

Vegetative Identification of Common Turfgrasses in the Pacific Northwest

Tom Cook
Oregon State University
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General tips:

Identifying lawn grasses requires a basic knowledge of plant structure and the ability to distinguish between those structures to categorize specific grasses. To get really good at identifying turfgrasses you have to learn the characteristics of the common grasses.

Identification also involves developing a general awareness of what grasses you expect to find in a given scenario. For example, if I know the geographical location, age of a lawn, and sun or shade orientation, I can usually come up with a short list of possible grasses before I ever see the lawn.

Example 1)

In Portland or Seattle old shady lawns typically have a mix of grasses including bentgrass, roughstalk bluegrass, annual bluegrass, and occasionally some fine fescue.

Example 2)

In Bend, Oregon a new sod lawn will generally be either straight Kentucky bluegrass or a mix of Kentucky bluegrass, perennial ryegrass, and fine fescue.

Knowing what to expect helps narrow down the possibilities.

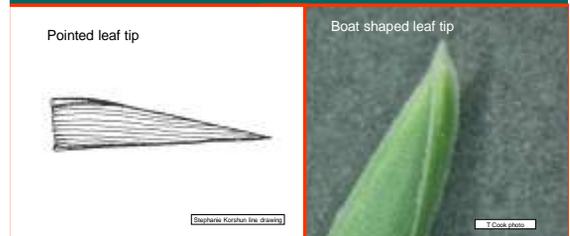
Key Identification Structures

Vernation: As new leaves emerge from the surrounding leaf sheaths, they tend to be either rolled or folded.



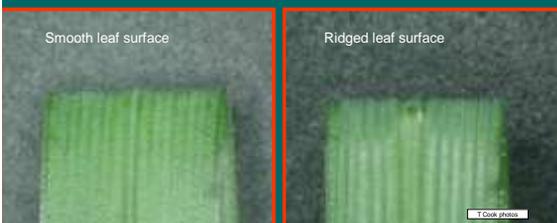
Key Identification Structures

Leaf tips: Leaves tend to be either pointed or boat shaped at the tip. While this can be a useful ID characteristic, leaves often show intermediate forms which can create confusion. Bluegrasses and Orchardgrass have the most distinctly boat shaped leaf tips among cool season turfgrasses.



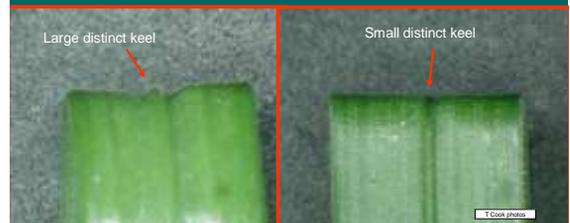
Key Identification Structures

Leaf Surface Morphology: The upper leaf surface of cool season grasses is generally, either smooth or distinctly ridged. The ryegrasses and bentgrasses all have ridged upper leaf surfaces. Bluegrasses have smooth upper leaf surfaces.



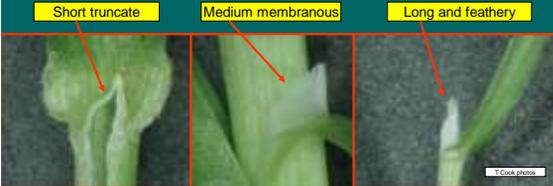
Key Identification Structures

Leaf Surface Morphology: The lower leaf surface of cool season grasses is generally smooth and with or without a distinct keel running down the center. In the field the underside of the leaf in some grasses is very shiny (ryegrasses and *Poa trivialis*). Other grasses are dull (bentgrasses). Many grasses tend to look shiny in the greenhouse.



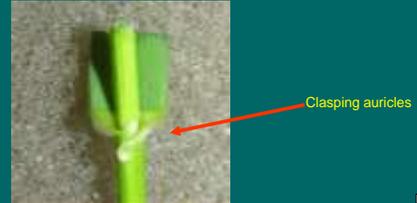
Key Identification Structures

Ligule: At the junction of the leaf blade and sheath is a structure called a ligule. Ligules can be absent, short, or long. Some are truncate and others are pointed. They can also be feathery, membranous, or translucent.



Key Identification Structures

Auricles: Appendages located at the collar near the ligule. They can be absent, rudimentary, pointed, or clasping.



Common Cool Season Turfgrasses:

This list includes cool season grasses that might be found in lawns in the PNW.

