

# A Key to the Common Grasses of Southeastern Canada by Vegetative Characteristics.

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Grasses are important plant components of most terrestrial ecosystems around the world. Whether as community dominants, rare plants, agricultural weeds, invasive alien species of natural and semi-natural habitats, remediation vegetation, or agricultural crops, grasses are among the most important ecological and economic plants in the landscape.

Many grasses can be identified by their vegetative characteristics alone. This is useful in field studies where distinguishing species at various growth stages and conditions is important. The current key is presented as a tool to help those interested in identifying grasses of eastern Canada in their vegetative state. Several identification tools have been previously published for Canadian grasses, but they are all long out of print (Nowosad et al. 1942, Clarke, et al. 1944, Best et al. 1971). The publication on western grasses by Best et al. (1971), however, has been made available by Agriculture and Agri-Food Canada as a web-based document (see references for URL).

The present key attempts to rely on characteristics observable in the field with a good hand-lens. Characteristics which are more easily used and more reliable tend to be given first in the couplets. Microscope examination of leaf blade epidermises and cross-sections will reveal many additional characteristics useful for identification (e.g., Clifford and Watson 1977), but this is beyond the scope of the current contribution. Although this key partly borrows from the previous works, it is hoped that the new information and arrangement will be useful as well as timely. Grasses included in this key are primarily common introduced and native species which are often present as important components of plant communities in eastern Canada. The decision to include or exclude any particular is, however, rather subjective. In some cases the key leads to groups which cannot be reliably identified to species level using vegetative characteristics utilized in this key. The species contained in these groups are indicated in Table 1.

Authorities of scientific names, English common names and some common synonyms are given in Table 1. The taxonomy follows that used by the Flora North America project. A short glossary of terms is provided and a series of illustrations is included to assist in the interpretation of character states. The drawings are taken from Best et al. (1971) and Aiken and Darbyshire (1983).

A word of caution. Material must be examined carefully as not only are many characteristics inconspicuous, but growing conditions as well as disease and predation can influence the expression or condition of character states. Leaf auricles and the joining of leaf sheath margins are particularly delicate and susceptible to physical damage or deterioration with age. Selecting parts that are mature but not becoming senescent will give the best results. Examining more than one leaf or plant (if available) will also be helpful.

The key is certainly an imperfect thing because of various constraints as well as deficiencies. Some couplets will work better than others, but all should work better with experience. Of course users attempting to identify a species not included will mis-identify their specimen. The author welcomes any comments or suggestions aimed at improvement.

## Literature cited

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Clifford, H. T. and L. Watson 1977. Identifying grasses: data, methods and illustrations. University of Queensland Press, St. Lucia, Australia. 146 pp.

Nowosad, F. S., D. E. Newton Swales, and W. G. Dore 1942. The identification of certain native and naturalized hay and pasture grasses by their vegetative characters. McGill Univ., Macdonald College Tech. Bull. No. 16. 78 pp.

