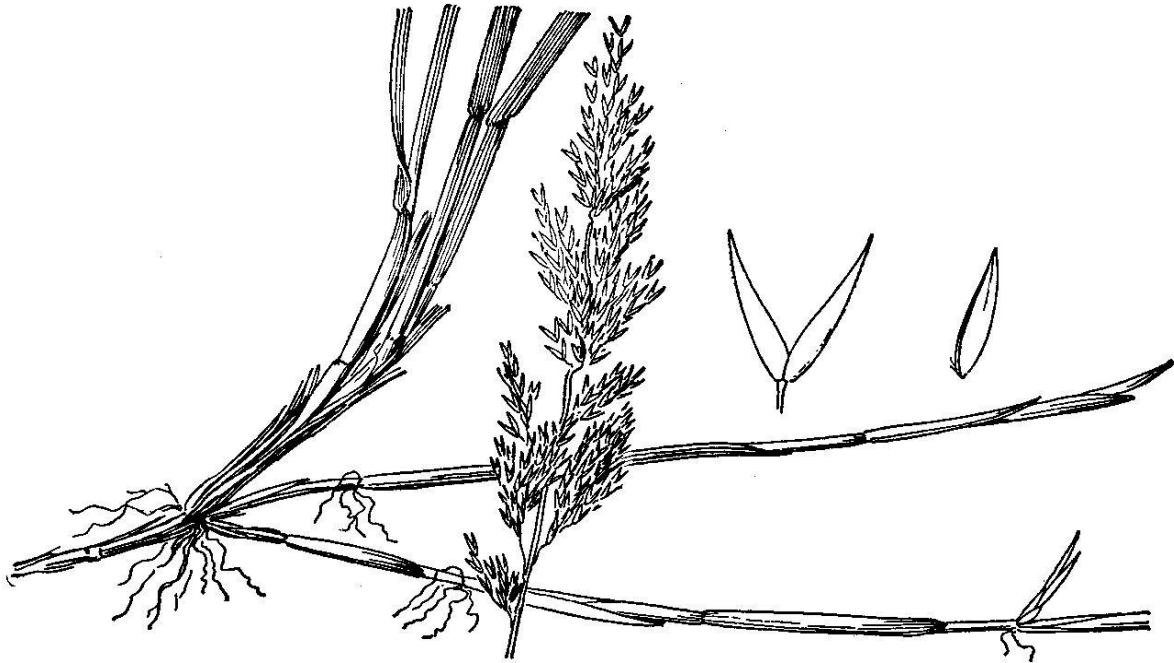


# California Agrostis (Bentgrass)

By David Amme



*Agrostis pallens*



## California *Agrostis* (Bentgrass)

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Bentgrass is circumpolar in distribution; most of the 150 species inhabit the temperate regions of the northern hemisphere, but a few species are found in the southern hemisphere and tropical mountains. In California there are 21 *Agrostis* species, including four annuals, eleven tufted perennials, and six creeping perennials. Bentgrass is synonymous with turf lawns, putting greens, and meadows. Most of California's native *Agrostis* species are associated with moist meadows, wetlands, vernal pools, or sandy habitats that are seasonally moist (Crampton 1974). A few native perennial *Agrostis* species are capable of going completely dormant in the dry season (*A. hooveri*, *A. blasdalei*), enabling them to survive the long dry season. The annual *Agrostis* species are all associated with vernal wet sites, pools, and ponds. The tiny *Agrostis* seed and the propensity of Bentgrass for wet areas give the seeds the opportunity to travel the globe attached to migrating birds. This is true for the vernal pool grasses as well as the different groups or alliances of closely related species.

The genus *Agrostis* is in the Oat Tribe (Aveneae). Originally *Agrostis* was included in the Timothy Tribe (Agrostideae), which was characterized as having spikelets with only one floret. Agrostideae has been largely reorganized, with the majority of the different cool-season genera, including *Agrostis*, *Alopecurus*, *Calamagrostis*, *Phleum*, *Polypogon*, and *Gastridium*, being absorbed into the Oat Tribe (Aveneae), which includes one or two florets per spikelet usually totally encompassed by the glumes, as well as florets that have geniculate awns from the back or near the base of the lemma, another distinguishing characteristic of the Oat Tribe's species. The above "Timothy" species join ranks with the tiny two-flowered *Aira*, *Deschampsia*, *Koeleria*, *Trisetum*, *Holcus*, and *Arrhenatherum*.

