITAT AND RANGE: Dry plains, shortgrass prairie. MT through WY to Mexico and through most central states.

ELEVATION: Not determined; introduced in Utah.

PLANT COMMUNITIES: Non-native from shortgrass prairie.

SOIL: Medium- to fine-textured, pH 6.5–8.0. Tolerant of heavy, calcareous, and saline soils.

EXPOSURE: Open. Shade-intolerant.

Landscape Use

HARDINESS ZONES: Hardy to –23°F.

DROUGHT TOLERANCE: Medium.

ESTABLISHMENT: Slow. High seedling vigor, moderate growth rate.

MAINTENANCE: Long-lived with a vigorous root system. Tolerant of grazing. Not shade-tolerant.

BEST USE: Open turf, soil stabilization, erosion control, clay soil revegetation.

WILDLIFE VALUE: High. Good grazing forage; cures well, very palatable, seeds and foliage utilized.

Comments

Buffalograss is not native to Utah, but it is a widely adapted North American native of the western plains, tolerant of dry conditions and heavy grazing. It may require some extra water in the summer, but it is a good choice for open, low-maintenance turf, and is readily available.



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Danthonia intermedia
TIMBER OATGRASS
Poaceae (Grass family)
tribe *Danthonieae*

Appearance

FORM/SIZE: Bunching, densely tufting. Culms erect, 4"–20" tall.

ROOTS: Fibrous.

LEAVES: Leaf blades flat or rolled, smooth. Sheaths open, hairy at throat, mainly basal.

INFLORESCENCE: Narrow panicle, often flowering on one side of rachis, 4–9 spikelets. Branches short, erect. Spikelets 3- to 6-flowered, glumes lanceolate, lemmas toothed and awn-tipped, terminal awn flattened and twisted at base. Self-fertilizing flowers possible from midculm sheath.

SEASON: Cool. Growth begins in early spring, flowers June–September.

Natural Habitat

HABITAT AND RANGE: Meadows, woodlands, exposed ridges. AK, southern Canada, throughout western U.S.

ELEVATION: 8,000'–12,000'.

PLANT COMMUNITIES: Subalpine, coniferous forest, meadow.

SOIL: Medium to fine texture.

EXPOSURE: Open or shade.

Landscape Use

HARDINESS ZONES: Fully hardy.

DROUGHT TOLERANCE: Medium.

ESTABLISHMENT: Easy.

MAINTENANCE: May appreciate extra water or shade at lower elevations.

BEST USE: Meadow, montane restoration, understory, fire zone plantings.

WILDLIFE VALUE: Provides good forage value for domestic and wild grazers and browsers.

Comments

Timber oatgrass is very widespread grass, extending throughout the West into the Great Lakes region. Its range is indicative of its adaptation to mesic conditions at higher elevations in the Intermountain West. It is a very attractive bunchgrass that tolerates shade better than most grasses, and it should be planted in shade if grown in landscapes at lower elevations. It has a very upright form reminiscent of reedgrass (*Calamagrostis* spp.), with very tight, erect heads, and sometimes a purplish cast.

Distichlis stricta
(*D. spicata*)

DESERT SALTGRASS

Poaceae (Grass family)
tribe *Cynodonteae*

Appearance

FORM/SIZE: Sod-forming, rhizomatous, spreading, culms erect,
to 1' tall.

ROOTS: Strongly rhizomatous, to 2" deep.

LEAVES: Culms leafy, leaves 2-ranked, stiffly ascending,
long-tapering.

INFLORESCENCE: Dioecious (male and female plants separate).

Panicle, narrowly oblong, compact, the spikelets strongly
laterally compressed, light green with purple tinge.

SEASON: Warm, spring and summer growth period.

HABITAT AND RANGE: Moist desert sites, seeps, springs,
playas. Widespread throughout North America.

ELEVATION: 2,800'–7,500'.

PLANT COMMUNITIES: Salt desert shrub, riparian.

SOIL: Fine- to medium-textured, pH 6.4–10.5. Tolerant of
anaerobic, calcareous, and saline conditions.

EXPOSURE: Open to light shade.

Landscape Use

HARDINESS ZONES: Hardy to –35°F.

DROUGHT TOLERANCE: Medium.