Bluegrasses (*Poa*)

- Kentucky bluegrass (*Poa pratensis*)
- Roughstalk bluegrass (*Poa trivialis*)
- Annual bluegrass (*Poa annua*)

Bentgrasses (*Agrostis*)

- Colonial bentgrass (*Agrostis capillaris*)
- Dryland bentgrass (*Agrostis castellana*)
- Creeping bentgrass (*Agrostis stolonifera*)
- Velvet bentgrass (*Agrostis canina*)*

Ryegrasses (*Lolium*)

- Perennial ryegrass (*Lolium perenne*)
- Annual ryegrass (*Lolium multiflorum*)
- Tall fescue (*Lolium arundinaceum*)

Fine fescues (*Festuca*)

- Strong creeping red fescue (*Festuca rubra* ssp. *rubra*)
- Slender creeping red fescue (*Festuca rubra* ssp. *litoralis*)
- Chewings fescue (*Festuca rubra* ssp. *commutata*)
- Sheep fescue (*Festuca ovina* ssp. *hirtula*)
- Hard fescue (*Festuca trachyphylla*)

* Well adapted but not widely planted. It is unlikely to be found in lawns.

Kentucky bluegrass *Poa pratensis*

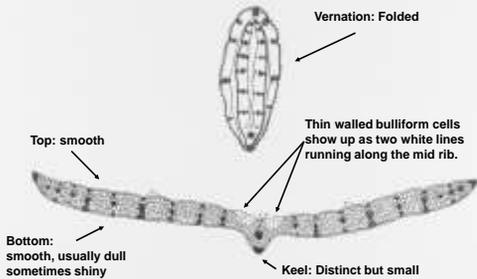
West of the Cascade Mountains:

Kentucky bluegrass is rarely planted by itself west of the Cascades, but often appears in commercial mixtures. I find it commonly in fall as emerging rhizomes in unirrigated lawns when they recover due to fall rains. Even though I find it in many lawns, it is never a dominant component in mature lawns. Where it makes up a significant portion of a lawn, it often stands out in fall due to rust disease and in late winter due to leafspot disease.

East of the Cascade Mountains:

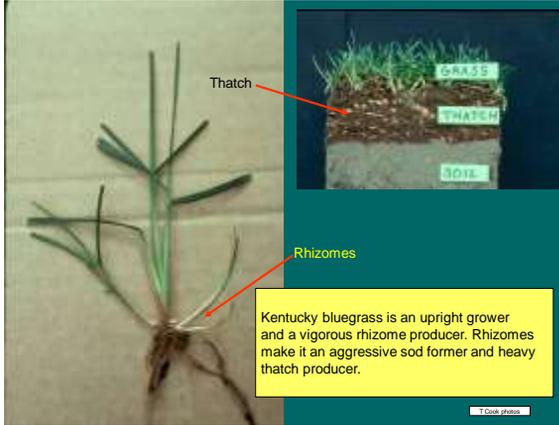
Kentucky bluegrass is the dominant grass planted in areas east of the Cascade Mountains throughout the Pacific Northwest. It is the grass you expect to see in lawns throughout this region.

Leaf characteristics



Kentucky bluegrass *Poa pratensis* L.





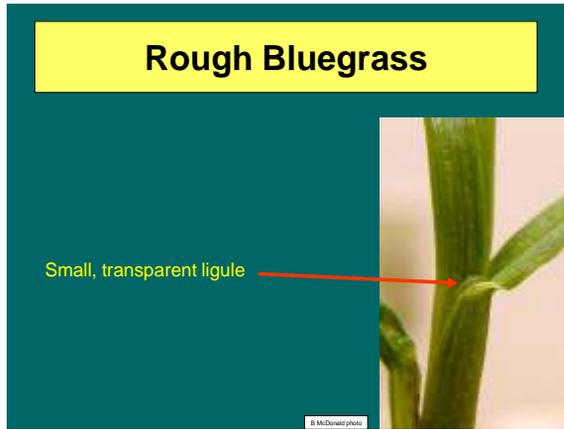
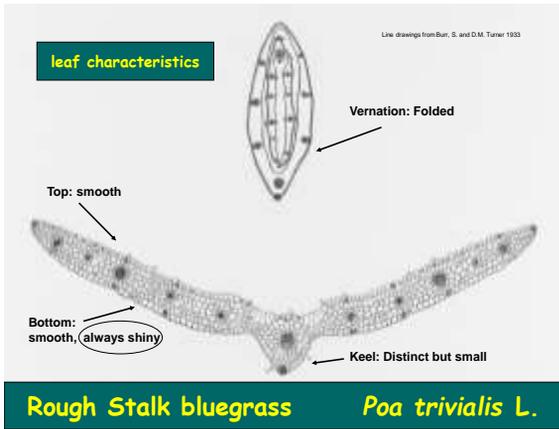
Roughstalk bluegrass *Poa trivialis*

West of the Cascade Mountains:
Roughstalk bluegrass is a special use grass that is logically only planted in shady lawns. It is often found in wet shady sites.

It is a common component of the soil seed bank in areas west of the Cascade Mountains throughout the PNW. It is also a common contaminant in cheap discount store seed mixes and uncertified perennial ryegrass seed.

It has become a climax component of most old lawns west of the Cascades. It has a perfect niche as a vigorous winter grower throughout this region and stands out due to vigorous growth and its light green color in the winter months. In summer it is quick to turn reddish brown and will go dormant when subjected to even moderate drought stress.

