

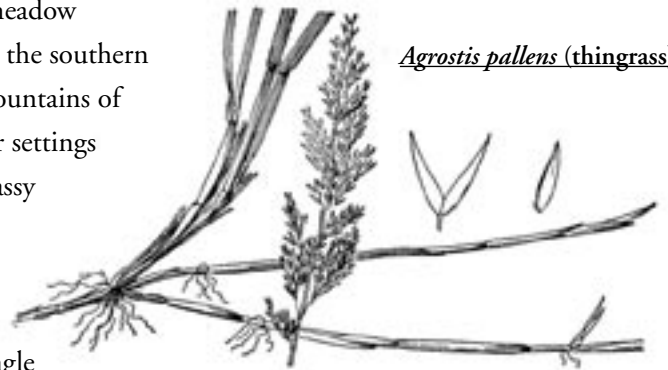
Ornamental California Native Grasses, Sedges, and Rushes for the Landscape

By David Amme

Cool Season Grasses

Agrostis pallens (thingrass). Thingrass, originally called *Agrostis diegoensis*, has been recently lumped under the *A. pallens* name. Formerly, *A. pallens* was called dunebent (Hitchcock and Chase) and is found in moist sand dunes along the coast from Washington to central California. Rarely are flowering panicles found on dunebent, as the grass is found in moist swales associated with coastal freshwater springs and seeps. The lumping of *A. diegoensis* into *A. pallens* makes it difficult to reconcile the high elevation form (possibly the former *A. lepida*) with the lower elevation form commonly known as thingrass (a.k.a. *A. diegoensis*). The thingrass form is adapted to shady woodlands in the mountains and foothills and open, north-facing meadows along the coast from San Diego to Sonoma County. This form has underground rhizomes forming a solid meadow stand. Thingrass has several forms from northern to southern California. In southern California thingrass grows as a tall, pure-stand meadow (20–30 inches high) on north slopes mixed with the southern coastal scrub. In the Bay Area and the coastal mountains of northern California, thingrass is found in similar settings (north slopes, shady stands, etc.) and forms a grassy meadow approximately 12–14 inches in height.

Thingrass is an excellent component of the native meadow landscape and is closely associated with red fescue and junegrass. As a single species, thingrass forms a lush natural meadow in the sun or filtered shade. A vigorous creeper of thingrass from the Berkeley Hills is currently being produced for seed. Thingrass seed has moderate seedling vigor and a good stand can be established without the use of plugs. For seeding a single-species meadow, sow at 1 ounce per 1,000 square feet.



Agrostis pallens (thingrass)

Calamagrostis foliosa (leafy reedgrass). Leafy reedgrass is a low-growing mounded bunchgrass with tightly set, bluish-green leaf blades. Leafy reedgrass is found from Del Norte County to Mendocino County, along the northern California coastal bluffs, coastal scrub, and serpentine barrens. It has arching flowering culms with a feathery compressed panicle.



Calamagrostis nutkaensis (sand reedgrass or Alaskan reedgrass). Sand reedgrass is a stout, densely tufted grass of California's north coastal plains and pine forests. It forms large pure stands or populations in moist soils of the open grasslands along the coast, often on north-facing slopes, and is a dominant grass in the Monterey pine and Bishop pine understory.

Danthonia californica (California oatgrass). California oatgrass is a long-lived, medium-sized tufted bunchgrass. California oatgrass grows along California's north coastal prairie within the reach of the summer fog belt, from Oregon south to the coastal plain near Cambria, San Luis Obispo County,

Danthonia californica
(California oatgrass)



and is found in the mid-elevation meadows and forests of the Sierra Nevada, extending south from the Shasta Trinity National Forest.