Identifying the bentgrasses can be a chore because the florets are very small, often less than 1.5 mm in length. Distinguishing the two primary native creeping bentgrasses (*A. pallens* and *A. hallii*) from the introduced lawn-type bentgrasses (*A. capillaris*, *A. gigantea*, and *A. stolonifera*) will require at least a 40-power dissecting scope to see if there is a palea or not, or if there is a tuft of hairs at the base of the lemma. With only two exceptions (the related *A. humilis* and *A. thurberiana*), the florets of the native *Agrostis* species do not have a palea, or have only a minute remnant of one.

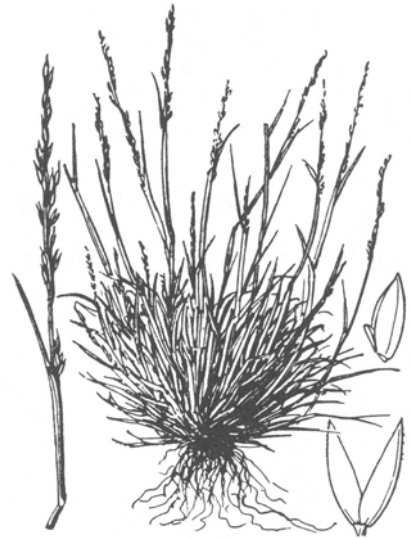
For the last 150 years the European creeping bentgrasses have been planted and escaped throughout California and the United States. It is well documented that *A. gigantea* is an introduced creeping bentgrass, as are introduced meadow and turf forms of *A. capillaris* and *A. stolonifera*, however, both *A. capillaris* (in the form of *A. tenuis* var. *aristata*) and *A. stolonifera* (*A. maritima* and possibly *A. palustris*) are considered by several authors to be native to the Western Hemisphere and were found to range to the Pacific Coast from British Columbia to Sonoma County as early as the 1830s (Hitchcock 1905, Hitchcock 1912, Abrams 1923, Hitchcock 1935, Hitchcock and Cronquist 1987). This may not be surprising, as both *A. capillaris* and *A. stolonifera* are associated with other perennial grasses known to exist in Old and New Worlds' seaside wet meadows (i.e., *Festuca rubra*, *Deschampsia caespitosa*, *Koeleria macrantha*, *Phleum* sp., *Leymus* sp.).

### ***Agrostis avenacea*, Pacific Bentgrass**

Pacific bentgrass is a medium-sized (up to 18 in.), short-lived perennial bunchgrass with a diffuse, open flowering panicle. It is thought to be endemic to western Australia and is found in the islands of the Pacific, including Polynesia and the Hawaiian Islands. In California, Pacific bentgrass first appeared in a wetland south of Stockton but is now naturalized along the coastal wetlands and appears sporadically in wet sites and irrigated farmlands in the coastal mountains, the Central Valley, and in the Sierran foothills (Raven 1961). The basal leaves are generally flat but narrow with a slight scabrous feel. The panicle flag leaf is swollen and much wider than the basal leaves. It gets its name “*avenacea*” because of the hairy lemma and long geniculate awn protruding from equal-length glumes and appears like a miniature oat (*Avena*) flower.



*Agrostis avenacea* showing panicle, awned floret, and pointed glumes (Hitchcock 1935)



*Agrostis blasdalei* aka *A. breviculmis*  
(Abrams 1923)

### ***Agrostis blasdalei*, Blasdale’s Bentgrass, Cliff Bent, Marin Bentgrass**

Blasdale’s bentgrass is endemic to California’s central coast. It is a small (3–5 in.), delicate perennial bunchgrass that inhabits the coastal bluffs, gravelly soils, and sandy back dune flats of Mendocino, Sonoma, and Marin Counties and is found sporadically in San Mateo and Santa Cruz Counties (Beetle 1947). There are erect forms up to 10 in., and decumbent, sprawling forms along the windblown sandy flats close to the ocean. The flowering panicle is spike-like or cylindrical, from 1–2 in. long. The leaves are narrow, short, and rigid. The seed is small and often has a short, straight awn from the back of the lemma. The variation in the narrow panicle is often similar to *Agrostis densiflora*, which has a slightly interrupted cylindrical panicle. *Agrostis densiflora* is also within the variability of *A. exerata* (spikebent) and has been confused with *A. glomerata* of Peru. It may be that the sprawling, prostrate forms of *A. blasdalei* are more indicative of the species and that the more upright forms are intergrades with the closely related *A. densiflora*. Originally, Blasdale’s bentgrass was identified by A. S. Hitchcock as dwarf bentgrass, *A. breviculmis*, which is also native to Peru.