East of the Cascade Mountains:
Roughstalk bluegrass is only found as a contaminant in seed or in sod that is shipped from areas west of the Cascades. I find it most often in Kentucky bluegrass and perennial ryegrass lawns that are intensively irrigated.





Annual bluegrass *Poa annua*

West of the Cascade Mountains:
Annual bluegrass is ubiquitous throughout this region. It is the dominant grass on all old golf courses and is common in park turf. It grows in sun or shade. Intensively watered and fertilized home lawns are often dominated by annual bluegrass. Annual bluegrass is often an important component in shady lawns that receive regular irrigation.

It can behave as a true winter annual in disturbed areas or as a long lived perennial where it is regularly irrigated. It flowers intensely each spring and sporadically the rest of the year.

East of the Cascade Mountains:
Annual bluegrass is very common on old golf courses, parks and athletic fields in this region. It can occur in lawns as a contaminant and may colonize damaged areas. It is not as persistent in lawns in this region unless it receives intense maintenance. It stands out in spring due to intense flowering.

leaf characteristics

Vernation: **Folded**

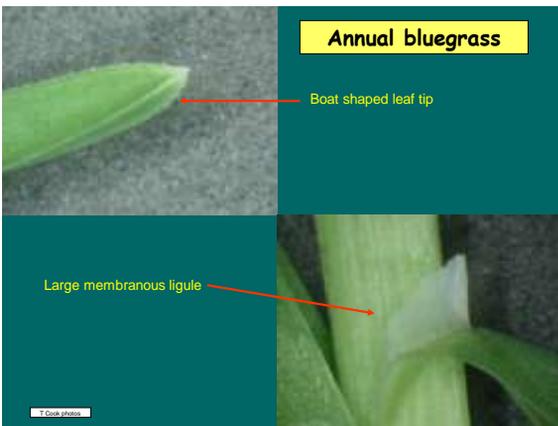
Top: **smooth**

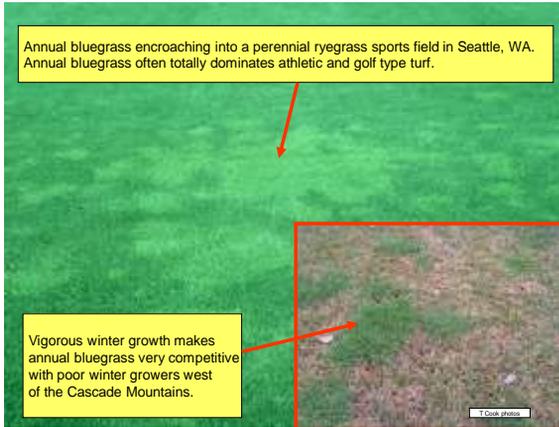
Bottom: **smooth & dull**

Keel: **Distinct but small**

Line drawings from Burj, S. and D.M. Turner 1933

Annual bluegrass *Poa annua* L.





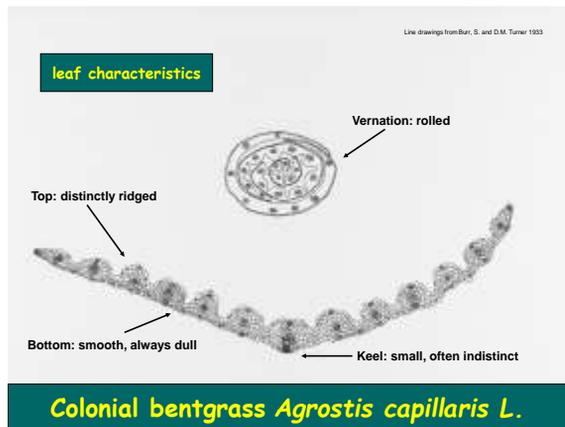
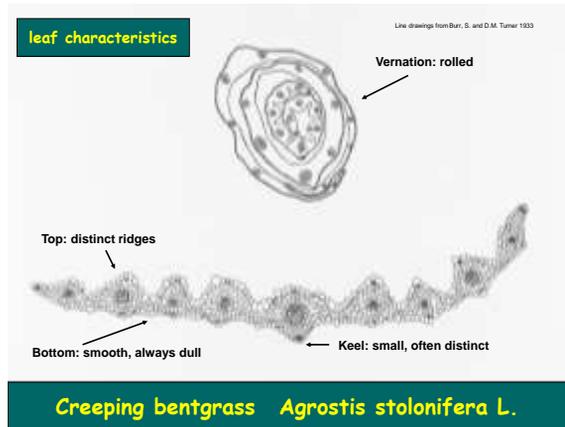
Bentgrasses *Agrostis* sp.