Oatgrass is the most common grass along treaded paths on the coastal terraces, which otherwise are smothered by exotic grasses, such as bentgrasses (*Agrostis* sp.), velvetgrass (*Holcus lanatus*), sweet vernal grass (*Anthoxanthum odoratum*), and annual grasses and weeds. Even though California oatgrass is a bunchgrass, it can form a dense turf under moderate grazing by cattle. Oatgrass is one of the only perennial bunchgrasses with long-lived seed, and a stand can be rapidly revived from a latent seed bank with mowing, weeding, and clearing. With three or four spikelets per flowering stem, California oatgrass does not produce large amounts of seed, however, each stem contains many seeds hidden beneath the leaf sheath above each node. The flowering stems are easily broken off and spread by livestock grazing and trampling. The seed exhibits both embryo dormancy and seedcoat dormancy, defying efficient seed producing techniques; however, when the seed and straw are introduced to a site, it can gradually become a dominant grass with proper grazing or mowing management. Interest in growing California oatgrass for seed was strong in the mid 1940's, when U.C. Extension researchers Merton Love and Burl Jones identified oatgrass as one of the most outstanding native forage grasses in the state. Sixty years later, seed growers are now actively working to produce seed of this splendid native perennial bunchgrass. An oatgrass meadow works best as a pure stand, but will readily fill in along paths and in compacted areas with other meadow grasses. Unmowed, oatgrass is a sprawling, dense bunchgrass 10–12 inches in height and 14–16 inches across. Mowed or grazed plants can form tight turf-like stands no more than a few inches high. Establishing an oatgrass meadow requires patience. Seed over a year old germinates faster than fresh seed. *Danthonia* establishes very slowly but is a persistent grower. Its roots can eventually reach down to 3–4 feet. Because of its deep roots, oatgrass does not require frequent irrigation. It thrives



in rich, loamy, and clay soils and is well adapted to the home garden setting, and stays green year-long if it is cut back and receives extra moisture. A good oatgrass “turf” can be established by planting plugs 8–10 inches apart. For seeding a single-species meadow, sow at 2 ounces per 1,000 square feet.

***Deschampsia cespitosa* (tufted hairgrass).** Tufted hairgrass is a medium-sized, densely tufted, coarse bunchgrass. It grows in moist meadows of the higher mountains in California and along the coast as far south as Santa Barbara County. There are three distinct varieties in California. The mountain meadow form (*D. cespitosa* ssp. *cespitosa*) grows in high- and mid-elevation wet meadows, seeps, and bogs, as well as in meadows of the North Coast Range. It is also found on meadows of the higher coastal terraces. This form has an airy, expanded panicle. The coastal form (*D. cespitosa* ssp. *holciformis*) grows primarily along the lower coastal terraces and marshes from northern California as far south as San Luis Obispo County. Its panicle is strongly compressed, sometimes with one or two compressed lower branches. A third form not officially recognized in the *Jepson Manual* (*D. cespitosa* ssp. *beringensis*) is a dense, giant form found in scattered locations in the lower valleys of the North Coast Range (e.g., Napa Valley) and along the coastal waterways (e.g., Russian River, Drakes Bay, and the Sacramento Delta). Tufted hairgrass requires a moist (mesic) location or extra irrigation to maintain a stand in the garden, and ranges in size from large, erect forms, 18–20 inches in height, to sprawling, decumbent forms, 8–12 inches high. Because of its size and requirements, tufted hairgrass forms a cohesive “tufted hairgrass” meadow feature that tends to dominate other native perennial grasses and wildflowers. Meadow features can be created by planting plugs 8–16 inches apart. The farther apart they are planted, the larger they get. For seeding a single-species meadow, sow at 0.5 ounce per 1,000 square feet. An excellent example of a created tufted hairgrass meadow exists at the Crissy Field Commons in San Francisco.



***Deschampsia cespitosa*
(tufted hairgrass)**

***Elymus californicus* (California bottlebrush grass).** California bottlebrush grass has recently been moved into the wildrye group, having been considered a distinctive taxon (*Hystrix californica*) for many years. California bottlebrush is a large grass that grows in shady forest settings and shaded banks near the north-



central coast (Marin and Santa Cruz Counties). It is almost always associated with open, moist, Douglas Fir forests. Bottlebrush has a distinctive tall, arching, flowering culm with rigid spikelets perpendicular to the stem like a bottle brush.

***Elymus glaucus* (blue wildrye).** Blue wildrye is a large, short-lived bunchgrass with strong seedling vigor. Generally, blue wildrye is an upright, tall grass that inhabits woodland areas of the foothills and high mountains; however, there are more compact, leafy varieties adapted to sunny grassland habitats. Blue wildrye grows where annual rainfall ranges between 10 and 40 inches, and is generally more drought-tolerant than common meadow barley and California brome. Blue wildrye is an excellent grass for re-seeding burned and disturbed areas in oak woodland and forested habitats. There are several varieties of blue wildrye presently available adapted to different elevations and regions in California. The closely related Pacific ryegrass (*E. virescens*) is now considered a subspecies of *E. glaucus*. *E. virescens* is commonly found along the immediate coastal bluffs of northern California, often sympatrically with blue forms of *E. glaucus* with no apparent hybridization. Pacific ryegrass is very distinct from blue wildrye, as the florets have no or very short awns, the plants are deep green, and the culms grow close to the ground. Pacific ryegrass is also found higher in elevation on open serpentine soils and in damp forests.