***Agrostis capillaris*, Colonial Bentgrass, Browntop**

Colonial bentgrass is a medium-sized (12–16 in.) perennial grass that spreads vigorously, primarily by short-rooted rhizomes and aboveground stolons. Colonial bentgrass is an introduced and naturalized grass that was included in turf and pasture grass-seed mixes during the better part of the last century. It is found along roadside ditches, coastal terraces, disturbed ground, and naturalized grasslands along California’s north coast and outer north coastal mountains. The leaves are short and generally flat. The panicle is open and delicate, up to 6–8 in. in length and 4 in. wide at the base, and has stiff, spreading branches that are often brown or tan. The lemma can occasionally have a short-awned tip. *Agrostis capillaris* is identified as *A. tenuis* in many botanical texts, which retains this name (Hitchcock 1935, Hubbard 1954, Munz 1959, Hitchcock and Cronquist 1987). Hitchcock identified a form of Colonial bentgrass (*A. tenuis* var. *aristata*) that has a distinctive geniculate awn from the back of the lemma as native to the northern part of its range in both the east and west coasts of the United States. It is difficult to confirm this identification because of the widespread introduction of European forms of this bentgrass.



*Agrostis capillaris* showing its airy panicle. The awned floret on the left depicts the coastal native form described by A. S. Hitchcock as *A. tenuis* var. *aristata* (Hitchcock 1935).



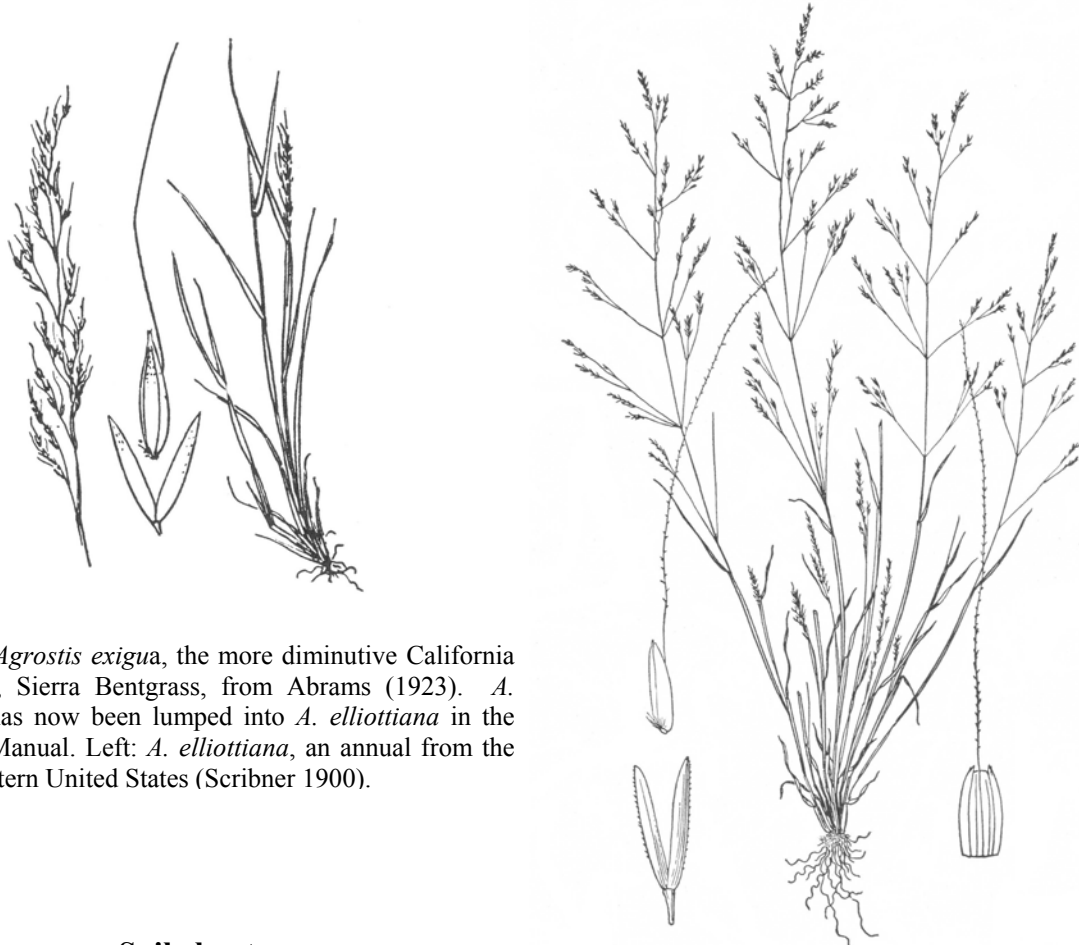
*Agrostis densiflora*, from Scribner’s Illustrated American Grasses (1900).