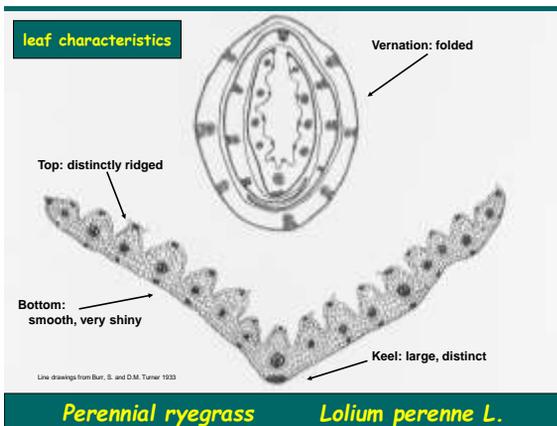
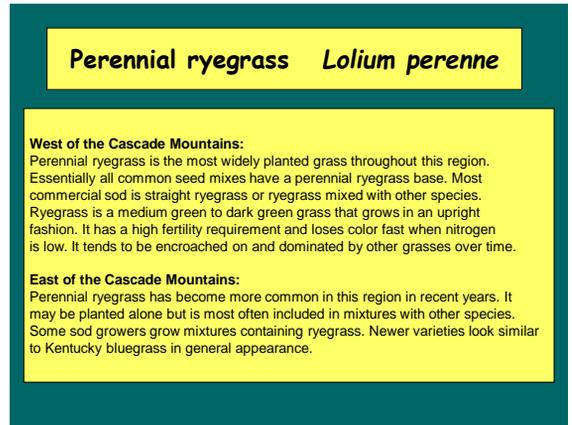
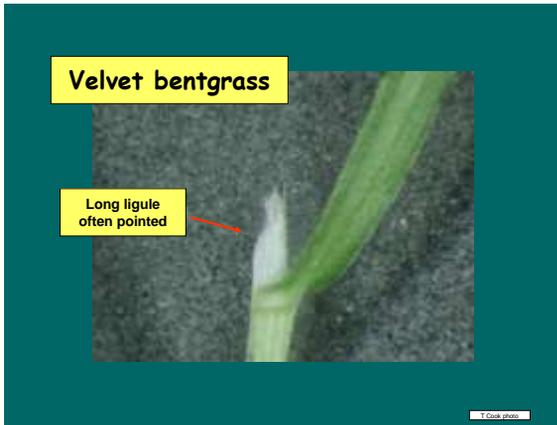
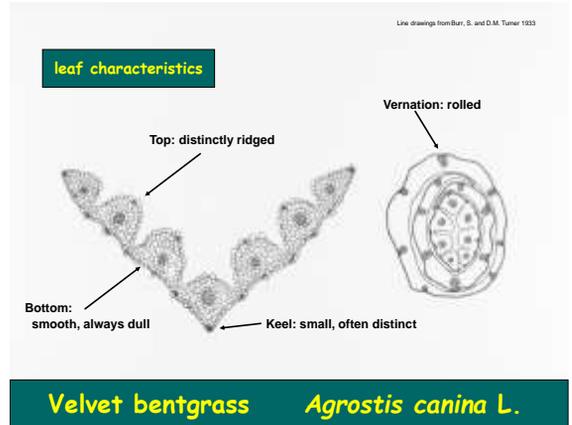
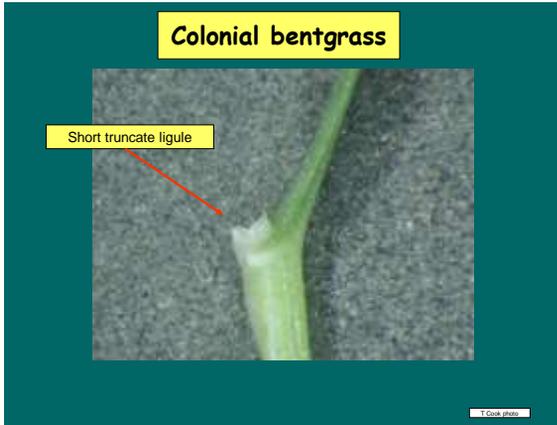
West of the Cascade Mountains:

While they are rarely planted on purpose, bentgrasses are found in most lawns throughout areas west of the Cascade Mountains. The most common bentgrasses in lawns include Dryland bentgrass and wild creeping bentgrass. Colonial bentgrass is also found though not as often. Bentgrasses stand out due to their lighter gray green color, fine texture, and tendency to form dense patches. Old lawns that are maintained with minimal inputs are generally dominated by bentgrass.

East of the Cascade Mountains:

Bentgrass is less common in areas east of the Cascade's and when present is generally a contaminant that arrived in dirty seed or in sod grown out of the area. Old lawns (50+ yrs.) may be dominated by bentgrass. For example, there are many bentgrass lawns in the Manito area of Spokane, WA. I have found a few bentgrass lawns in nearly every city I have examined in Oregon and Washington.