Elymus glaucus
(blue wildrye)

Elymus trachycaulus
(slender wheatgrass)



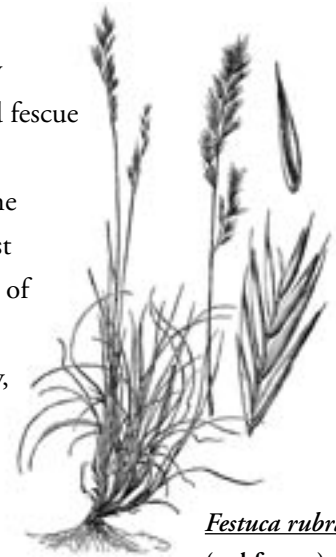
***Elymus trachycaulus* (slender wheatgrass).** Slender wheatgrass is a common native bunchgrass in the higher elevational areas of the intermountain west. Slender wheatgrass is very similar to blue wildrye in form and stature. There are three primary forms or ecotypes in California. The mountain form of slender wheatgrass is rather sparse, usually with only two or three flowering culms. This form readily hybridizes with *E. elymoides* and *Hordeum brachyantherum* and is difficult to grow in cultivation. A variety (var. *majus*) is native to California's Central Valley region in Yolo County, west of Davis. This form is much more robust and faster growing than typical western American plant material on the market. It is longer-lived than typical blue wildrye and requires more moisture to persist. Variety *majus* has very strong seedling vigor and is a good weed competitor. A third form is found along the north and central coastal valleys of California. It is associated with serpentine soils as well as mesic, deep clay soils. This form has a small awn, slender leaves and is a prolific seeder with many flowering culms.



***Festuca californica* (California fescue).** This is a robust bunchgrass that grows on mesic hillsides associated with brushlands and deciduous oak forests. Deep green to steel blue ecotypes are found throughout its range. California fescue is an excellent grass for shady or filtered light settings. It grows in the North and Central Coast Ranges south to Santa Barbara County and found occasionally in the Sierra Nevada.

***Festuca idahoensis* (Idaho fescue).** Idaho fescue is a dense, fine-leaved bunchgrass with blue and green forms. It normally grows from 18 to 24 inches in height. There are two basic forms of Idaho fescue in California. The Great Basin form is found east of the Marble Mountains and Sierra crest as far south as the Lake Tahoe region. A second form, found in the North Coast Range extending down the coastal and inland hills and mountains as far south as Monterey County, is adapted to both serpentine and sedimentary soils. This second form is also found in the Sierra Nevada west of the crest in Lassen, Plumas, and northern Tahoe National Forests. Unlike the Great Basin form, the Coastal and Sierran form has less summer dormancy and grows throughout the winter at lower elevations. Idaho fescue is similar in habit and form to the introduced hard fescues and sheep fescues (*F. trachyphylla*, *F. ovina*), however, most Idaho fescue ecotypes exhibit summer dormancy but are active during the winter, while the hard fescues will stay green in the summer as long as there is adequate moisture. Idaho fescue is found usually in pure stands on north- or east-facing slopes associated with thingrass, junegrass, and a rich assortment of native perennial wildflowers. Idaho fescue has good seedling vigor and can be established by either seed or plugs. For seeding a single-species meadow, sow at 2 ounces per 1,000 square feet.

***Festuca rubra* (red fescue).** Red fescue is a medium-sized, loosely tufted, fine-leaved grass that spreads by underground rhizomes. Red fescue is native to California, though many forms of red fescue have been introduced to California as a turf seed. Red fescue is native along the coast as far south as Big Sur, and is found in fertile valleys and moist meadows in the coastal mountain ranges and the higher mountains of the state. Pure colonies of low blue and green forms of red fescue inhabit the north coast terraces of Mendocino and Sonoma County, giving rise to several unique cultivars (Patrick's Point, Jug Handle, Point Arena) propagated by cuttings. A hardy blue form from Point Richmond's Potrero Hills, called Molate Fescue, is a very attractive ornamental grass that is aesthetically pleasing whether