## Glossary of terms

- Abaxial:** The surface or portion of a structure facing away from the main axis of the plant part from which it arises.
- Adaxial:** The surface or portion of a structure facing toward from the main axis of the plant part from which it arises.
- Auricle:** A small expansion of the leaf at the top of the sheath and the edge of the collar (not always present). See Fig. 5.
- Blade:** The upper (distal) portion of the leaf (above the ligule) that does not clasp the stem (may be flat, folded or rolled). See Figs. 1, 2, & 4.
- Ciliate:** Having a line of hairs in one plane (usually along a margin).
- Cleistogenes:** Small cleistogamous flowers present singly or in small groups in the basal leaf sheaths.
- Collar:** The back (abaxial) side of the leaf at the junction of the blade and sheath. See Fig. 1.
- Conduplicate:** Folded inwardly along the central longitudinal axis so that the adaxial surfaces on either side are facing each other.
- Convolute:** Laterally rolled with the margins overlapping and each leaf completely surrounding and/or surrounded by the next one.
- Decumbent:** With the lower (basal) part of the stem lying more or less prostrate and the distal end erect (curved upwards from the base).
- Distichous:** Arranged in two (opposite) ranks along the axis.
- Emarginate:** With a shallow notch or indentation.
- Entire:** An uninterrupted, smooth margin (without teeth, lobes or other projections).
- Glabrous:** Without hairs.
- Glaucous:** With a whitish cast (as if frosted); usually from a thin microscopic deposit of wax.
- Internode:** The region of a stem between two nodes.
- Inflated:** Swollen or enlarged (and loose in the case of leaf sheaths).
- Involute:** Edges in-rolled towards the centre.
- Keel (keeled):** A conspicuously raised portion (usually a vein) along the edge of a fold or curve (as in the keel of a boat).
- Ligule:** A structure on the adaxial side of the leaf at the junction of the sheath and the blade; may consist of a ring of hairs, a short membrane topped with hairs or a thin (usually translucent) membrane. See Figs. 5 & 6.
- Membranous:** Thin, pliable, like a membrane (see ligule).
- Recumbent:** Lying down, prostrate, flat on the ground.
- Rhizome:** An underground stem giving rise to roots and other stems. See Fig. 1.
- Scabrous:** With minute prickly hairs; rough to the touch.
- Sheath:** The lower (proximal) part of the leaf which forms a tube and clasps the stem (at least when young). See Figs. 1 & 3.
- Stolon:** A stem which grows more or less horizontal to the ground giving rise to roots and other stems at the nodes. See Fig. 1.
- Truncate:** An end (proximal or distal) that is in a straight plane perpendicular to the main axis.
- Vernation:** The arrangement and shape of leaves when young, prior to unfolding from the bud-shoot. See Fig. 2.

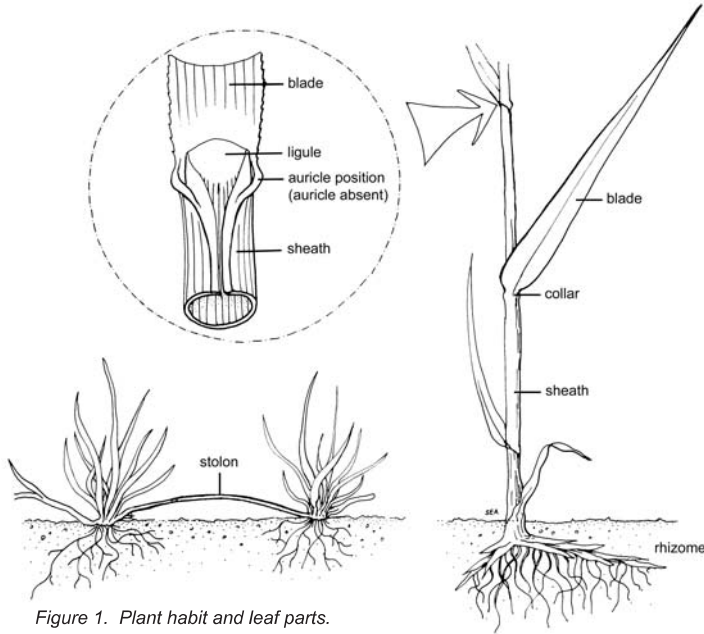


Figure 1. Plant habit and leaf parts.

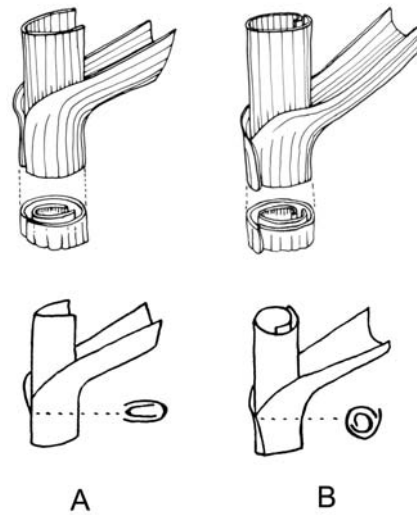


Figure 2. Leaf vernation. A. Leaf folded; B. Leaf rolled.