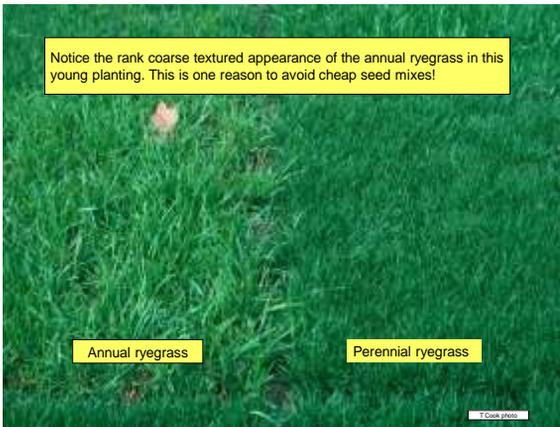
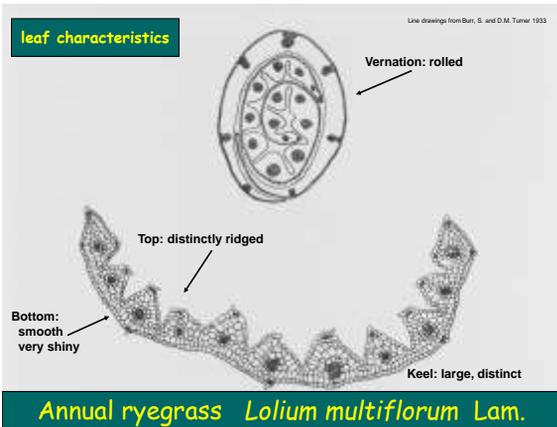




Annual ryegrass *Lolium multiflorum*

West of the Cascade Mountains:
Annual ryegrass is a common component in cheap seed mixes. It germinates quickly and grows much faster than other turfgrasses. In this region it stands out in winter because of its relatively vigorous growth. It is coarse textured, light colored, and short lived. It normally dies out in summer after it finishes trying to flower. You will rarely see annual ryegrass in older lawns.

East of the Cascade Mountains:
Annual ryegrass is less common in the interior areas of the Northwest due to poor cold tolerance. If planted in fall it will likely die that winter. If planted in spring it will grow vigorously in summer but likely die in winter. You will never find annual ryegrass in mature lawns in this region.



Tall fescue *Lolium arundinaceum*

West of the Cascade Mountains:

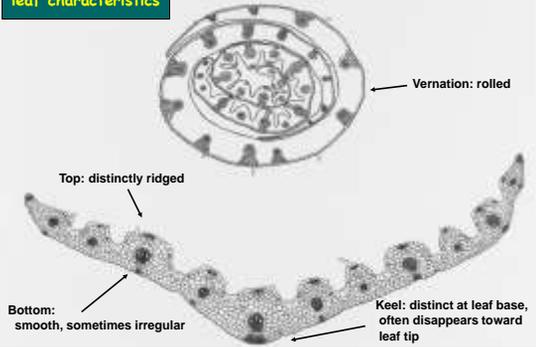
Tall fescue has been planted extensively on roadsides and pastures, and has naturalized in many Riparian areas. It does not compete well in maintained lawns and usually persists only as scattered clumps from 1-3 ft in diameter. It is deep rooted and often stays green long after other grasses turn brown and go dormant in summer. Newer cultivars are finer textured and more attractive than wild types. Winter diseases can destroy tall fescue plantings in this area.

East of the Cascade Mountains:

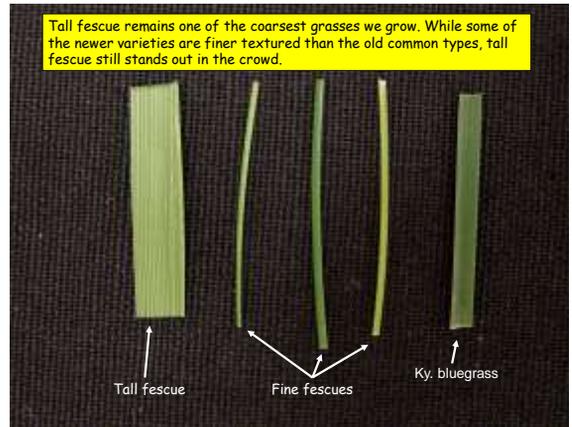
Generally, tall fescue is only found as a contaminant in lawns throughout this region. In this area it looks much like Quackgrass but grows in clumps instead of the diffuse growth common to Quackgrass. Because of its deep rooting and resulting drought resistance, tall fescue has potential as an important turfgrass in this region. Newer cultivars look much like coarse textured Kentucky bluegrasses.

leaf characteristics

Line drawings from Bur. S. and D.M. Turner 1933



Tall fescue *Lolium arundinaceum* (Schreb.) Darbysh.





Fine fescues *Festuca sp.*

West of the Cascade Mountains:
 Fine leaved fescues have long been planted as components of lawn mixtures throughout this region. Almost every lawn mix available at retail centers includes fine fescues. These grasses stand out due to their fine texture and persistence on low fertility sites. They will normally dominate stands when mixed with perennial ryegrass. Over time they will generally be replaced by other grasses such as bentgrass and will show up as patches throughout the lawn. Even though they are considered shade tolerant they often thin out badly due to disease in this region.