***Agrostis densiflora*, California Bentgrass, Dense-Flower Bentgrass**

Like Blasdale’s bentgrass, California bentgrass is endemic to California’s central coast. It is a small (6–11 in.), stout, and somewhat spreading perennial bunchgrass that is limited in distribution to sandy soils and cliffs along the California coast, from Mendocino County to Santa Cruz County. The flowering panicle has a dense and cylindrical panicle. The seed sometimes has a short, straight awn from the back of the lemma. Hitchcock referred to this species as *A. californica* (Beetle 1947). A closely related form of *A. densiflora* was identified by Beecher Crampton (1967) as *A. clivicola* var. *punta-reyensis* (Point Reyes bentgrass). This is a distinctive form with erect flowering stems up to 20 inches in height and has been lumped into *A. densiflora*. *A. densiflora* is considered to be closely related to spike bent (*A. exerata*) and tied to a similar bentgrass of Peru, *A. glomerata*. *A. densiflora* may represent a mid-form variation with *A. exerata* representing the taller forms and *A. blasdalei* the most compact prostrate forms.

***Agrostis eliottiana*, Elliot's Bentgrass, Annual Ticklegrass**

Annual ticklegrass is a small, delicate grass rarely over 8 inches in height. It inhabits vernal pool margins and wet areas in the foothills and rocky plains of the Napa and Sacramento Valleys to Shasta and Butte Counties. Until recently the California form was considered a distinct endemic species to California known as *A. exigua*. Sierra bentgrass (Abrams 1923, Hitchcock 1935, Crampton 1961) but has now been lumped into *A. eliottiana*, an annual bentgrass that inhabits fields and waste places in the southeast United States. *A. eliottiana* has a more diffuse panicle than the California form. Both forms have a delicate, wavy awn from below the tip of the lemma that is four times as long as the lemma.