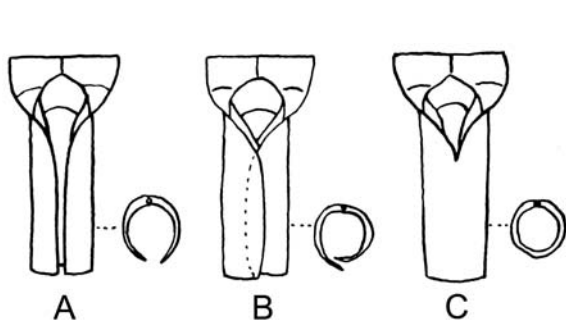


Figure 3. Sheath types. A. Sheath open, margins not joined and not overlapping; B. sheath open, margins not joined but overlapping; C. Sheath closed, margins joined.

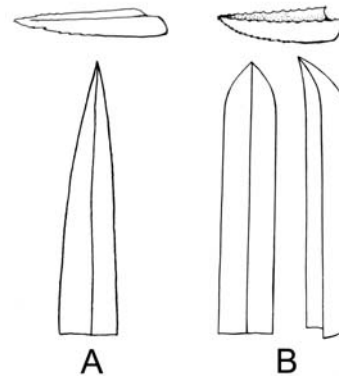


Figure 4. Leaf blade tips. A. Leaf blade tapering to a sharply pointed apex; B. Leaf blade curved at the tip into a "boat-shaped" or prow-like apex.

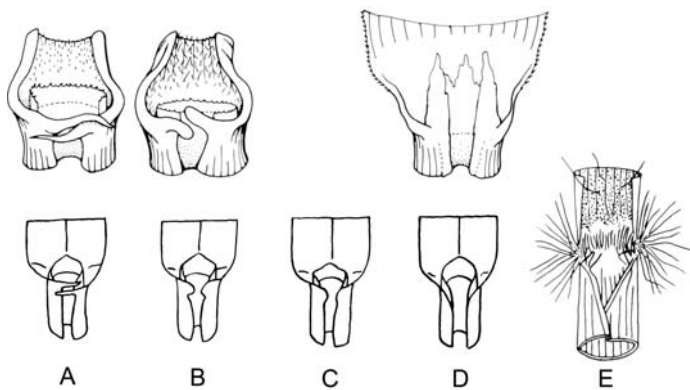


Figure 5. Auricle types and leaf blade vestiture on adaxial surface. A. Auricles claw-like, blade scabrous (above); B. Auricles rounded, blade pubescent (above); C. Auricles rudimentary; D. Auricles absent, blade glabrous (above); E. Auricles with a tuft of hairs, blade with scattered long hairs.

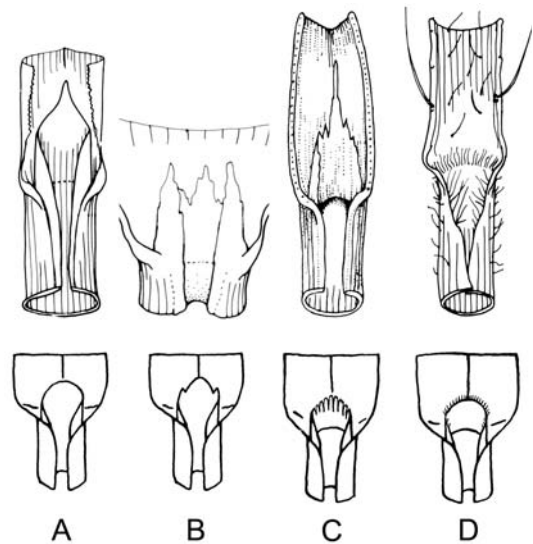


Figure 6. Ligule types. A. Ligule entire, rounded (below) or acute (above); B. Ligule notched; C. Ligule lacerate; D. Ligule with hairs, a membrane.