***Festuca rubra*
(red fescue)**



mown or not. Its fine foliage and spreading character make it ideally suited to natural landscapes and low-maintenance buffer areas. Molate fescue can handle more heat and summer drought than the typical introduced turf varieties of red fescue, and is the most winter-active red fescue available in the world. Generally, red fescue does not thrive in the full sun and intense heat of the Central Valley, but it will do well with partial shade and some summer irrigation. However, the Molate Fescue form is proving itself in the Central Valley with irrigation. A mature Molate stand can reach heights of 12–14 inches. Molate fescue is extremely variable, with many diverse forms, a virtual gold mine for the grass breeder or discerning gardener. There are green and blue ecotypes and both fast-creeping forms and erect, bunchy forms that spread sparingly from the base. It is surprisingly drought-tolerant and develops a waxy coat on its leaves, giving it a distinctive blue-gray color in the late spring as the stand begins to dry out. Best of all, the seed is plentiful and easy to establish. For seeding a single-species meadow, sow at 2 ounces per 1,000 square feet.

***Hierochloë occidentalis* (California sweetgrass).** California sweetgrass is a leafy bunchgrass found in the shade of the coastal redwood and Douglas Fir forests of central and northern California. It is found as far south as the Big Sur coast, commonly found in the shade of redwoods and tanbark oak stands. The dry leaves of sweetgrass have a fragrance of vanilla. The plants grow in forest duff and loose soils and are tolerant of dry conditions. It is distinguished by its delicate white flowers and deep green, wide leaves.



***Koeleria macrantha* (Junegrass).** Junegrass is a long-lived, perennial bunchgrass that spreads by short underground rhizomes and has an erect, ornamental flowering panicle. During pollination, in May, the dense panicle spreads open; and as the seed heads mature, in June, the panicle closes up. In late June when most of the native grasses and annual grasses have dropped their seeds and fallen apart, junegrass panicles continues to stay whole, a trait that gives the grass its name.

Junegrass is a circumpolar species that is native throughout North America and is a common cool-season grass in the mid-grass prairie. Junegrass is associated with woodland glades, grassland prairies, and rocky outcrops from the sea level to the highest mountains. Californian junegrass ecotypes exhibit some late summer dormancy, but will remain green with supplemental irrigation.

Junegrass grows 10–16 inches in height. It responds favorably to irrigation, but eventually needs a late sum-

***Koeleria macrantha* (Junegrass)**



mer/early fall rest. Junegrass has tiny seeds and establishes slowly from seed. For a garden meadow, Junegrass is most practically established by plugs. For seeding a single-species meadow, sow at 0.5 ounce per 1,000 square feet.

***Leymus condensatus* (giant wildrye).** Giant wildrye is a stout, robust (4–10 feet) perennial that forms large clumps with short rhizomes. It grows primarily south of the Bay Area along the coastal bluffs, hills, and terraces. Inland, it is often found in the scrub and woodland plant communities of the coast range, San Jacinto, and San Bernardino Mountains. Variable hybrid forms of giant wildrye and creeping wildrye are found in the Bay Area and in the San Joaquin Valley (*L. x multiflorus*).

***Leymus mollis* (American dunegrass).** American dunegrass is a tall, stout glaucous-blue grass with long rhizomes. It is well adapted to coastal foredunes of California, from the central coast north to Oregon and Washington State. It is always found closer to the high tide area, between the beach and the stabilized dunes covered with the introduced European beachgrass (*Ammophila arenaria*). In the southern part of its range, American dunegrass is found irregularly as far south as Point Conception. A unique look-alike *Leymus* is found on San Miguel Island's windward sand dunes, resembling a possible hybrid with *L. condensatus*. This variety is now a horticultural selection sold from cuttings as Canyon Prince. In California, American dunegrass rarely forms abundant seed, as this out-crossing species' isolated clones and populations are separated by long distances. In the northern part of its range, American dunegrass commonly hybridizes with creeping wildrye, forming a distinct-looking species currently recognized as a hybrid, *L. x vancouverensis*. American dunegrass is closely related, if not identical, to the more compact circumpolar European dunegrass or lymegrass (*L. arenarius*).

***Melica imperfecta* (foothill melic).** Foothill melic is a medium-sized, loosely caespitose perennial bunchgrass with a branched, often reflexed panicle, especially in the lower branches of the panicle. It is associated with coastal sage, soft chaparral, and steep, rocky soils of the central and south coast range, from the San Francisco Bay Area south to San Diego County, as well as the foothills of the Sierra Nevada. It is found primarily in shady woodland sites, riparian areas, and on north and eastern exposures. In the Bay Area it comes close to overlapping with the range of *Melica torreyana*, but is found on drier sites associated with sandy, well-drained soils and chaparral.