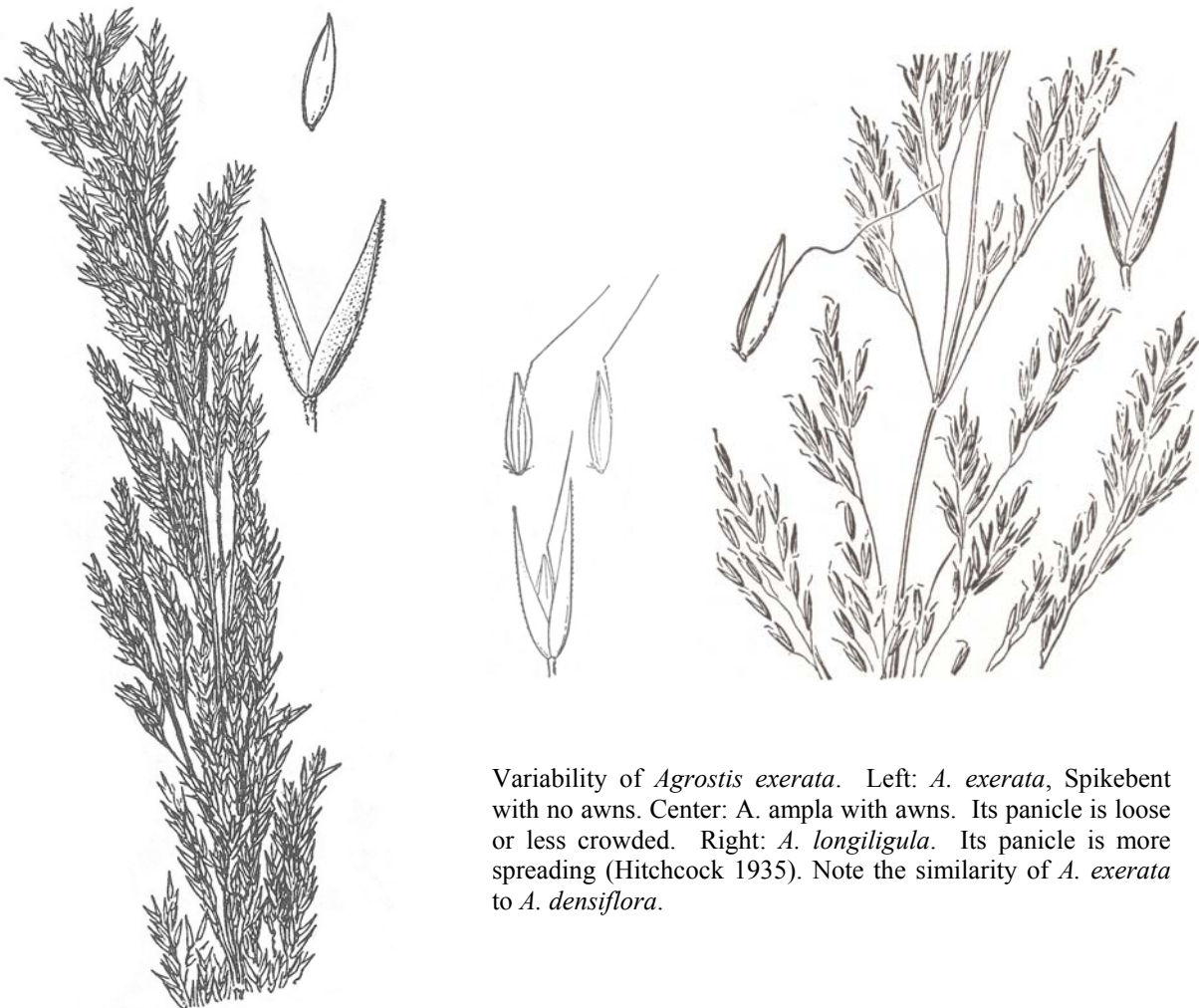


Above: *Agrostis exigua*, the more diminutive California endemic, Sierra Bentgrass, from Abrams (1923). *A. exigua* has now been lumped into *A. eliottiana* in the Jepson Manual. Left: *A. eliottiana*, an annual from the southeastern United States (Scribner 1900).

***Agrostis exarata*, Spikebent**

Spikebent inhabits moist sites in meadows, marshes, open woodlands and coniferous forests from sea level to over 10,000 ft. in elevation of the western Rocky Mountain, Great Basin and Pacific Slope states. In favorable moist conditions, spikebent can reach four feet in height. Its panicle is dense to open and often interrupted near the base. Two varieties of spikebent that were originally given species names (*A. ampla*, *A. longiligula*) are now lumped in the species *A. exarata*. Both *A. ampla* and *A. longiligula* have long, twisted awns from the back of the lemma. *Agrostis longiligula* is associated with bogs and wet areas along the northern coastal valleys of California. Hitchcock identified two varieties of *A. exarata* (var. *pacifica* and var. *monolepis*), both with geniculate awns exceeding the glumes. The *pacifica* form is within the variation of the species, and the *monolepis* variety has a distinctive dense, narrowly cylindrical, spike-like

flowering head. As described above, *A. densiflora* and *A. blasdalei* are considered related to *A. exarata* and represent different extremes of this adaptable species along the coastal bluffs and sandy flats of Northern California, with ties to western South America. Spikebent is a common invader onto disturbed sites along roadsides and burned or disturbed areas. Because of its adaptability, spikebent may be one of the best early successional restoration grasses in mid-elevation forested sites of montane California, and like meadow barley (*Hordeum brachyantherum*) and slender hairgrass (*Deschampsia elongata*), can be planted on both wet and dry disturbed sites, especially in areas that have recently experienced disturbance associated with road building and timber harvests.



Variability of *Agrostis exarata*. Left: *A. exarata*, Spikebent with no awns. Center: *A. ampla* with awns. Its panicle is loose or less crowded. Right: *A. longiligula*. Its panicle is more spreading (Hitchcock 1935). Note the similarity of *A. exarata* to *A. densiflora*.

### ***Agrostis gigantea*, Giant Bentgrass**

Giant bentgrass is an introduced creeping bentgrass from Europe. It is difficult to distinguish *A. gigantea* from *A. stolonifera*, and both species share the same common names (redtop, creeping bent, etc.). One difference between the two species is that the *A. gigantea* panicle is larger and more diffuse and stays open after seed maturity, whereas the *A. stolonifera* panicle is less diffuse and closes after seed maturity. A second distinguishing characteristic is that *A. gigantea* produces strong belowground rhizomes, whereas *A. stolonifera* spreads primarily by

aboveground stolons. A. S. Hitchcock applied the name *A. alba* to *A. gigantea*. The illustration of *A. alba* in the Hitchcock Manual is that of *A. gigantea*. *A. gigantea* grows on infertile soils of high acidity and/or clay content and is considered drought resistant. Both species seem to do well in wetlands or mesic sites. In California, *A. gigantea* grows at higher elevations, up to 6,500 feet, whereas *A. stolonifera* grows at lower elevations (3,000 ft). According to the Natural Resource Conservation Service (NRCS), giant bentgrass is used for erosion control, pastures, and temporary grass in turf seedings. It is often used for stabilizing critical areas, such as ditch and channel banks, strip-mine spoils, and grassed waterways because it germinates very rapidly (NRCS 2002)



*Agrostis gigantea*, an introduced *Agrostis*  
aka *A. alba*, Redtop (Hitchcock 1935).