## Vegetative character key to the common grass in southeastern Canada

1. Vernation of leaf blades folded (conduplicate) in the bud-shoot (Fig. 2A) .....2  
 1. Vernation of leaf blades rolled (convolute) in the bud-shoot ..(Fig. 2B) .....17
2. Auricles present; basal sheaths reddish at base; leaves glabrous .  
 .....**Lolium perenne** .....3  
 2. Auricles absent; sheaths various; glabrous or pubescent .....3
3. Ligules a fringe of hairs (Fig. 5E, 6D); tuft of long hairs at margins of collars (Fig. 5E); old blades strongly curved or curled; sheaths with long hairs (sometimes glabrous); plant tufted .....**Danthonia spicata**  
 3. Ligules membranous; no long hairs at margins of collars; old blades not strongly curved or curled; sheaths glabrous or densely pubescent .....4
4. Blades conduplicate and bristle-like or sometimes flat, prominently ridged on the adaxial surface .....5  
 4. Blades folded or flat and not bristle-like, not prominently ridged on the adaxial surface .....6
5. Ligules less than 0.5 mm, long or obsolete; sheaths open (Fig. 3B); leaves glaucous or blue-green; plant in dense tufts, without creeping rhizomes .....**Festuca** species  
 5. Ligules about 0.5 mm long; sheaths closed nearly to top; leaves green or dark green; plant in loose tufts, usually with creeping rhizomes .....**Festuca rubra**
6. Medial lines absent on the adaxial blade surface; tip of blades taper-pointed (the young basal blades may be slightly boat-shaped) (Fig. 4A).....7  
 6. Median lines present on the adaxial surface (two light coloured lines running along either side of the mid-vein); tip of blades boat-shaped (Fig. 4B).....10
7. Ligules 4 to 10 mm long, white coloured or transparent; basal sheaths glabrous, strongly compressed (flattened) and keeled; basal blades glabrous; rhizomes absent.....**Dactylis glomerata**  
 7. Ligules 6 mm long or less (if more than 3 mm then sheaths not compressed or keeled), yellowish or brownish coloured; basal sheaths usually pubescent (at least sparsely), round or only weakly compressed; basal blades often pubescent with long hairs; short rhizomes usually present .....8
8. Ligules 2 to 6 mm long, the lateral margins hardened and similar to the sheath tissue so as the sheath margins appear to form upward projections past the collar; nodes pubescent (sometimes sparsely).....**Sorghastrum nutans**  
 8. Ligules 1 to 3 mm long, the lateral margins not hardened and appearing as upward projections of the sheath margins; nodes glabrous .....9
9. Blades usually 5 to 10 mm wide; blade mid-ribs abaxially distinct and prominent, usually yellowish in colour (at least basally) and much wider than other major veins.....**Andropogon gerardii**  
 9. Blades usually 2 to 6 mm wide (sometimes wider); blade mid-ribs not abaxially distinct or prominent, usually whitish- or greyish-green and only slightly wider than other major veins **Schizachyrium scoparium**
10. Ligules truncate, short (less than 1 mm long) .....11  
 10. Ligules obtuse or acute, long (more than 1 mm long) .....12
11. Sheaths keeled; ligules usually about 1 mm long, emarginate (sometimes obscurely); blades short (2 to 10 cm), broadest at base, gradually tapering to the apex; foliage blue-green, often glaucous; minute hairs on margins of collars absent; plant not in tufts and without basal tufts of leaves .....**Poa compressa**  
 11. Sheaths not keeled; ligules usually about 0.5 mm long, entire; blades long (5 to 30 cm), parallel-sided (not evenly tapering); foliage deep-green, not glaucous; minute hairs often present on margins of collars; plant in loose tufts with a small basal tuft of leaves .....**Poa pratensis**
