

# GRASS IDENTIFICATION IN WASHINGTON

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**TERMS TO KNOW FOR SUCCESSFUL GRASS IDENTIFICATION:** grass, graminoid, herbaceous, woody, annual, biennial, perennial, cespitose, turf-forming, rhizomatous, stoloniferous, root, culm, leaf, sheath, collar, ligule, auricle, inflorescence (secondary inflorescence) and infructescence (panicle, spike, spike-like panicle, and raceme), spikelet (primary inflorescence), rachilla, floret, glume #1, glume #2, lemma, palea, pistil, stamens, callus, awn, keel, nerves, compression (lateral and dorso-ventral), fertile floret, sterile floret, disarticulation (above or below the glumes).

**IMPORTANT CHARACTERISTICS DISTINGUISHING GRASS GENERA (or, what to look for first):**

- 1) open versus closed sheaths
- 2) ligule membranous versus ligule a fringe of hairs
- 3) florets in a spike, spike-like panicle, panicle, or (less commonly) a raceme
- 4) number of florets per spikelet
- 5) articulation above or below the glumes
- 6) glumes or lemmas awned or without awns
- 7) habitat (wetland versus upland; forested versus grassland, disturbed versus undisturbed, etc.)

**COMMONLY ENCOUNTERED GRASS GENERA AND SPECIES IN WASHINGTON** (assume ligule membranous and sheaths open unless otherwise mentioned):

## ***AGROPYRON* wheatgrass**

QUICK ID FEATURES: 1) spikelets in spikes; 2) one spikelet per node; 3) both glumes present (*Lolium* has only one present); 4) spikelets not sunken into rachis (*Lolium* is).

COMMONLY SEEN SPECIES: *Agropyron repens*, quackgrass: vigorously rhizomatous; troublesome weed; blue-green foliage; name recently changed to *Elymus repens*. *Agropyron cristatum* is common non-native grass in Columbia Basin. *A. spicata* is Washington State Grass; name recently changed to *Pseudoregneria spicata*.

## ***AGROSTIS* bentgrass**

QUICK ID FEATURES: 1) 1 floret per spikelet; 2) extremely minute spikelets; 3) usually rhizomatous and/or stoloniferous.

COMMONLY SEEN SPECIES: *Agrostis capillaris* (syn. *A. tenuis*); *A. stolonifera* (syn. *A. alba*); *A. exarata*; *A. oregonensis*.

## ***AIRA* hairgrass**

QUICK ID FEATURES: 1) spikelets two-flowered; 2) both lemmas awned; 3) plants annual, usually diminutive; 4) typically found in dry, open waste places

COMMONLY SEEN SPECIES: *Aira praecox*, little hairgrass; *Aira caryophyllea*, silver hairgrass

## ***ALOPECURUS* meadow-foxtail**

QUICK ID FEATURES: 1) dense, cylindrical spike-like panicle; 2) spikelets 1-flowered; 3) glumes hairy, especially on keel; 4) florets strongly flattened and lemmas awned from below mid-length

COMMONLY SEEN SPECIES: *Alopecurus pratensis*, meadow foxtail; *A. geniculatus*, water foxtail

## ***ANTHOXANTHUM* vernalgrass**

QUICK ID FEATURES: 1) 3-flowered spikelets but only one is fertile; other two are hairy and empty with bent-awned lemmas; 2) definite, strong, hay (vanilla) scent when cut or crushed (due to coumarin); 3) spike-like panicles. Some treatments now include the native *Hierochloe odorata* (*A. nitens*, sweet grass) (panicles not spike-like).

COMMONLY SEEN SPECIES: *Anthoxanthum odoratum*, sweet vernalgrass; *Anthoxanthum occidentale* (sweet grass)

**ARRHENATHERUM** oatgrass

QUICK ID FEATURES: 1) culms sometimes enlarged and bulbous at base; 2) 2-flowered spikelets but only the first with a long bent awn, the second staminate with a short straight awn; 3) shiny, golden-translucent glumes.