ESTABLISHMENT: Easy, slow-growing, moderate
spread rate.

MAINTENANCE: Long-lived, very tolerant of cutting,
grazing, and extreme conditions.

BEST USE: Erosion control, saline, alkaline soils.

WILDLIFE VALUE: Grazed in winter, bird forage, cover.

Comments

Desert saltgrass is the commando of the grass family,
colonizing salty, heavy soils where little else is able to
compete, although it grows well in more amenable conditions.

It is an important restoration species, as its rhizomatous
character helps it form a sod that keeps soils from eroding or
blowing away. While not possessing an abundance of
ornamental qualities, it is well suited to naturalized conditions
with saline, alkaline, or clay/drainage limitations.



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ROGER KJELGREN



ROGER KJELGREN

Elymus elymoides (*Sitanion hystrix*)

BOTTLEBRUSH SQUIRRELTAIL

Poaceae (Grass family)

tribe *Triticeae*

Appearance

FORM/SIZE: Bunch, culms solitary or densely tufted, erect or spreading, stiff, 2"–30" tall.

ROOTS: Fibrous, 12" minimum depth.

LEAVES: Leaf blades flat or rolled inward, smooth or densely hairy. Sheaths open, auricles inconspicuous.

INFLORESCENCE: Spike, erect, 2 spikelets per node, 2- to 6-flowered, loosely overlapping, the lower flower often reduced to an awn. Glumes and lemmas awned, the awns long and spreading, bristlelike. Readily disarticulates.

SEASON: Cool. Growth begins in early spring, flowers in late spring, then goes dormant. May resume growth and flower again with adequate moisture.

Natural Habitat

HABITAT AND RANGE: Dry hillsides, open woodlands, rocky slopes, disturbed sites. British Columbia to Saskatchewan, south throughout the western and central U.S., Mexico.

ELEVATION: 3,500'–11,500'.

PLANT COMMUNITIES: Subalpine, parkland, coniferous forest, mountain brush, pinyon-juniper, rock outcropping, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Dry, various, fine- to medium-textured, pH 6.0–8.4, low fertility. Calcium carbonate tolerant.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Hardy to –43°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Easy, pioneer species in disturbed areas. Moderate seedling vigor, growth rate.

MAINTENANCE: Short-lived, but easily re-established.

BEST USE: Early seral revegetation of disturbed areas, competitive with cheatgrass (*Bromus tectorum*), low ornamental accent.

WILDLIFE VALUE: Fair spring forage for grazers, or in second growth period, after inflorescence has fallen; awns problematic for grazers.

Comments

Bottlebrush squirreltail is a very opportunistic, far western species with a knack for colonizing overgrazed rangeland because its sharp, injurious awns prevent browsing from mid-summer on, achieving a "shoot the messenger" status among ranchers. Squirreltail is an attractive bunchgrass in spring and early summer due to its shimmering awns, short, tight form, and sometimes purplish hue. However, the heads tend to shatter after the onset of midsummer dormancy. It is extremely drought-tolerant and is probably best suited for naturalized landscapes under difficult conditions. It is a good competitor of cheatgrass (*Bromus tectorum*), the weedy scourge of the Intermountain West. It tends to hybridize readily with other *Elymus* species.

Festuca idahoensis

IDAHO FESCUE

Poaceae (Grass family)
tribe *Poeae*

Appearance

FORM/SIZE: Bunch, closely tufted, large clumps, culms 1'-3' tall.

ROOTS: Fibrous, 14" minimum depth.

LEAVES: Leaves mainly basal, many, elongate, rolled inward, and narrow. Green or with whitish coating, usually very rough. Sheaths open.

INFLORESCENCE: Narrow panicle, the branches ascending or spreading in front. Spikelets 4- to 7-flowered, awned.

SEASON: Cool. Growth begins in early spring, flowering May-August.

Natural Habitat

HABITAT AND RANGE: Foothills, grasslands, open woods, rocky slopes. British Columbia south to CA, UT, and CO.

ELEVATION: Wide gradient: 3,000'-13,000'.

PLANT COMMUNITIES: Subalpine, mountain brush, rock outcropping, shrub steppe.

SOIL: Various. Fine- to coarse-textured, pH 5.6-8.4, low to moderate fertility, tolerant of calcareous soils.

