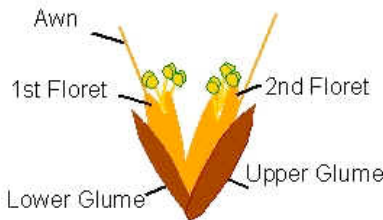


GRASS

I D E N T I F I C A T I O N B L U E S



INTRODUCED AND INVASIVE GRASSES

If my hair hadn't already gone gray from my children's teenage years, then grass identification might have done it anyway! However tough they seem to the uninitiated, grasses are the basis of many natural areas and if restoration is your goal, then getting a handle on a few of the most frequent native and introduced grasses is a big step forward.

The easiest way to start (for me) was to learn the most common of the invasive, introduced meadow grass species: orchard grass (*Dactylis glomerata*), sweet vernalgrass (*Anthoxanthum odoratum*), velvet-grass (*Holcus lanatus*) and early and silver hairgrass (*Aira praecox* and *A. caryophyllea*) are a good place to start.

Orchard grass is a tall (to 1.5 m), robust, perennial, clumping plant that was introduced for hay production and it looks like the nice, thick steak of the grass world. Even the flowers have a thick, bunched look that open into a wide, one-sided panicle of crowded heads. It has a thickish stem, the kind you might consider plucking and chewing on. Actually, it's not bad!

Sweet vernal-grass is a tufted or clumping, sweet-scented perennial about 30-60 cm tall that I recognize in the summer by its conspicuous tawny coloured, narrow, spike-like flowers.

Velvetgrass is another tufted perennial plant, 30-100 cm tall, that you will soon distinguish by its softly hairy leaf that has a velvety feel and a slight grayish cast. It too has a stem you might consider for a meadow snack.

Both early and silver **hairgrass** are very small (5-25 cm), very slender, annual grasses, common on rocky bluffs. Early hairgrass has a short, slim, spike-like flower head and silver hairgrass has an delicate open inflorescence.

Start with these few and before you know it you will be spotting them everywhere-well, they are everywhere! and you will soon get a feel for how few and precious are our native grasses.

NATIVE GRASSES

One of the hardest aspects about identification of native grasses is finding some to identify. Our native grasses seem to be particularly hard hit by habitat destruction and invasive species. Some rocky knoll areas still have remnant populations of native grasses, try Lone Tree Hill, for example. My own property at Camas Hill still hosts a variety of native grasses. Although it is also home to an abundance of introduced species.

A signature native grass species is **Roemer's fescue** (*Festuca idahoensis* ssp. *roemeri*), named for local botanical expert, Hans Roemer. It is described in Illustrated Flora of British Columbia Volume 7, as a "perennial, densely tufted grass from fibrous roots; stems 30-100 cm tall, with visible nodes", while Plants of Coastal British Columbia add that the leaves are "inrolled, hairlike, soft, lax, mostly basal". It often has a thick mat of dead but not shredded leaves at the base. The flowers are an open but narrow panicle with short awns (2-6 mm). Many fescues are grown as garden ornamentals these days and maybe there is a place for Roemer's fescue in that milieu.

The native grass that I confuse with Roemer's fescue, before it flowers, is **Lemmon's needlegrass** (*Achnatherum lemmonii* ssp. *lemmonii*, previously known as *Stipa lemmonii*). The Illustrated Flora also describes this grass as "perennial tufted grass from fibrous roots, 15-90 cm tall". The blades are narrow (1-2 mm wide) and can be flat or inrolled. Fortunately the flowering heads are quite distinct from the fescue, the needlegrass having a narrow, spike-like panicle with awns that are conspicuously long and bent (20-35 mm long), while Roemer's fescue has a narrow but open panicle with 2-6 mm awns.