### ***Agrostis hallii*, Hall's Bentgrass**

Hall's bentgrass is a native, perennial, creeping bentgrass that reaches heights of 2 feet, and has rhizomes up to 16 inches long. It is confined to woodlands and meadows near the coast of California from Oregon to Santa Barbara County. It is not a common grass and can easily be confused with *A. pallens* (aka *A. diegoensis*), to which it may be closely related. Distinguishing features of Hall's bentgrass include its long, creeping rhizomes; tall, erect flowering panicle (up to 2.5 ft.); lack of awn; and a tuft of hairs at the callus (base of the lemma) about half as long as the lemma, sometimes shorter. Scribner (1900) identified a compact form of this grass in 1897 as *A. pringlei*, which Hitchcock later grouped with *A. hallii*, as *A. hallii* var. *pringlei* (Hitchcock 1935). *Agrostis pringlei* grows near the coast in low moist sand-dune areas and is known from Mendocino County, as well as in the back dune areas of Point Reyes (personal observation).



Left: *Agrostis hallii* from the Illustrated Flora of the Pacific States (Abrams 1923). Right: *A. pringlei* from American Grasses (Scribner 1900) also identified as *A. hallii* var. *pringlei* by Hitchcock (1935). Note the hairs at the base of the lemma in both illustrations.

### ***Agrostis hendersonii*, Henderson's Bentgrass**

Henderson's bentgrass is a small (6–8 in.) and unique annual *Agrostis* that inhabits vernal pools of the Cascade foothills in Oregon and intermittently in the northern and eastern fringes of the Sacramento and San Joaquin Valleys and into the gentle foothills above the valley bottom from Shasta to Merced County. *Agrostis hendersonii* has a condensed and dense cylindrical panicle. The glumes are awn-like and the tip of the lemma has a finely bifid (two-toothed) tip. The back of the lemma has a twisted awn from the middle, one to two times longer than the lemma, and has no palea. *Agrostis hendersonii* is considered to be a variant form of the more widespread little leafed bentgrass (*A. microphylla*), which ranges from Vancouver Island to Baja California.

Other closely related annual bentgrasses include awned bentgrass (*A. aristiglumis*) from Pt. Reyes and *A. tandilensis* (aka *A. kennedyana*) from vernal pool sites in San Diego County and Argentina.



Left: *Agrostis hendersonii*.  
Right: *A. aristiglumis* from Point Reyes (Hitchcock (1935).

*Agrostis hooveri* (Hitchcock 1935)

***Agrostis hooveri*, Hoover’s Bentgrass**

Hoover’s bentgrass is a densely tufted and slender perennial (16–20 in.) that grows in dry, sandy soils; open chaparral; and oak woodland sites in western San Luis Obispo and Santa Barbara Counties (Swallen 1949). It is endemic to California and is the most limited in distribution of all the California bentgrasses. Hoover’s bentgrass can be up to 20 inches in height and has a generally open, lanceolate panicle with ascending branches. The lemma has a bent awn from near the base of the lemma and only slightly exceeding the glumes; the palea is minute.

***Agrostis humilis*, Mountain Bentgrass**

Mountain bentgrass is a dwarf 6-inch tufted perennial from the alpine meadows and bogs of the central high Sierra in Alpine, Mono, Mariposa, and Tuolumne Counties. Elsewhere, it ranges in the high-elevation mountains of British Columbia, Washington, and Oregon, and in the Rocky Mountains as far south as New Mexico. The panicle is erect and narrow with appressed

branches. The tiny awnless spikelet is less than 2 mm long. *Agrostis humilis* is believed to intergrade with the more widespread *A. thurberiana*, Thurber's bentgrass, and is lumped with Thurber's bentgrass by several taxonomists (Harvey 1999). Unlike most of the native bentgrasses, which have almost nonexistent paleas, both *A. humilis* and *A. thurberiana* have a palea that is two-thirds as long as the lemma.



*Agrostis humilis* from Scribner (1900).



*Agrostis idahoensis* from Abrams (1923).