EXPOSURE: Open to light shade.

Landscape Use

HARDINESS ZONES: Hardy to -38°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Fair, seedlings weak competitors, vigorous and strongly competitive once established. Moderate growth rate.

MAINTENANCE: Long-lived.

BEST USE: Revegetation, some varieties have ornamental value, steppe garden.

WILDLIFE VALUE: Excellent forage; remains green longer than associated species.

Comments

Idaho fescue, like many fescues, is a fine-bladed, moderately sized bunchgrass. It is sometimes considered a subform of sheep fescue (*F. ovina*), which is widely cultivated in landscapes. Idaho fescue in its Intermountain West manifestation is somewhat larger than the cultivated forms but is nonetheless quite attractive due to its tight form and fine-textured foliage. Another similar species to consider is bearded fescue (*F. subulata*), which is fine-bladed, more shade-tolerant, 1½'-3' tall, and a good understory species.



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Hesperostipa comata (*Stipa comata*)

NEEDLE AND THREAD GRASS

Poaceae (Grass family)
tribe *Stipeae*

Appearance

FORM/SIZE: Bunch, densely tufted, culms erect, 1'–4' tall.

ROOTS: Fibrous, 16" minimum depth.

LEAVES: Leaves mainly basal, flat or rolled inward. Sheaths open, prominently veined, old sheath bases persistent.

INFLORESCENCE: Panicle, open or contracted, lower branches remaining within sheath. Spikelets few, 1-flowered, drooping in flower. Lemma awned, the awn flexible, long, twisted and short-hairy on lower half.

SEASON: Cool. Growth begins with adequate spring moisture, seeds mature in early summer.

Natural Habitat

HABITAT AND RANGE: Valleys, foothills, dry hillsides, sandy benches to open subalpine. AK to Ontario, south throughout the western U.S. and Great Plains to TX.

ELEVATION: 3,500'–10,000'.

PLANT COMMUNITIES: Parkland, aspen forest, meadow, mountain brush, pinyon-juniper, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Medium to coarse, very well-drained, sandy, pH 6.6–8.4, low fertility.

EXPOSURE: Open. Shade-intolerant.

Landscape Use

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Moderate growth rate, low seedling vigor.

MAINTENANCE: Average life-span. Not tolerant of anaerobic or saline conditions.

BEST USE: Ornamental, revegetation of severely disturbed sites.

WILDLIFE VALUE: Provides fair forage until maturity; awns problematic for grazing animals.

Comments

Needle and thread grass has a very wide ecological amplitude, growing well from the salt desert shrub community up into the aspen forest. Like many species of *Stipa*, its long awns and narrow, fine-textured leaves offer a pleasing appearance, particularly when backlit, as well as being very drought-tolerant, even in sandy soils. It would work well as a specimen bunchgrass as well as in a naturalized landscape.

Hilaria jamesii
(*Pleuraphis jamesii*)

GALLETA

Poaceae (Grass family)
tribe *Cynodonteae*

Appearance

FORM/SIZE: Bunching, sod-forming. Culms stiffly erect, 4"–20" tall, base simple or with decumbent branches.

ROOTS: Strongly rhizomatous or stoloniferous, 12" minimum depth.

LEAVES: Leaves mainly basal, firm, flat or rolled inward, tapering to sharply acute tips. Nodes long-hairy, blades smooth or short rough-hairy. Sheaths open, long-hairy at summit.

INFLORESCENCE: Spike, spikelets in clusters of 3 per node, subtended by tuft of hairs, pale to purplish tinged. Dense, 10–25 nodes per spike.

SEASON: Warm. Growth in late spring, summer and fall with adequate moisture. Flowers May–August.

Natural Habitat

HABITAT AND RANGE: Deserts, valleys, canyons, dry foothills, slopes. Southwestern U.S., WY, and TX.

ELEVATION: 3,500'–7,000'.

PLANT COMMUNITIES: Pinyon-juniper, cool desert shrub, salt desert shrub.

SOIL: Dry, fine to coarse texture, pH 6.6–8.4., low fertility, tolerant of calcareous and saline soils.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Hardy to –23°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Slow growth rate and spread. Medium seedling vigor. Somewhat spreading.

MAINTENANCE: Long-lived. Withstands heavy grazing, trampling.