COMMONLY SEEN SPECIES: *Arrhenatherum elatius*, tall oatgrass

**BROMUS** brome

QUICK ID FEATURES: 1) closed sheaths; 2) lemmas bifid with long awn arising from between teeth of bifid apex; 3) spikelets several-flowered.

COMMONLY SEEN SPECIES: *B. tectorum*, *B. rigidus*, *B. hordeaceus* (*B. mollis*), *B. vulgaris*, *B. secalinus*

**CALAMAGROSTIS** reedgrass

QUICK ID FEATURES: 1) spikelets one-flowered (calamagrostis); 2) bearded rachilla; 3) lemma awned (usually bent), awn arising from mid-length or below; 3) some species are rhizomatous; some are caespitose.

COMMONLY SEEN SPECIES: *Calamagrostis canadensis*, Canada reedgrass; *Calamagrostis rubescens*, pine grass

**DACTYLIS** orchardgrass

QUICK ID FEATURES: 1) spikelets 3-5 flowered in dense one-sided inflorescences; 2) closed sheaths; 3) flattened culms; 4) bluish-green appearance (leaves and stems).

COMMONLY SEEN SPECIES: *Dactylis glomerata*

**DESCHAMPSIA** hairgrass

QUICK ID FEATURES: 1) 2-flowered spikelets with **bearded** rachilla prolonged beyond second floret; 2) lemmas awned from near the base. Those species having primarily cauline (rather than basal) leaves have recently been moved to *Vahlodea*. *Vahlodea* also has hairy rachillas that extend less than 0.5 mm beyond the base of the distal floret in a spikelet.

COMMONLY SEEN SPECIES: *Deschampsia cespitosa*, tufted hairgrass; *D. elongata*, slender hairgrass; of vernal moist, disturbed soils. *V. atropurpurea*, mountain hairgrass, is found in high, montane habitats.

**DIGITARIA** crabgrass

QUICK ID FEATURES: 1) spikelets in two rows in panicles with “digitate” branches; 2) spikelets dorso-ventrally compressed; 3) annual with prostrate habit.

COMMONLY SEEN SPECIES: *D. sanguinalis*, hairy crab grass, non-native weed in sunny, disturbed places.

**DISTICHLIS** saltgrass

QUICK ID FEATURES: 1) stiff, ladder-like, horizontal leaf arrangement; 2) brackish habitats.

COMMONLY SEEN SPECIES: *Distichlis spicata*: Western Washington; *D. stricta*: Eastern Washington in alkaline areas

**ECHINOCHLOA** barnyard-grass

QUICK ID FEATURES: 1) no ligules; 2) no auricles; 3) big round one-flowered spikelets (actually 2-flowered but one is sterile); 4) lemma hard with long stiff awn from apex; 5) articulation below the glumes.

COMMONLY SEEN SPECIES: *Echinochloa crus-galli*: often in vernal wet, disturbed soils.

**ELYMUS** wildrye some now included in genus *Leymus* (with awl-like glumes), *Agopyron*, *Elytrigia*, *Taeniatherum* (lemmas 3-veined, not 5), and *Pseudoregneria*, and now including *Sitanion*)

QUICK ID FEATURES: 1) single terminal spikes with 2-6-flowered spikelets borne flat-wise to rachis; 2) spikelets sessile and usually two spikelets per node; 3) glumes frequently subulate (narrow or awl-like) or narrowly elliptic or lanceolate.

COMMONLY SEEN SPECIES: *Leymus mollis* (*Elymus mollis*), *Elymus glaucus*, *Elymus canadensis*, *Leymus cinereus* (Great Basin wild-rye), *Sitanion hystrix*; *Taeniatherum caput-medusae* (medusahead).