12. Sheaths closed to near the top (Fig. 3C), with distinct cross-veins joining the main veins .....13  
 12. Sheaths open with the margins overlapping (Fig. 3B), without evident cross-veins .....14
13. Blades 3 to 5 mm wide; sheaths not keeled .....**Glyceria striata**  
 13. Blades 6 to 15 mm wide; sheaths keeled .....14
14. Sheaths smooth, not minutely roughened; foliage yellow-green to bright green, not glossy dark green; stem bases usually less than 1 cm wide .....**Glyceria grandis**  
 14. Sheaths usually minutely roughened (feel with lips or tongue); foliage bright green or glossy dark green (best assessed in a fresh condition); stem bases often 1 cm or more wide .....**Glyceria maxima**
15. Blades not tapering (parallel-sided) to the abruptly pointed and boat-shaped tip, often puckered or wrinkled in places; sheaths smooth; plants annual .....**Poa annua**  
 15. Blades truncate at base and tapering to a narrow boat-shaped tip, not puckered or wrinkled; sheaths usually scabrous; plants perennial .....16
16. Blades glossy on abaxial surface; sheaths minutely roughened; stems weak and usually strongly decumbent .....**Poa trivialis**  
 16. Blades not glossy on the abaxial surface; sheaths smooth ; stems stiff and erect or only slightly decumbent .....**Poa palustris**
17. Auricles present (sometimes rudimentary or deciduous) (See Figs. 5A-C). Note that clawlike auricles are not always well developed on all leaves and are often deciduous; several fresh leaves in good condition should be examined .....18  
 17. Auricles absent or rudimentary (Figs. 5C-D) .....27
18. Plants of beaches and sand dunes (unstable sands) and long rhizomes present; leaves usually glaucous; blades strongly ribbed on adaxial surface .....**Leymus mollis**  
 18. Either plants not of beaches and sand dunes or long rhizomes absent; plants glaucous or not; blades strongly ribbed on adaxial surface or not .....19
19. Blades glossy on the abaxial surface; ligules usually entire, sometimes lacerate (Fig. 6C), but not ciliate; auricles rounded to clawlike (sometimes rudimentary) .....20  
 19. Blades not glossy on the abaxial surface; ligules ciliate or lacerate; auricles clawlike (sometimes rudimentary) .....22
20. Plants annual; blades smooth on the margins near the base; ligules usually 1 mm long or more .....**Lolium multiflorum**  
 20. Plants perennial; blades scabrous on the margins (sometimes obscured by involute blade margins); ligules usually 0.5 mm long or less .....21
21. Auricles ciliate (sometimes sparsely) ....**Schedonorus arundinaceus**  
 21. Auricles glabrous .....**Schedonorus pratensis**
22. Blades somewhat stiff, bluish green or glaucous, narrow and flat or rolled .....23  
 22. Blades stiff or lax, usually green or bright green, broad and flat (if somewhat glaucous and rolled then blades 8 to 15 mm wide) ...24
23. Auricles usually small or rudimentary but sometimes well-formed and claw-like (sometimes absent), often only one; blades and sheaths glabrous or pubescent .....**Elymus trachycaulus**  
 23. Auricles small and fragile, in pairs; blades and sheaths pubescent (at least the lower ones).....**Hordeum jubatum**
24. Blades usually at least sparsely pubescent on the abaxial surface, 2 to 10 mm wide; sheaths, especially the basal ones, with short hairs; collars glabrous or pubescent .....25  
 24. Blades glabrous, 8 to 18 mm wide; sheaths glabrous (except sometimes on margins); collars glabrous .....26