BEST USE: Soil binding, erosion stabilization, restoration, difficult soils.

WILDLIFE VALUE: Good forage when green, not utilized in fall or winter.

Comments

Galleta has one of the smaller ranges of the grasses listed here, finding its home only in the very dry areas of the southwestern

U.S. It has a smallish, nondescript, rough-hewn head over a sparse crown of leaves. Since it is extremely drought-tolerant, it would work best in mixtures with other grasses, making a good sidekick to bluebunch wheatgrass (*Pseudoroegneria spicata*), in naturalized grass mixtures. It is tolerant of difficult soils.



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Koeleria macrantha

JUNEGRASS

Poaceae (Grass family)
tribe *Aveneae*

Appearance

FORM/SIZE: Bunch, loosely tufted. Culms erect, 1'–2' tall, finely hairy.

ROOTS: Fibrous, sometimes with short rhizomes, 20" minimum depth.

LEAVES: Leaves mainly basal, blades flat or rolled inward, with prow-shaped, long, tapering tips. Sheaths open, strongly veined.

INFLORESCENCE: Panicle, erect, spikelike, interrupted. Spikelets pale, glistening, densely packed with 2–5 flowers, without awns.

SEASON: Cool. Growth in early spring, flowers June–July, produces seed into September.

Natural Habitat

HABITAT AND RANGE: Prairies, open woodlands, sandy sites. Circumboreal temperate regions.

ELEVATION: 4,500'–11,500'.

PLANT COMMUNITIES: Mountain brush, pinyon-juniper, shrub steppe.

SOIL: Sandy, medium to coarse, well-draining, pH 6.0–8.0, moderate fertility. Tolerant of calcareous soils.

EXPOSURE: Open to shaded.

Culture and Management

Landscape Use

HARDINESS ZONES: Hardy to –38°F.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Easy, rapid growth rate, low seedling vigor.

MAINTENANCE: Short-lived, allow for self-seeding, reproduction.

BEST USE: Turf, revegetating highly disturbed sites, shaded sites.

WILDLIFE VALUE: Good early season and fall forage.

Comments

Junegrass is the world traveler of grasses here, adapted to somewhat dry to mesic conditions throughout the northern hemisphere (circumboreal), generating enough variation that the taxonomical dust has not yet settled. It has an attractive, bottlebrush-like head that works well in the landscape as a bunchgrass in a perennial bed. It is ambidextrous enough to grow well in sun or shade, or in a more naturalized setting. This species is the source for the much-hyped, drought-tolerant, slow-growing "turtle turf" that really is little different from most other turf-type bunchgrasses such as the hard fescues.

Leymus cinereus
(*Elymus cinereus*)

GREAT BASIN WILDRYE

Poaceae (Grass family)
tribe *Triticeae*

Appearance

FORM/SIZE: Bunching, densely tufted, robust, 2'–8' tall,
to 3' wide.

ROOTS: Short rhizomatous.

LEAVES: Leaf blades flat, bright green or blue-green, sheaths
open, well-developed auricles.

INFLORESCENCE: Spike, erect, the rachis continuous, hairy,
spikelets 3–6 per node, overlapping, 3- to 6-flowered, the
glumes with an acute, awnlike tip, the lemmas rounded on
back, acute to awn-tipped or awned.

SEASON: Cool, growth begins in early spring.

Natural Habitat

HABITAT AND RANGE: Valley bottoms, riverbanks, gullies,
meadows, roadsides. Throughout the western U.S.

ELEVATION: 2,600'–9,500'.

PLANT COMMUNITIES: Parkland, coniferous forest, aspen
forest, mountain brush, pinyon-juniper, rock outcropping,
shrub steppe, cool desert shrub, salt desert shrub, riparian.

SOIL: Various, fine- to coarse-textured, dry, pH 5.6–9.0.
Moderately tolerant of calcareous, saline, flooded, or
subirrigated soils. Tolerant of heavy soils.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Hardy to –43°F.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Poor to moderate seedling vigor, difficult,
highly productive once established. Avoid grazing or harvest-
ing until after second season. Moderate growth rate,
slow-spreading.

MAINTENANCE: Long-lived. Susceptible to ergot infections.

BEST USE: Revegetation, reclamation, forage,
ornamental screening.