Nessella cernua
(nodding needlegrass)

Nessella cernua (nodding needlegrass). Nodding needlegrass, formerly *Stipa cernua*, is similar to purple needlegrass in longevity and drought tolerance. Nodding needlegrass grows primarily in the central coast and inner coast ranges, from Tehama County south to Baja California. It is difficult to distinguish from purple needlegrass by the untrained eye, and for many years, purple needlegrass and nodding needlegrass were considered the same species. The seed is narrower than that of purple needlegrass, the awn is generally longer and thinner with a slight curl near the end, and the glume color is closer to pink than purple. Nodding needlegrass has a finer leaf, and is especially adapted to sandy, well-drained, loamy soils. Nodding needlegrass is a prolific seed producer and has strong seedling vigor. It is adapted to many harsh growing conditions, including the sub-soils of road cuts and mining sites.

Nassella lepida (foothill needlegrass). Foothill needlegrass, formerly *Stipa lepida*, is a medium-sized, dense bunchgrass with fine leaves. It is common in and along the margins of soft and hard chaparral brushlands, the length of California's coastal ranges and in the central and northern Sierra Nevada foothills. Some ecotypes are adapted to serpentine soils. It establishes quickly on disturbed sites and is not as long-lived as purple needlegrass and nodding needlegrass.



Nassella pulchra
(purple needlegrass)

Nassella pulchra (purple needlegrass). Purple needlegrass, formerly *Stipa pulchra*, is a medium-large, long-lived bunchgrass well adapted to clay soils. Purple needlegrass is the most widespread native bunchgrass in the lower elevational grasslands of California. It grows from the coastal prairie and inland grasslands of northern California, throughout the valleys of the coast ranges, to the coastal and mesa grasslands of San Diego County and Baja California. Purple needlegrass has earned the official title of the State Grass of California. Purple needlegrass is tolerant to summer drought and heat. It will establish on disturbed cut slopes and in thin soils and is adapted to serpentine soils. As with many of the long-lived bunchgrasses, purple needlegrass grows slowly as a seedling and is susceptible to competition from weeds and fast-growing annual grasses. Purple needlegrass is a deep green, long-lived bunchgrass. It thrives on the sunny south-facing slopes and plains of the foothill grassland. It is also tolerant of serpentine soils. Purple needlegrass grows 18–24 inches in height and forms a deep root system 3–4 feet deep. It



stays green into the early summer and gradually becomes dormant in mid- to late summer. Cut or grazed plants are the first to put on fresh green growth in the fall, whether it rains or not, tapping the moisture deep in the soil. Purple needlegrass will stay green or re-grow with extra summer irrigation. It has good seedling vigor and can be seeded or planted by plugs. For a single-species meadow, sow at 10 ounces per 1,000 square feet.

***Poa napensis* (Napa bluegrass).** Napa bluegrass is extremely limited in distribution, found near the Myrtle Dale Hot Springs and one other local hot spring swale in the town of Calistoga, in the upper Napa Valley. Napa bluegrass is a very dense, productive bunchgrass and does not exhibit the extreme summer dormancy that is the characteristic of pine bluegrass (*P. secunda* spp. *secunda*).

***Poa secunda* ssp. *juncifolia* (alkali bluegrass).** This taxon has recently been combined into the *P. secunda* group, which also includes two other ecotypes: *P. ampla* (big bluegrass, a.k.a. Sherman big bluegrass) and *P. nevadensis* (Nevada bluegrass). Alkali bluegrass is a very dense bunchgrass that does not exhibit strong summer dormancy and is very different in appearance from the typical summer-dormant one-sided bluegrass. It is found in alkaline depressions, low meadows, and wet places mostly on the east side of the Sierra Nevada, associated with sagebrush shrubland and montane forest.



Warm Season Grasses

***Aristida purpurea* (purple threeawn).** Purple threeawn is a medium-sized, erect bunchgrass found in the Sonoran and Mojave Deserts as well as in the coastal mountains and interior ranges of southern California. It is adapted to sandy and rocky soils on slopes and plains. It has fine-textured leaves to 30 inches tall and purple flowers that are showy when the sunlight illuminates them in the summer and fall. The seedhead is narrow and nodding with lax, purplish branches. Three long, bristles occur from each flower. It thrives in sunny, dry locations with minimal irrigation.