East of the Cascade Mountains:
 Fine fescues are widely used in seed mixtures and in some sod mixtures in this region. Fine fescues dominate most shady lawns but will also grow aggressively in full sun. They are notably finer in texture than Kentucky bluegrass. Like bluegrass, fine fescues are strong thatch producers.

Line drawings from Bur, S. and D.M. Turner 1933

Top: distinctly ridged

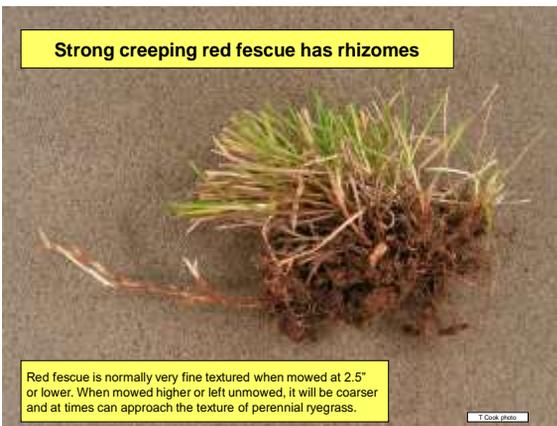
Bottom: smooth

leaf characteristics

Vernation: folded

Keel: distinct

Strong creeping red fescue *Festuca rubra ssp. rubra*



Unplanted perennial and annual grasses found in PNW lawns:

Perennial grasses:
 Roughstalk bluegrass (*Poa trivialis*)*
 Annual bluegrass (*Poa annua*)*
 Dryland bentgrass (*Agrostis castellanii*)*
 Creeping bentgrass (*Agrostis stolonifera*)*
 Tall fescue (*Lolium arundinaceum*)*
 Orchardgrass (*Dactylis glomerata*)**
 Common velvetgrass (*Holcus lanatus*)**
 German velvetgrass (*Holcus mollis*)
 Quackgrass (*Elytrigia repens*)
 Bermudagrass (*Cynodon dactylon*)**

Annual grasses:
 Rat-tail fescue (*Valpia myuros*)**
 Crabgrass (*Digitaria ischaemum* and *D. sanguinalis*)**
 Foxtail (*Setaria viridis* and *S. glauca*)
 Barnyardgrass (*Echinochloa crusgalli*)

* Described above with common cool season turfgrasses
 ** Described below

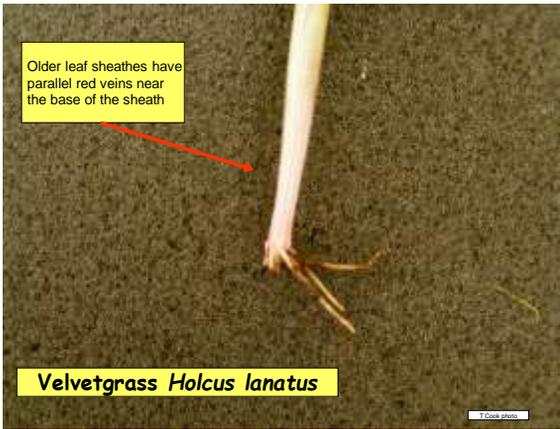
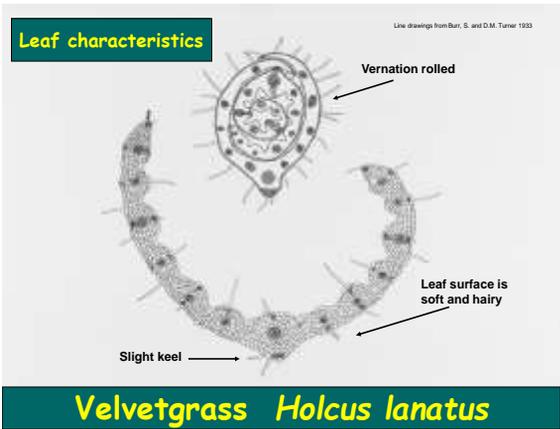
Perennial grasses that invade lawns can get there as contaminants in grass seed mixes. They are also commonly part of the soil seed bank (naturally occurring seed that lays dormant in soil). They can even be transported in by animals like dogs and cats. Since grasses are widespread in the PNW, there are many opportunities for them to find their way into lawns.

Most annual grasses are summer annuals that germinate in spring and die in fall after producing fresh crop of seed. Rat-tail fescue is a true winter annual that germinates in fall and dies in early summer.

Velvetgrass *Holcus lanatus*

West of the Cascade Mountains:
 Velvetgrass can be found in nearly all lawns throughout this region. Along with bentgrass, roughstalk bluegrass, and annual bluegrass, it is one of the climax grasses found in this region. It generally stands out because of its light gray green color, coarse texture, and soft velvety feel.