WILDLIFE VALUE: Provides early forage, cover.

Comments

Great basin wildrye is the Intermountain West equivalent to
pampas grass, as it can reach up to 8' high when throwing up
its seed heads. For such a large plant it is remarkably drought-
tolerant. It comes in several forms; over most of the
Intermountain West it is a conventional green, but some forms
in eastern Oregon have a striking blue color. It can be used as
a statuesque specimen plant, or as a screen or border.



USU HERBARIUM



ROGER KJELGREN



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Muhlenbergia montana

MOUNTAIN MUHLY

Poaceae (Grass family)
tribe *Cynodonteae*

Appearance

FORM/SIZE: Bunched, tufted, multibranching base, culms slender, erect or bent at base, to 2½' tall.

ROOTS: Fibrous, bunching.

LEAVES: Mostly basal, leaf blades erect, flat or rolled inward, rough-hairy. Sheaths open.

INFLORESCENCE: Panicle narrowly oblong. Spikelet branches erect. Spikelets 1-flowered, greenish to dark gray, glumes awn-tipped, lemmas awned or awn-tipped.

SEASON: Warm, late spring growth, flowers in summer, remains green into winter.

Natural Habitat

HABITAT AND RANGE: Open slopes. Sporadic across western U.S.

ELEVATION: 6,000'–10,800'.

PLANT COMMUNITIES: Subalpine, parkland, coniferous forest, aspen forest, meadow.

SOIL: Coarse to medium texture, well-draining, dry to moist.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Range indicates hardiness.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Slow, but persistent.

MAINTENANCE: Long-lived once established.

BEST USE: Ornamental, revegetation, soil binding.

WILDLIFE VALUE: Good to excellent livestock and wildlife forage.

Comments

Mountain muhly is a modest-sized, somewhat floppy, warm-season grass that has a fairly open and airy appearance. It would work well in the landscape with stronger, more upright elements. It is one of the more northern members of this very large genus, all of which are very attractive, with mounded forms and delicate inflorescences. Other species to consider are: bush muhly (*M. porteri*), a Mojave Desert species; and sandhill muhly (*M. pungens*), which forms ring colonies in sandy desert sites.

Pascopyrum smithii
(*Agropyron smithii*)
(*Elymus smithii*)

WESTERN WHEATGRASS

Poaceae (Grass family)
tribe *Triticeae*

Appearance

FORM/SIZE: Sod-forming, culms solitary or in small clusters, erect, 1'-3½' tall.

ROOTS: Strongly rhizomatous, 20" minimum depth.

LEAVES: Leaf blades rigid, flat or rolled inward, sharp-pointed, strongly veined, rough, with whitish coating, sheaths open, with prominent auricles.

INFLORESCENCE: Spike, the spikelets single or 2 per node, dense, overlapping. Spikelets 8- to 12-flowered, with whitish coating. Glumes shortly awned, lemmas sharp-tipped or shortly awned.

SEASON: Cool. Growth begins in spring with day temperatures of about 55°F, goes dormant in summer, resumes growth in fall with adequate moisture.

Natural Habitat

HABITAT AND RANGE: Deserts, foothills, swales, alkaline meadows. Western and central North America.

ELEVATION: 4,000'-9,000'.

PLANT COMMUNITIES: : Mountain brush, pinyon-juniper, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Medium to fine, most prevalent on fine-textured soils, pH 4.5-9.0, moderate fertility. Intolerant of anaerobic conditions, tolerant of calcareous and saline soils.

EXPOSURE: Open, shade-intolerant.

Landscape Use

HARDINESS ZONES: Hardy to -43°F.

DROUGHT TOLERANCE: Medium.

ESTABLISHMENT: Seed in fall or spring. Low seedling vigor, rapid growth rate. Varieties available have been selected for rapid seedling establishment, aggressive growth, forage yields, and seed germination.

MAINTENANCE: Long-lived, moderate vegetative spread rate.

BEST USE: Erosion control, range.

WILDLIFE VALUE: Good winter forage, palatability varies.

Comments

Western wheatgrass is a gregarious species found throughout the western and central U.S. on moderately dry soils, although it can colonize salty and sandy soils. Its most striking characteristic is its blue-green foliage that lasts well into the summer. Because it is strongly rhizomatous, it can dominate a site. It is great for restoring slopes, but should be used with great caution in the landscape. It is probably best suited for naturalized landscapes.