Another and probably our most common native grass is **California oatgrass** (*Danthonia californica*). I find it has a preference for vernal wet areas that dry out in the spring and summer and it often forms pure stands running down a hillside. Again, the Illustrated Flora describes it as "perennial, tufted grass from fibrous roots", but with "stems disarticulating (separating) at the nodes, 30-130 cm tall", so there is a very easy to identify look to the plant, with the leaves joining the stems with a very rigid angle. The leaves are wider and flatter than either the fescue or the needlegrass. I find the plant has a sort of curled look to it. Another helpful identification are the very hairy ligules, which appear at the joints or nodes. The flowerhead is also quite distinctive, with a raceme of 3-6 broad spikelets, the stems of which are longer than the flowerhead and slightly zig-zagging.

The last species of which I am somewhat familiar is **blue wildrye** (*Elymus glaucus*), described in Illustrated Flora as a perennial, bluish, tufted grass from fibrous roots or short rhizomes, 30-180 cm tall. It is by far the tallest of these grasses, the others all appearing short and delicate while blue wildrye is a very robust, large grass, usually forming large clumps. The flowering head is an erect to slightly nodding spike, standing very tall over the whole plant. It is recommended for erosion control on steep and damaged terrain.

PROPAGATION TECHNIQUES:

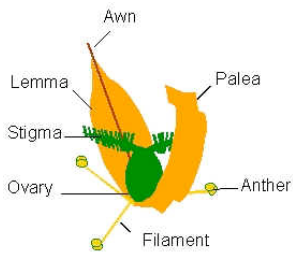
I have had easy success germinating Roemer's fescue and blue wildrye. Just sow and lightly cover with soil. The fescue germinates within a month. Also easy to divide. I have had more difficulty with oatgrass for unknown reasons.

From Propagation of Pacific Northwest Plants:

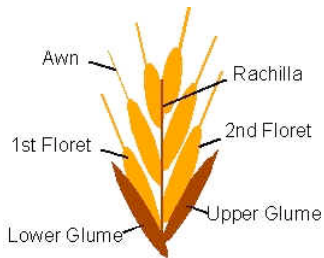
- California oatgrass seeds require a one-three day soak in running water and three months cold treatment. The seeds do not have a good germination rate however, once you get some started they are simple to divide while dormant.
- Collect Lemmon's needlegrass seeds in early June, store in a paper bag in the fridge through summer. It is important the seed be cleaned well and remove the long awns. Cold stratify in potassium nitrate and gibberellic acid (what?!). (Planting outside in the fall probably gives it the necessary conditions to break dormancy).
- Blue wildrye doesn't need any pre-treatment to germinate, which is rapid, usually taking 6-10 days. The seedbed should be moist, fine-textured, very firm and weed free

GRASS PARTS

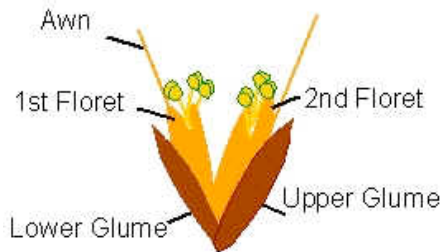
The flower is usually bisexual. It consists of an ovary containing 1 ovule (the female part). The ovary is usually surmounted by two feathery stigmas and is surrounded by three stamens. Each stamen (the male part of the flower) consists of an anther and a filament. There are no petals or sepals. Instead, the flower is protected by two sets of scales. The first set consists of the LEMMA and the PALEA which enclose the flower. This whole structure is called a floret.



One or more florets may be arranged on an axis (the RACHILLA), with all of the florets being protected by a second set of scales at the base called GLUMES.



The glumes enclose the florets before they are mature. The whole unit is called a SPIKELET. The Lemmas (of individual florets) and/or the glumes, may have bristle-like extensions called AWNS arising from them.

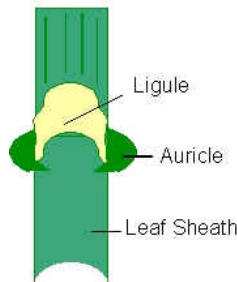


A spikelet made up of 2 florets

SPIKELET: an individual grass flower, most inflorescences are composed of many spikelets

The leaf blade is usually long and narrow, with parallel sides and veins and tapering to a pointed or blunt tip. At the junction of the sheath and blade there is a small membranous flap of tissue called the **LIGULE**.