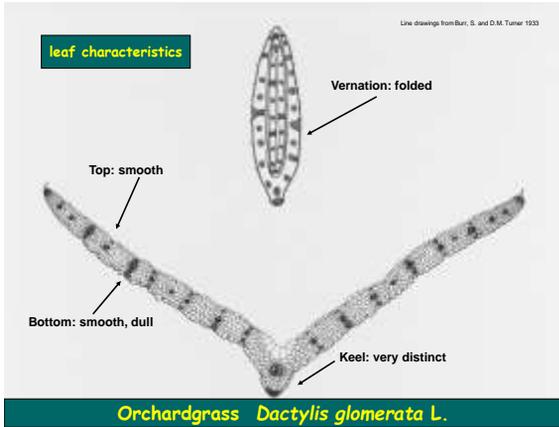
East of Cascade Mountains:
 This grass is not common in this region but I have seen it in some lawns in Central Oregon.



Orchardgrass *Dactylis glomerata*

West of the Cascade Mountains:
 This is a common contaminant in lawns throughout the region. It rarely shows up as more than an occasional clump in most lawns. Its general appearance is similar to Kentucky bluegrass but it is coarser textured, always grows in distinct clumps, and has a gray green color much like velvetgrass. It has a rapid vertical growth rate which makes it stand out in a lawn setting. Because it is a bunch grass it is easily removed by digging.

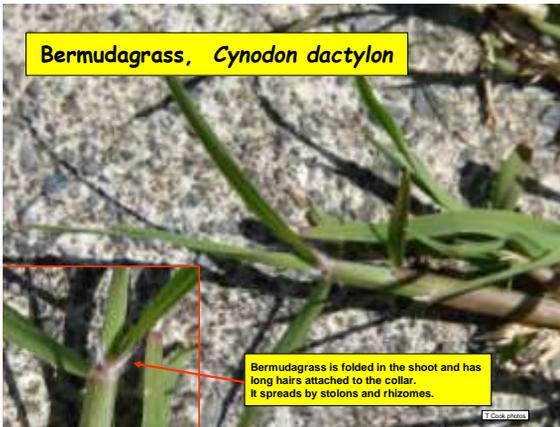
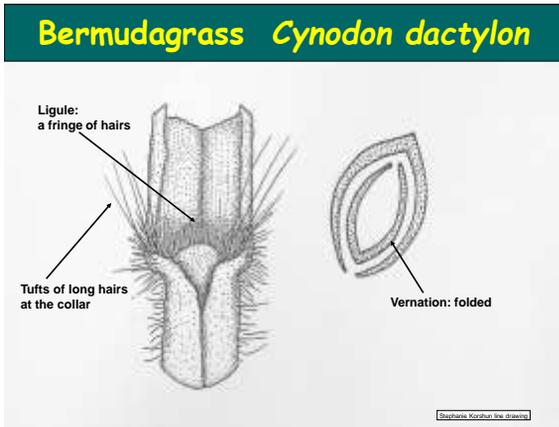
East of Cascade Mountains:
 Orchardgrass is adapted to this region but is not nearly as common in lawns as in western parts of the Northwest. It is probably introduced via cheap seed mixes in this region.



Bermudagrass, *Cynodon dactylon*

West of the Cascades:
 Bermudagrass occurs throughout much of this area. It can be found in the Willamette Valley from Eugene to Portland. It can even be found in Bandon on the Oregon Coast. It is very common from Roseburg, OR to Medford, OR and can be a major component of lawns in those areas. It is probably common throughout much of Western Washington. Even hybrid bermudagrass can survive nicely throughout much of Western Oregon. In this region it turns straw brown during winter and greens up slowly in late spring.

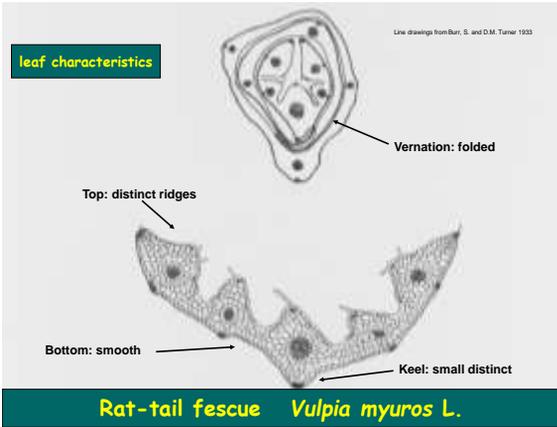
East of the Cascades:
 Bermudagrass is very common throughout the Columbia Basin in both Washington and Oregon. The Tri-cities in Washington and Hermiston to Ontario in Oregon have lots of bermudagrass. The Boise / Twin Falls area has bermudagrass and it is probably common in most of southern Idaho.



Rat-tail fescue *Vulpia myuros*

West of the Cascade Mountains:
 This unusual grass looks identical to other fine fescue grasses, but instead of being a long lived perennial, it is a winter annual. Each fall it germinates with the onset of the fall rains and grows vigorously through the winter. It has a bright apple green color and forms a very attractive dense turf. In June, it flowers and dies leaving unsightly brown areas throughout lawns. It is most common in lawns that are not irrigated during summer. I find it routinely throughout western Oregon and Washington.