WENDY MEE



WENDY MEE



USU HERBARIUM



SUSAN MEYER



USU HERBARIUM

Poa fendleriana

MUTTON BLUEGRASS

Poaceae (Grass family)
tribe *Poeae*

Appearance

FORM/SIZE: Bunched, tufted. Culms erect, ½'–2½' tall, previous year's sheath bases remaining, straw- to gray-colored, conspicuous.

ROOTS: Fibrous, 10" minimum rooting depth.

LEAVES: Leaves mainly basal, pale to dark green or with whitish coating, stiff, erect, folded or rolled inward. Remain green when dry. Sheaths open.

INFLORESCENCE: Panicle, narrow, condensed, dense. Spikelet branches short, erect, 2–3 per node. Dioecious, spikelets 3- to 8-flowered, the flowers unisexual, papery, shiny, tinged with purple or pink. Most florets are female, few male flowers.

SEASON: Cool. Early spring growth, flowers May–August.

Natural Habitat

HABITAT AND RANGE: Various: valleys, foothills to subalpine, tundra. British Columbia to Manitoba, south throughout the western U.S., east to the Dakotas, NE, TX.

ELEVATION: 3,000'–12,000'.

PLANT COMMUNITIES: Subalpine, parkland, aspen forest, mountain brush, pinyon-juniper, rock outcropping, shrub steppe.

SOIL: Coarse- to medium-textured, pH 6.0–8.0. Tolerant of calcareous and low-fertility soils.

EXPOSURE: Open to shaded.

Landscape Use

HARDINESS ZONES: Hardy to –38°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Slow to moderate, only a small portion of seed produced is viable. Low yields, low seedling vigor. Moderate growth rate once established.

MAINTENANCE: Intolerant of anaerobic or saline conditions.

BEST USE: Naturalized area, ornamental accent or backdrop.

WILDLIFE VALUE: Excellent for grazing forage.

Comments

Mutton bluegrass has a very broad geographic and ecological amplitude, and as such forms many variants that are sometimes split out into different species. It also hybridizes with related species such as Wheeler bluegrass (*P. nervosa*) and Sandberg bluegrass (*P. secunda*). Its environmental flexibility is useful in the landscape as it can be used in full sun or shade in ornamental landscapes or naturalized settings. It has an appealing tight form and large, somewhat showy flower heads that are sufficiently attractive to be used in prominent groupings, or as substitute for sheep fescue (*Festuca ovina*).

Poa secunda
(*P. ampla*, *P. canbyi*, *P. sandbergii*)

SANDBERG BLUEGRASS

Poaceae (Grass family)
tribe *Poeae*

Appearance

FORM/SIZE: Bunched, dense, extensive tufts. Culms decumbent at base, erect, generally to 1½' tall, wiry.

ROOTS: Fibrous, 10" minimum rooting depth.

LEAVES: Leaves mainly basal, short, soft, flat, folded or rolled inward. Yellow to dark green or with definite whitish coating, plants often anthocyanic (with blue-red pigmentation).

Sheaths open.

INFLORESCENCE: Panicle, narrow, elongate, loose, spikelet branches 2–5 per node, erect or ascending, 3- to 6-flowered, bronze or purplish. Flowers April–September.

SEASON: Cool. Very early spring growth, flowers in late spring, seeds mature in early summer.

Natural Habitat

HABITAT AND RANGE: Often a dominant grass species, various sites, wide-ranging in western North America.

ELEVATION: 4,200'–12,000'.

PLANT COMMUNITIES: Subalpine, parkland, coniferous forest, aspen forest, meadow, mountain brush, pinyon-juniper, rock outcropping, shrub steppe, cool desert shrub, salt desert shrub.

SOIL: Various, most abundant on dry, deep, sandy to silty loams. Moderate- to coarse- textured, pH 6.0–8.0.

EXPOSURE: Open to partial shade.

Landscape Use

HARDINESS ZONES: Hardy to –36°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Slow to moderate.

MAINTENANCE: Can be short-lived. Intolerant of anaerobic or saline conditions.