***Agrostis idahoensis*, Idaho Bentgrass**

Idaho bentgrass is a medium-sized perennial bunchgrass (up to 14 in.) that inhabits open, wet meadows and seepage areas often associated with *Sphagnum* in the higher-elevation conifer forests of the mountains of California and the Pacific Slope west of the Rocky Mountains. It is found in the Sierra Nevada, the Klamath, Siskiyou, and Trinity Alps areas of northern California, and in the San Gabriel, San Bernardino, and San Jacinto mountains of southern California (Beetle 1947). Idaho bentgrass has a stiff, slightly spreading panicle. The awnless lemma is less than 1.5 mm, and the palea is absent or minute.

***Agrostis microphylla*, Small-leaved Bentgrass**

Small-leaved bentgrass is a widespread but uncommon small annual grass (6–16 in.) that generally inhabits wet meadows along the coastal valleys and mountains from Vancouver Island to Baja California. It also grows in foothill sites of the Central Valley and could be identified as its close cousin, *A. hendersonii*. Similar to Henderson’s bentgrass, small-leaved bentgrass has a more elongated dense panicle with pointed awn-like glumes and a slightly bent awn from the middle of the lemma, and no palea. A rare form of small-leaved bentgrass is Point Reyes Bentgrass, *A. aristiglumis*. This is a distinctive form with a more geniculate awn and is found only on diatomaceous shale in the grasslands west of Mount Vision on the Point Reyes Peninsula



Above Left: *Agrostis microphylla* is closely related to *A. hendersonii* and *A. aristiglumis*. Above Right: The closely related *A. tandilensis* (aka *A. kennedyana*), Kennedy bentgrass, from San Diego and Argentina. *A. tandilensis* is described below. (Hitchcock 1935).

*Agrostis oregonensis* (Hitchcock 1935).

***Agrostis oregonensis*, Oregon Bentgrass**

Oregon bentgrass is a medium sized (5-16”) perennial bunchgrass that inhabits wet areas such as stream and lake margins, marshes, bogs, damp woods, and meadows. In California it is found primarily in the mid-elevation mountains of northern California and the Sierra Nevada. It is most abundant in Oregon and also ranges north to Washington and east into Idaho, Montana and Wyoming. It is generally larger in size than *A. idahoensis* with a larger panicle. It has a tiny 1.5 mm awnless lemma and no palea.

***Agrostis pallens*, Thingrass**

Thingrass is a widespread native creeping bentgrass that inhabits many plant communities in California (Beetle 1947). Initially thingrass was identified as three separate species (Hitchcock 1935, Munz 1968): *A. pallens*, a medium-sized creeper (up to 16 in.) that inhabits coastal sand dunes and moist seeps in the coastal strand from San Francisco to Oregon; *A. diegoensis*, the tallest form (up to 30 in.) that inhabits the coast range meadows and woods from Mendocino County to San Diego County and Baja California; and the medium-sized *A. lepida* which has numerous shorter rhizomes and inhabits moist meadows and woodlands in the higher, open conifer forests and subalpine forests of Northern California, the Sierra Nevada, Inyo Mountains, and the Transverse Range (Raven 1961). Generally the lemma is 2 mm long, awnless, with no palea but the southern California form of *A. diegoensis* is sometimes awned from the middle of the lemma. *Agrostis pallens* is also found in Oregon, Washington, British Columbia, and Nevada. Some of the most spectacular and continuous stands of thingrass are found on the eastern slopes of hills in the higher coastal ranges and plateaus (mesas) of San Diego and Riverside County.



The native creeping *Agrostis pallens* now includes the coastal sand dune form, originally *A. pallens* (above right), the coast range forms from San Diego to Mendocino Counties, *A. diegoensis* (below right), and the inland high montane form, *A. lepida* (left). All three illustrations are from Hitchcock (1935).

***Agrostis scabra*, Ticklegrass, Rough Bentgrass**

Ticklegrass is a medium-sized, short-lived, tufted perennial and the most widespread bentgrass in North America. In California, ticklegrass is found in the Klamath and North Coast Ranges, the Sierra Nevada, and the Transverse Ranges of southern California. It is generally considered a pioneer or invader species that grows in open, sunny conditions. Ticklegrass has a spreading diffuse panicle with the spikelets loosely arranged at the ends of the branchlets. Awned and unawned forms grow together. The awns are straight and attached from below the middle of the lemmas. Ticklegrass is found along open roadsides, meadows, open woodlands and fens from medium to higher elevations within its range.



*Agrostis scabra*, ticklegrass (Hitchcock 1935).