**FESTUCA** fescue

QUICK ID FEATURES: 1) spikelets 2 to 12-flowered; 2) glumes usually unequal and shorter than the awned lemmas; 3) usually narrow-leaved; 4) usually caespitose (but caution!). Broad-leaved, *Lolium*-like “fescues” have recently been moved to *Schedonorus*. Annual fescues have been moved to *Vulpia*; 3) chasmogamous; three anthers per floret (contrast to *Vulpia*).

COMMONLY SEEN SPECIES: *F. rubra*, red fescue; *F. ovina*, sheep fescue; *F. idahoensis*, Idaho fescue (east of the Cascades); *F. roemerii* (in Western Washington prairies and East Cascades).

**GLYCERIA** mannagrass

QUICK ID FEATURES: 1) closed sheaths; 2) non-convergent veins in lemma; 3) lemmas unawned; 4) 4 to 15-flowered; 5) rhizomatous or stoloniferous; 6) large, open panicles; 6) big grass (4-5ft) with ladder-like leaf arrangement; 7) wet sites. Contrast with *Melica*, *Puccinellia*, *Sclerochloa* and *Catabrosa*—all with non-convergent veins in the lemmas.

COMMONLY SEEN SPECIES: *Glyceria elata*, fowl mannagrass; *G. occidentalis*, western mannagrass

**HOLCUS velvetgrass**

QUICK ID FEATURES: 1) 2-flowered florets; 2) second floret with a hooked awn; 2) dense, congested, spike-like panicle; 3) sheaths and collars usually pubescent.

COMMONLY SEEN SPECIES: *Holcus lanatus*, common velvetgrass (stoloniferous in lawns but cespitose in pastures and other unmown areas); *H. mollis*, creeping velvetgrass (not velvety; moderately rhizomatous)

**HORDEUM Barley or Squirrel-tails**

QUICK ID FEATURES: 1) terminal true spike; 2) 3 spikelets per node in spike; glumes awl-like; 3) annuals, often in waste areas or in disturbed soils

COMMONLY SEEN SPECIES: *Hordeum jubatum* (squirrel-tail); *H. murinum* (wall barley)

**KOELERIA koeleria or Junegrass**

QUICK ID FEATURES: 1) 2 to 4-flowered spikelets; 2) dense spike-like panicle; 3) sometimes seen in prairies, West Cascades, more often in sagebrush desert of Eastern Washington; 4) cespitose.

COMMONLY SEEN SPECIES: *Koeleria cristata*

**LOLIUM ryegrass**

QUICK ID FEATURES: 1) similar to *Agropyron* but the first glume is missing and spikelet is sunken partially into rachis; 2) spikelets turned 'edgewise' into rachis.

COMMONLY SEEN SPECIES: *Lolium perenne* (lemmas without awns); *Lolium multiflorum* (lemmas with awns)

**MELICA oniongrass or melic**

QUICK ID FEATURES: 1) closed sheaths; 2) nonconvergent veins in lemmas; 3) lemmas awned and culms without swollen bases or lemmas unawned and with swollen bulb-like bases; 4) of dryish sites. Contrast with *Glyceria*, *Puccinellia*, *Sclerochloa*, and *Catabrosa*—all with non-convergent veins in the lemmas.

COMMONLY SEEN SPECIES: *Melica subulata*, Alaska oniongrass

**PHALARIS canarygrass**

QUICK ID FEATURES: apparently one-flowered but actually 3-flowered; two florets are sterile and reduced to hairy rachillas on either side of the fertile floret.

COMMONLY SEEN SPECIES: *Phalaris arundinacea* [This is a circumboreal species (native in the PNW), contrary to popular belief. Situation is made complex, however, by the introduction of Eurasian strains and agronomic cultivated varieties.]

**PHLEUM timothy**

QUICK ID FEATURES: 1) glume strongly keeled with short awn from tip and with thick hair-like projections along keel; 2) dense, spike-like panicle.