East of the Cascade Mountains:
 I have never seen this grass east of the Cascade mountains associated with lawns.



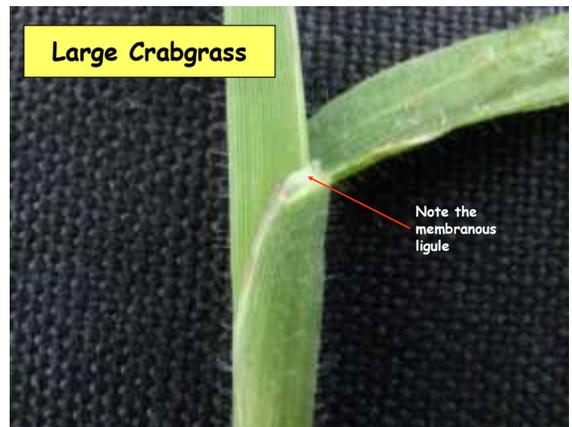
Crabgrass

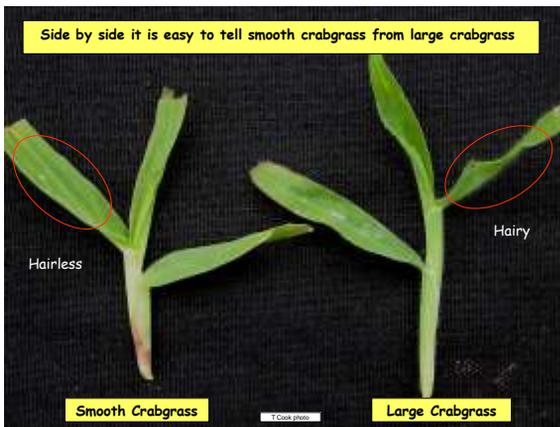
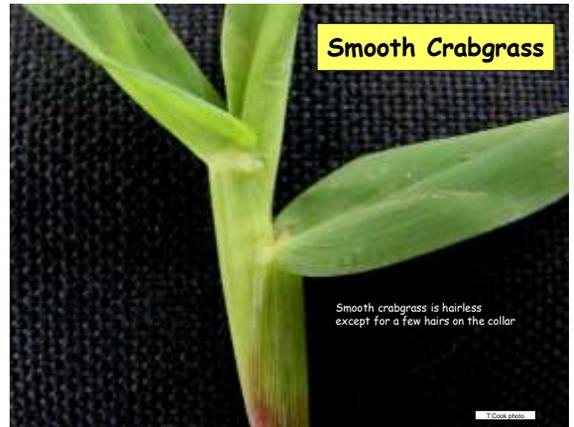
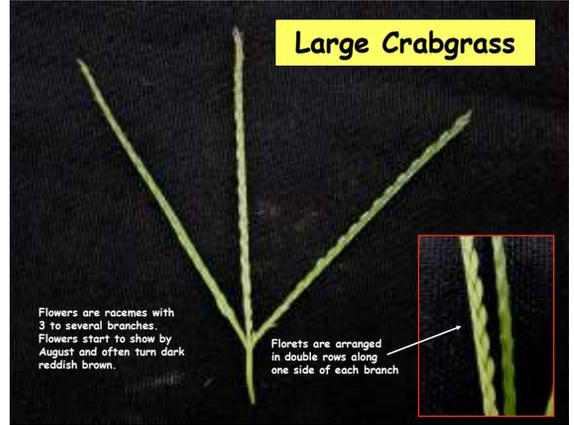
Large *Digitaria sanguinalis*
Smooth *Digitaria ischaemum*

West of the Cascade Mountains:
Homeowners generally think that any coarse textured off type grass in their lawns is crabgrass. While crabgrass does occur in the western parts of Washington and Oregon, it only occurs in sporadic hotspots. It is most often observed in flower and shrub beds and less often in lawns. With good turf culture, you could live a lifetime and never have significant crabgrass problems in this region.

Since crabgrass is a summer annual, it needs adequate soil temperatures and enough moisture to promote germination in late spring and development in summer. Why it isn't more common is a bit of a mystery. It may be that with 9 months of good growing weather, our common lawn grasses are simply too competitive and dense to allow germination and development of crabgrass. In unirrigated lawns, the soil is too dry in summer to support healthy development of crabgrass. Both smooth and large crabgrass grow in the Willamette Valley.

East of the Cascade Mountains:
Crabgrass can be found in most of this area, but generally it is not as bad here as it is in the Midwestern and Northeastern parts of the United States. Crabgrass can be found throughout Central and Eastern Washington and Eastern Oregon, and Idaho. There is surprisingly little crabgrass in the high desert region in Central Oregon. The Okanogan Valley in Washington is a hotspot for crabgrass and the foxtails.







References:

Burr, S. and D.M. Turner. 1933. British economic grasses; their identification by the leaf anatomy. E. Arnold & Co., London.