*Agrostis stolonifera* aka *A. alba* (Mason 1957).

***Agrostis stolonifera*, Creeping Bentgrass, Redtop**

Creeping bentgrass is an introduced perennial that is often found in ditches, lake margins, and marshes. The species name ‘alba’ is interchangeable with ‘stolonifera’ for most authors. *A. stolonifera* shares *A. gigantea* attributes including the Redtop common name but differs primarily by having aboveground stolons. A. S. Hitchcock (1935) considered *A. stolonifera* native to northern North America as well as Europe and distinguished it from the closely related Eurasian *A. palustris* (Creeping Bentgrass) (Harvey 1999, USDA–APHIS 2003). Different forms of *A. stolonifera* have been introduced extensively in California either as escaped lawn or turf grasses or seeded into a variety of settings in reclamation seed mixes. Yet, forms of *A. stolonifera* (var. *palustris*, and *A. maritima*) may actually be native to the coastal meadows and marshes of Oregon and northern California. This may include the early creeping bentgrass cultivars from the Coos Bay area in Oregon.



Left: *Agrostis stolonifera* with airy panicle native to Newfoundland and Alaska and south to Virginia and Washington, the specimen is from Newfoundland (Hitchcock 1935). Center: *A. maritima* found as far south as Sonoma County, California (Abrams 1923). Right: *A. palustris* a Eurasian form of *A. stolonifera* found from British Columbia to northern California with extensive coastal areas in Coos Bay, central Oregon (Hitchcock 1935).

***Agrostis tandilensis*, Kennedy Bentgrass**

Kennedy bentgrass is an annual *Agrostis* native to Argentina. The name “Kennedy” is derived from the old name *A. kennedyana* (Beetle). A. S. Hitchcock (1935) considered it native from only one limited vernal pool area in San Diego County. Later, it was found to be identical to the Argentine annual and the name was adjusted accordingly. Today, it is also found in vernal pool areas in Solano County. Kennedy bentgrass is very similar in appearance to *A. microphylla*, and its closely related vernal pool annual bentgrasses, *A. hendersonii* and the Point Reyes *A. aristigluma*. Kennedy bentgrass, like several native grasses and forbs, is found in California and in southern South America (Argentina and Chile), their common link being their location on the Pacific Flyway. (See illustration above)

***Agrostis thurberiana*, Thurber’s Bentgrass**

Thurber’s bentgrass is a tufted perennial inhabiting bogs and moist sites in the higher subalpine forests of the Klamath and higher North Coast ranges, the high Sierra Nevada, and the San Bernardino Mountains of southern California (Beetle 1947, Grayum and Gordon 1976). It is generally larger in size than the closely related mountain bentgrass, *A. humilis*, and is more widespread in California’s mountains (see discussion of *A. humilis*).



***Agrostis variabilis*, Mountain Bent, Mountain Redtop** <sup>*A. thurberiana* (Abrams 1923) intergrades with *A. humilis*</sup>  
*Agrostis variabilis*, also known as mountain bentgrass or mountain redtop, is a tufted perennial bentgrass that develops short rhizomes. *A. variabilis* has no palea. It was also known as Ross's bentgrass, *A. rossae*. Mountain redtop grows in alpine and subalpine meadows and forests and in wet areas along rocky creeks and talus slopes. It is found in the high mountains of the Klamath and North Coast ranges, the Warner Mountains, and the Sierra Nevada (Beetle 1947). *Agrostis variabilis* also grows in northwest mountains of the Pacific slope, including Oregon, Washington, and British Columbia, to Alberta, Idaho, and Colorado. *A. variabilis* has more affinities to *A. exarata* and/or *A. idahoensis* than the *A. humilis/thurberiana* complex.



*Agrostis variabilis* aka *A. rossae*  
 (Abrams 1923).



*Agrostis viridis* aka *A. semiverticillata*  
 (Abrams 1923).

***Agrostis viridis*, Waterbent**

In California, waterbent is a ubiquitous (weedy) introduced perennial bentgrass that grows on moist ground, creeks, and irrigation ditches in the warmer climes below 6,000 feet. Many taxonomists have identified this taxon as a *Polypogon* (e.g., *P. viridis* [Harvey 1999]). Like a *Polypogon* (rabbitfoot grass), the spiklets disarticulate below the glumes. In older texts (Munz 1968 and Hitchcock 1935) waterbent is referred to as *A. semiverticillata*. It tends to spread like a mat with long-trailing stems rooting at the nodes in streams and canals, often in running water. Waterbent has a distinctive dense and whorled panicle.



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