BEST USE: Dryland erosion control, rangeland restoration, dryland garden, naturalized area.

WILDLIFE VALUE: Early spring forage, seeds valued by birds and small mammals.

Comments

Sandberg bluegrass is similar to mutton bluegrass (*P. fendleriana*) in having a very broad geographic and habitat distribution, and it is often dominant in its native habitats. It seems to be even more variable than *P. fendleriana*, comprising a complex of previously separated species such as *P. ampla*, *P. canbyi*, and *P. sandbergii*, that are now considered ecotypes. It is an attractive bunchgrass, and some types can exhibit a very upright form with a nice blue cast to the foliage that would deserve a prominent position in the landscape.



P. secunda

SUSAN MEYER



P. ampla

WENDY MEE



WENDY MEE



WENDY MEE



SUSAN MEYER

Pseudoroegneria spicata
(*Agropyron spicatum*)
(*Elymus spicatus*)

BLUEBUNCH WHEATGRASS

Poaceae (Grass family)
tribe *Triticeae*

Appearance

FORM/SIZE: Bunched, large, dense tufts, culms erect, slender, 1'–3' tall.

ROOTS: Fibrous.

LEAVES: Leaf blades flat or rolled inward. Sheaths open with well-developed auricles. Old sheath bases persistent.

INFLORESCENCE: Spike, slender, 1 spikelet per node, distant, 6- to 8-flowered. Lemma with or without awns, the awns strongly divergent.

SEASON: Cool. Growth begins in midspring, flowers May–August. Remains green into summer. Resumes growth after fall rains.

Natural Habitat

HABITAT AND RANGE: Dry plains, slopes, canyons, open woodlands. AK to Saskatchewan, south to CA, UT, AZ, NM, and TX.

ELEVATION: 4,500'–9,500'.

PLANT COMMUNITIES: Parkland, coniferous forest, aspen forest, mountain brush, pinyon-juniper, rock outcropping, shrub steppe, cool desert shrub.

SOIL: Various, dry to mesic, adapted to nonproductive, low-fertility soils.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Range indicates cold hardiness.

DROUGHT TOLERANCE: Medium to high.

ESTABLISHMENT: Slow to moderate.

MAINTENANCE: Not fussy, easy.

BEST USE: Ornamental, forage, poor soils, dry land vegetation, erosion control.

WILDLIFE VALUE: Cover. Seeds and foliage utilized by small mammals, grazers.

Comments

Bluebunch wheatgrass is often the dominant grass in the shrub steppe communities of the Intermountain West, and is an important forage. It is also variable, exhibiting awnless varieties that are more adapted to mesic sites, while awned types are more drought-tolerant. It is attractive year-round, with fine-textured foliage.

Schizachyrium scoparium
(*Andropogon scoparius*)

LITTLE BLUESTEM

Poaceae (Grass family)
tribe *Andropogoneae*

Appearance

FORM/SIZE: Bunch, tufted. Culms erect, sparingly or much branched above, 1'–4' tall, green to purplish with whitish coating. Highly variable.

ROOTS: Deep fibrous system, occasionally short-rhizomatous, 14" minimum rooting depth.

LEAVES: Leafy at base of culms, blades linear, pointed, rough-hairy. Sheaths open, flattened.

INFLORESCENCE: Spicate raceme, the rachis zigzagging at maturity. Many racemes per culm. Spikelets 2 per node, 1 sessile and 1 pedicellate, disarticulating as a pair, 2-flowered, short-bearded at base. Upper floret of sessile spikelet with the lemma awned, the awn bent and twisted.

SEASON: Warm. Growth begins in late spring, flowers in midsummer, seeds mature October–November.

Natural Habitat

HABITAT AND RANGE: Prairies, dry hills, open woodlands, rock crevices, waterways. British Columbia to Nova Scotia, south through the western U.S. and Great Plains.

ELEVATION: 3,500'–7,500'.

PLANT COMMUNITIES: Parkland, pinyon-juniper, cool desert shrub.

SOIL: Various, fine- to coarse-textured, prefers well-draining, sandy, medium-textured, pH 5.0–8.4, low fertility. Intolerant of wetland or subirrigated soils or saline conditions. Tolerant of calcareous soils.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Hardy to –38°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Slow to moderate. Low seedling vigor, moderate growth rate once established.