COMMONLY SEEN SPECIES: *Phleum pratense*, common timothy

**PHRAGMITES reed**

QUICK ID FEATURES: 1) large feathery panicle; 2) tall-growing in large patches; 3) aggressively rhizomatous; 4) wet sites, often brackish locations.

COMMONLY SEEN SPECIES: *Phragmites communis*, common reed

**POA bluegrass**

QUICK ID FEATURES: 1) cobwebby hairs on base of lemma; 2) lemmas with purplish coloration at or near the tip (not always, and other genera show this trait too (e.g. *Festuca*); 3) prow-shaped leaf tips are a poor character to use.

COMMONLY SEEN SPECIES: *P. annua*, annual bluegrass; *P. compressa*, Canada blueg.; *P. pratensis*, Kentucky blueg.; *P. palustris*, fowl blueg.; *Poa sandbergii* = *P. secunda* ssp. *secunda*; *P. bulbosa*, bulbous blueg. (viviparous)

**PUCCINELLIA alkaligrass**

QUICK ID FEATURES: 1) non-convergent veins in lemmas; 2) but with open sheaths or sheaths closed for less than 1/2 the length of the sheath (contrast with *Glyceria*, *Melica*, *Sclerochloa*, and *Catabrosa*); 3) of wet sites, fresh or brackish, depending on species.

COMMONLY SEEN SPECIES: *Puccinellia pauciflora*, weak alkaligrass

**SCHEDONORUS "false-fescues"**

QUICK ID FEATURES: Just like *Festuca*, but with broad leaf blades and caryopses that stick to the palea.

COMMONLY SEEN SPECIES: *S. pratensis*, meadow fescue (without ciliate auricles). *S. arundinaceus*, tall fescue (ciliated auricles).

**STIPA needlegrass** (now mostly considered *Achnatherum* and *Hesperostipa*, and including all but one of the rice-grasses, *Oryzopsis*)

QUICK ID FEATURES: 1) 1-flowered spikelets with hardened, **bearded** callus; 2) long, hardened, bent, and twisted awns arising from tips of the lemmas.

COMMONLY SEEN SPECIES: *A. occidentalis*, western needlegrass, *Achnatherum hymenoides*, *Hesperostipa comata*

**SPARTINA cord grass**

QUICK ID FEATURES: 1) spikelets one-flowered in spikes arranged in two rows along rachis (gives the appearance of short cords on rachis); 2) ligule is a fringe of fine hairs; 3) saltmarsh or otherwise alkaline habitats

COMMONLY SEEN SPECIES: *Spartina alterniflora*, smooth cord grass, noxious weed in Western Washington; *S. pectinata* and *S. gracilis*, native in Eastern Washington

**VULPIA “annual fescues”**

QUICK ID FEATURES: 1) weedy or native annuals on dry, disturbed ground—but the non-native species are able to invade intact ecosystems as well; 1) spikelets 2 to 17-flowered; 2) awl-like or subulate glumes usually unequal and shorter than the awned lemmas; 3) cleistogamous; one anther per floret (contrast to *Festuca*)

COMMONLY SEEN SPECIES: *V. bromoides* brome fescue; *V. octoflora*, sixweeks fescue (native); *V. myuros*, rattail fescue

### **Other Genera Illustrated**

*Aegilops* (goatweed)

*Ammophila* (European beach grass)

*Avena* (oats)

*Beckmannia* (slough grass)

*Brachypodium* (brachypodium)

*Cenchrus* (bur grass)

*Catabrosa* (brook grass)

*Cinna* (woodreed)

*Danthonia* (oatgrass)

*Eragrostis* (love grass)

*Leersia* (rice cutgrass)

*Molinia* (moorgrass)

*Muhlenbergia* (muhly grass)

*Panicum* and *Dicanthelium* (panic grasses)

*Phragmites* (common reed)

*Pleuropogon* (semaphore grass)

*Sclerochloa* (hardgrass)

*Sporobolus* (dropseed)

*Trisetum* (trisetum)

*Ventenata* (ventenata)