

An Introduction to California's Native Grasses

by David Amme

It is difficult to describe California's native grasses without first acknowledging the Mediterranean annual grasses that now dominate the lowland grasslands of California's Floristic Province and give California that golden summer glow. A parade of annual grasses imported by European man, pre-adapted to heavy year-long grazing and more resilient to disturbance and drought, now dominate the rolling hills and savannas of California below 4000 feet. This annual grass invasion began in the 16th century with wild oats, *Avena barbata*. The invasion continued over the next three centuries with a parade of annual grasses including ripgut (*Bromus diandrus*), annual ryegrass (*Lolium multiflorum*), soft chess (*B. hordeaceus*), cheatgrass (*B. tectorum*), the dreaded medusahead (*Taeniatherum caput-madusae*), and its most recent replacement, barbed goatgrass (*Aegilops triuncialis*). The exotic grassland flora also includes many naturalized perennial grasses. Fountaingrass (*Pennisetum setaceum*) is found along the southern California roadsides from San Diego to Malibu. The coarse, creeping kikuyugrass (*P. clandestinum*) handily smoothers coastal upland habitat up and down the coast and has virtually type-converted all the southern Californian golf courses. Veldtgrass (*Ehrharta calycina*) dominates the sandy soils of south central California between Lompoc and Pismo Beach. Weeping lovegrass (*Eragrostis curvula*) has hitch-hiked the length of the golden state freeway and the El Camino Real. The English country grasses, velvetgrass (*Holcus lanatus*), sweet vernalgrass (*Anthoxanthum odoratum*), and colonial bentgrass (*Agrostis capillaris*), now dominate the north coastal terrace grasslands and meadows. Tall oatgrass (*Arrhenatherum elatius*) has spread from the north coast grassland into the Sierran mountain meadows. No grass discussion is complete without mentioning the ubiquitous Kentucky bluegrass (*Poa pratensis*) which "appears" throughout the western grasslands and mountain meadows.

The California native grassland landscape is primarily a perennial bunchgrass landscape. The native Californian lowland bunchgrassland is commonly known as the Foothill Grassland or Needlegrass Grassland. Depending on the soil type, exposure, moisture, etc., this grassland is signified by purple needlegrass, *Nassella pulchra*, the unofficial State Grass. In the drier inland grasslands, nodding needlegrass (*N. cernua*) and squirreltail (*Elymus multisetus*) are the component bunchgrasses of the Foothill Grassland. Blue wildrye (*Elymus glaucus*), California brome (*B. carinatus*), pine bluegrass (*Poa secunda*), and oniongrass (*Melica californica*) round out the northslope and shaded woodland sites of the Foothill Grassland. Pure stands of the rhizomatous creeping wildrye (*Leymus triticoides*) grow on the moist slopes and valley bottoms. Meadow barley (*Hordeum brachyantherum*) clothes the wettest and more alkaline meadows stopping at the pickleweed.

Along the coast and in the mountains, the Foothill Grassland merges with the Coastal Prairie and Mountain Meadow grasslands. These grasslands are signified by the "sod forming" bunchgrass, California oatgrass (*Danthonia californica*). Along the coast, California oatgrass grows within the influence of the fog belt. Great prairies of California oatgrass once existed all along California's north coast, growing on the terraces of Mendocino County and the windswept grasslands of Point Arena, the coastal Marin and Sonoma County gap, the East Bay Hills, the San Mateo and Santa Cruz coastal terraces and balds, the Monterey Bay Area prairie, and as far south as the headlands of San Luis Obispo County. These grasslands served as the breadbasket and dairy for California's booming population in the late 19th century. A last remaining stretch of this oatgrass prairie still exists along the coast on the Hearst San Simeon property north of Cambria. In the Sierra Nevada, a less husky form of California oatgrass is found on moist sunny slopes and wet meadows at mid to high elevations.

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The Coastal Prairie and Mountain Meadow grasslands includes such stalwart circumpolars breeds as tufted hairgrass (*Deschampsia caespitosa*), junegrass (*Koeleria macrantha*), Idaho fescue (*Festuca idahoensis*), and red fescue (*F. rubra*). This is true along the Fort Bragg coast, on Mt. Tamalpais and San Burno Mountain, and in the northern Sierran mountain meadows. Climbing higher into the mountains, the meadows include a rich assortment of northern cool-season grasses such as the reedgrasses (*Calamagrostis rubescens*, *C. canadensis*), trisetums (*Trisetum canescens*, *T. spicatum*), meadow barley (*Hordeum brachyantherum*), oniongrasses (*M. aristata*, *M. subulata*), Columbia needlegrass (*Achnatherum nelsonii*), reincarnations of pine bluegrass (*Poa secunda*), and Lemmon's needlegrass (*Achnatherum lemmonii*).

California is graced with many signature bunchgrasses in the desert, chaparral, woodland and forest ecosystems: the airy Indian ricegrass (*Achnatherum hymenoides*), strict tufts of foothill needlegrass (*Nassella lepida*), upright spikes of blue wildrye and slender wheatgrass (*Elymus trachycaulus*), arching and delicately spread flowers of the bottlebrush grass (*E. californicum*), the deep green, aromatic vanillagrass (*Hierochloë occidentalis*), the nodding woodland bromes (*B. laevipes*, *B. ciliatus*), the erect western needlegrass (*Achnatherum occidentalis*), the mat muhly (*Muhlenbergia richardsonis*), and expanses of the robust blue and green California fescue (*F. californica*).

Finally, warm-season grasses enter the California landscape from the more tropical climates of Arizona and Mexico. Deergrass, *Muhlenbergia rigens*, is the premiere warm-season bunchgrass of California. The larger deergrass meadows are more common in the valleys and mesas of San Diego County. In central and northern California, deergrass follows the riparian swales from the blue oak woodland into meadows among black oaks and ponderosa pine. The warm-season poverty grasses, purple three-awn (*Aristida purpurea*) and hook three-awn (*A. ternipes*) are important components in the drier valley grassland sites from northern Sacramento Valley in the north to the southern western desert valleys of Riverside and San Diego Counties. Of special note is the once widespread seasonally wet, warm-season grasslands of the central San Joaquin Valley featuring the bunchgrass, alkali sacaton (*Sporobolus airoides*), and creeping saltgrass (*Distichlis spicata*).

There is a strong emotional and intellectual interest in grasses. Perhaps the wellspring of this interest is the human desire to know and understand the grassland landscape. It is the grassland savanna of Africa that *Homo sapiens* took their first tentative terrestrial steps. Grasses transcend being landscape objects, like so many ornamental oddities. Grasses and grasslands are shaped by the natural processes of fire, grazing, and rest. Interest in California native grasses is also based on our need to preserve and restore the functionality and balance of the unique California environment. Farmers are utilizing native grasses to replace weeds, expanding diversity and stability in the farmscape, by creating "living" hedgerows and planting perennial covercrops in orchards and vineyards. Home owners along the urban wildland interface are beginning to embrace the native perennial grass landscape instead of fighting it with herbicides, disks, and planting oaks. Native grasses are a desirable alternative to yellow starthistle. Grasses are healing plants. More and more, land owners and agency managers are reaching for native grass seed instead of the quick-fix exotic annuals when repairing the wounds of natural and human disturbance. Perhaps the most difficult paradigm shift people experience is coming to terms with the natural summer dormancy of California's Mediterranean grassland landscape. Sometimes it is just hard to shake that nagging Anglo-European desire to have everything green and tidy.