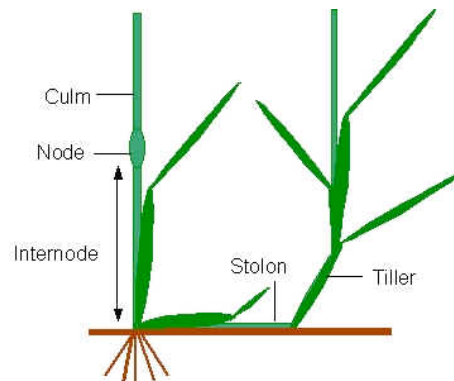
Leaf Blade



This is sometimes just a fringe of hairs. In some grasses there are also projections on either side of the ligule called **AURICLES**. The structure and dimensions of the sheath, blade and ligule, and their hairiness provide good diagnostic features for identification.

Grass Stems -

Are mostly hollow, cylindrical and interrupted at intervals by swollen joints or nodes. Stems are rarely branched above the ground and are called **CULMS**.



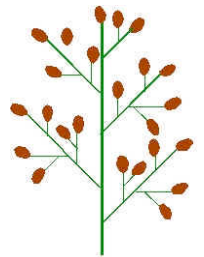
Some grasses have stems which creep along the surface of the ground and give rise to new shoots (**TILLERS**) at their nodes. The horizontal stems are called **STOLONS**. If the horizontal

stems go underground they are called **RHIZOMES**.

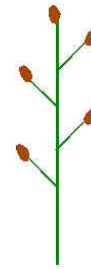
Leaves - originate from the nodes. The lower portion of the leaf forms a sheath, which encloses and protects the young shoots. The second half of the leaf then opens out into the leaf blade.

From:

www.offwell.free-online.co.uk/grass_id/intro.htm



PANICLE: a compound raceme, with spikelets arranged on branches of the main axis or on further branches of these



RACEME: an inflorescence with stalked spikelets arranged along a single axis



SPIKE: an unbranched inflorescence composed of stalkless spikelets arranged on a single axis.

SEDGE

GRASSES, SEDGES AND RUSHES

Overall differences between them are simplistically described in the following saying: “Sedges have edges; rushes are round; grasses are hollow right up from the ground” by anonymous.

I found an excellent description of sedges online. “These plants have edges because their stems are triangular rather than being round like grass or rushes. Sometimes the sedge edges are very sharp due to a row of tiny teeth along the stem angles (sedge leaves also have these saw-toothed margins). In fact, the name of the genus *Carex* derives from the Greek word meaning “cutter.” Sedge leaves grow in three rows, one along each side of the stem, so that looking down on a sedge plant from above you see leaves extending outward in three distinct directions. Grass and rush leaves, by contrast, grow in two rows. Furthermore, sedge stems are solid, not hollow, like grass stems” (Mastrogiuseppe, 1999).

The most common of the sedges associated with our Garry oak ecosystem that I have encountered in our area is long-stoloned sedge (*Carex inops*). *Inops* is Latin or perhaps ancient Greek for weak or poor). It is a delicate little sedge which creeps across the dry landscape through its stolons. The article mentioned above states that many sedges respond vigourously to low intensity fire, with long-stoloned sedge being one which increases in cover.

It is low growing, 20-50 cm tall, although I don't think I have ever seen it at the higher end of this height and very grass-like in appearance. The leaves are thin, 1-3 mm wide with short, rather shredded-looking reddish-brown leaves at the base.

It appears to be a useful subject for restoration work, with its ability to spread through its roots and its affinity for fire, which is often indicative of easy growing plants. How about a *Carex inops* lawn?

REFERENCES

Mastrogiuseppe, J. 1999. Nature Notes, Vol. XXX. Crater Lake National Park. Website: <http://www.nps.gov/crla/notes/vol30d.htm>