MAINTENANCE: Long-lived, requires good drainage.

BEST USE: Some varieties with ornamental qualities, sandy soil stabilization.

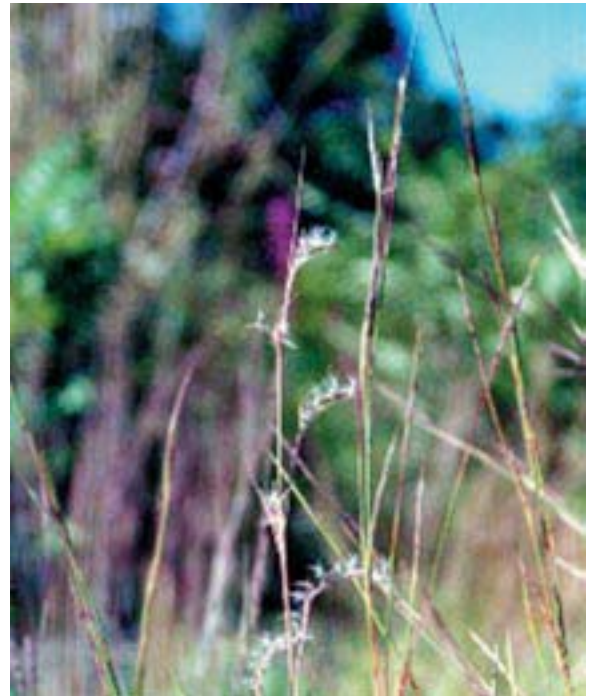
WILDLIFE VALUE: High grazing value, forage.

Comments

Little bluestem is something of an expatriate dominant from the shortgrass prairies, making it into the Intermountain region on the Colorado Plateau, but no further. It is a very nice bunchgrass that forms a near-pyramidal crown from the base to the flower heads that is fine-textured and a soft blue-green in summer. Alone among the grasses, in fall it displays a beautiful red to bronze color that can last all winter, making this a great bunchgrass for a prominent landscape position.



ROGER KJELGREN



WENDY MEE



USU HERBARIUM



SUSAN MEYER



USU HERBARIUM

Sporobolus airoides

ALKALI SACATON

Poaceae (Grass family)
tribe *Cynodonteae*

Appearance

FORM/SIZE : Robust, bunched-clumping, dense, to 6' tall, dies out from center.

ROOTS: Fibrous, extensive root system, 16" minimum rooting depth.

LEAVES: Leaf blades flat or rolled inward, rough-hairy, sheaths open.

INFLORESCENCE: Panicle, open, pyramidal to spreading, spikelets 1-flowered, attractive. Flowers May–October.

SEASON: Warm, growth begins in midspring, flowers from June into fall.

Natural Habitat

HABITAT AND RANGE: Semidesert flats, meadows, open slopes. Throughout the western U.S., in the Great Plains, TX, MO, and Mexico.

ELEVATION: 2,600'–7,700'.

PLANT COMMUNITIES: Pinyon-juniper, cool desert shrub, salt desert shrub, riparian.

SOIL: Fine to coarse, prefers moist, fine-textured soils, pH 6.6–9.0, medium fertility. Tolerant of calcareous and saline dry soils. Low tolerance of anaerobic conditions.

EXPOSURE: Open.

Landscape Use

HARDINESS ZONES: Hardy to –23°F.

DROUGHT TOLERANCE: High.

ESTABLISHMENT: Difficult, fast-growing once established, will flower first year.

MAINTENANCE: Moderate life-span.

BEST USE: Ornamental specimen, erosion control on fine-textured, alkaline soils.

WILDLIFE VALUE: Forage, cover and nesting. Seeds utilized by birds and small mammals, grazed by bison.

Comments

Alkali sacaton is a striking, robust species with a lacy quality and nice pinkish tones to the seed head that give it an airy, almost sparkling appearance, nestled in soft, fine-textured foliage. It is a very large bunchgrass, on the order of Great Basin wildrye (*Leymus cinereus*), but not quite as large. It is also tolerant of salts and heavy, wet soils as well as dry soils, making it very versatile for the landscape. Another species to consider is sand dropseed (*S. cryptandrus*). It is a smaller bunchgrass, adapted to similar environments and conditions.