***Bouteloua gracilis* (blue grama).** Blue grama is one of the more important warm season grasses of the mid-grass prairie of the Midwest and the Southwest. In California, it grows in the mountains of the Sonoran desert. It is a medium-sized bunchgrass with gray-green foliage. The flowering panicle is made up of two to three one-sided reddish-purple racemes. It can be mowed and is often used as a coarse meadow lawn.

***Muhlenbergia rigens* (deergrass).** Deergrass is a stout and robust warm-season bunchgrass. It grows along streams, in seeps, ditches, and in wet meadows from southern California's mountains north to Monterey County along the coast, and in the Sierra Nevada foothills to Shasta County. The biggest stands of deergrass are found in meadows of San Diego County from the coast to the mesa backcountry and the Cleveland National Forest and Cuyamaca Mountains.

***Sporobolus airoides* (alkali sacaton).** Alkali sacaton is a large bunchgrass that grows in valley swales and seasonally moist sites and alkaline soils. It was once more common in the San Joaquin Valley grasslands. A few remnant stands still exist on undisturbed lands. Alkali sacaton is found in the desert regions of southern California and throughout the southwest. It has gray-green foliage and a delicate, airy panicle.



Sporobolus airoides (alkali sacaton)

Sedges

***Carex barbarae* (Santa Barbara sedge).** Santa Barbara sedge is a common rhizomatous sedge in the coastal marshes and river systems of California. It can grow up to 3 feet high and is a vigorous spreader, forming large colonies. Santa Barbara sedge grows in the sun or in filtered light of valley oaks and other riparian tree species. It is an excellent sedge for stabilizing stream and river banks. It is best propagated from seed for plugs.

***Carex pansa* (Pacific dune sedge).** The common name of this sedge aptly describes its habitat but not its unmatched meadow-forming characteristics.



Pacific dune sedge is found in scattered locations in mesic back dunes of central California. It is a strong creeping sedge and forms a dense, leafy cover 8–10 inches in height with no mowing. Dune sedge is well adapted to the garden setting. With adequate moisture, it grows well in all kinds of soils, stays green year-long, thrives in sunny sites, and is heat-tolerant. It germinates very slowly from seed, but spreads quickly when planted as plugs 6–8 inches apart.

C. praegracilis (slender sedge). Slender sedge is very likely a taller, closely related cousin to Pacific dune sedge. It inhabits mesic inland valley settings and grows up to 16 inches in height, spreading at a slightly slower pace. Like the Pacific dune sedge, slender sedge is best established by plugs 6–8 inches apart.

C. tumulicola (foothill sedge). Foothill sedge, also known as Berkeley sedge, is a large, deep-green bunch sedge that grows to 20 inches in height and sprawls wider. If kept small with periodic mowing at a 4- to 6-inch height, it responds by putting out fresh new growth from the base, and gradually spreads, forming a durable carpet, depending on how often and closely it is mowed. Like the Pacific dune sedge, its seed is slow to germinate, but a stand is easily and efficiently established by plugs 8–12 inches apart.

Carex spissa (San Diego sedge). San Diego sedge is a large, silver-gray sedge that grows along creek beds and washes from Baja California to San Luis Obispo County. It is a striking, robust, ornamental sedge and can be as large as 4–5 feet in height and spread, making it a good feature in any landscape design.

Rushes

Juncus patens (California gray rush). California gray rush is a clumping perennial rush that grows up to 18–20 inches in height. It is found from Oregon to Baja California along the coastal mountains and plains. It generally grows in open grasslands on locally moist sites, seeps, and springs. It thrives in full sun and tolerates shade, poor drainage, and seasonal flooding. The foliage is gray-blue in color and has a yellow flower that gradually develops into dark brown seed pods. California gray rush contrasts well with the green and larger soft rush (*J. effusus*). *Juncus* is grown by division or by seed for plug planting.



Juncus effusus (**soft rush**). Soft rush is also known as common rush. It has bright green foliage and is found in waterlogged habitat such as riverbanks, ditches, marshes, wet meadows, and riverbanks throughout the northern and southern hemisphere. It spreads from underground rhizomes and can form into large patches and attain heights up to 36 inches. There are at least four varieties in California. It contrasts well with *J. patens* in both color and size. It is easily grown from seed for plug planting, or by division.

Illustrations are from: Hitchcock, A.S. and A. Chase. 1951. *Manual of the grasses of the United States*. 2nd ed. USDA. Misc. Publ. 200: 1-1051. (Reprinted as two vol. Paperback. Dover Press.) Scans prepared by David Amme.