25. Long creeping rhizomes present; collars minutely pubescent; blades with midrib not pronounced on the abaxial surface of blades and not prominently ridged on the adaxial surface, 3 to 10 mm wide; ligules 1 mm long or less.....***Elymus repens***
25. Rhizomes absent; collars glabrous; blades with midrib conspicuous on the abaxial surface and prominently ridged on the adaxial surface, 2 to 6 mm wide; ligules 0.5 to 1.5 mm long ***Agropyron pectiniforme***
26. Margins of sheaths ciliate; blades almost smooth on the abaxial surface; ligules about 1 mm long .....***Elymus canadensis***
26. Margins of sheaths glabrous or scabrous, rarely ciliate; blades scabrous on both surfaces; ligules about 0.5 mm long .....***Elymus virginicus***
27. Ligules absent; sheaths compressed, keeled; plants glabrous; plants annual .....***Echinochloa*** species
27. Ligules present, although sometimes very short; sheaths usually round or compressed; plants pubescent or glabrous; plants annual or perennial.....28
28. Nodes swollen when fresh and collapsed when dry, densely pubescent with downward pointing hairs; plants rhizomatous ....29
28. Nodes not swollen when fresh, glabrous or inconspicuously puberulent; plants rhizomatous or not.....30
29. Margins of leaf blades harshly scabrous, cutting to the touch; sheaths harshly scabrous, the basal ones glabrous; rhizomes long (up to several dm), usually without imbricate scaly leaves .....***Leersia oryzoides***
29. Margins of leaf blades smooth or lightly scabrous (not harsh or cutting to the touch); sheaths not harshly scabrous, the basal ones usually sparsely pubescent sometimes glabrous (examine several leaves); rhizomes short (up to several cm), with imbricate scaly leaves .....***Leersia virginica***
30. Ligules a fringe of hairs, sometimes a short membrane fringed with longer hairs (Figs. 5 E and 6D, above) .....31
30. Ligules membranous (sometimes very short), sometimes indistinctly puberulent-ciliate with hairs much shorter than membrane (Figs. 5A-D, 6A-C and 6D, below).....47
31. Blades glabrous or slightly pubescent (usually long hairs) near base on the adaxial surface .....32
31. Blades pubescent on the adaxial surface and usually on both surfaces (sometimes sparsely on one or other surface).....42
32. Plants perennial .....33
32. Plants annual .....38
33. Plants without rhizomes.....34
33. Plants with long creeping rhizomes .....35
34. Plants loosely tufts, without a dense tuft of basal leaves; basal sheaths without scattered hairs; sheath margins and collars pubescent with long hairs .....***Sporobolus cryptandrus***
34. Plants densely tufted, with leaves in a dense basal tuft; basal sheaths usually with scattered hairs; sheath margins and collars mostly glabrous.....***Sporobolus heterolepis***
35. Basal leaves with blades much shorter than sheaths (sometimes minute); basal sheaths usually not overlapping (nodes usually exposed), blades acute, to 30 mm wide, usually flat .....***Phragmites australis***
35. Basal leaves with blades about as long as to longer than sheaths; basal sheaths usually strongly overlapping (nodes rarely exposed); blades long acuminate, to 15 mm wide, usually rolled or involute (sometimes flat) .....36
36. Leaves more or less strongly distichous, not coarse (somewhat fleshy); basal sheaths often wrinkled (more evident on fresh material); rhizomes and rhizome scales with large air spaces.....***Spartina alterniflora***
36. Leaves not strongly distichous, coarse and hard in texture; basal sheaths not wrinkled; plants usually of fresh-water or marine shores; rhizomes and rhizome scales without large air spaces..37
37. Stems 3 to 10 mm in diameter basally, erect and rarely branched; blades 5 to 15 mm wide, involute or flat; ligules 1 to 3 mm long .....***Spartina pectinata***
37. Stems 1 to 2 mm in diameter basally, usually decumbent or procumbent and branched; blades 1 to 4 mm wide, mostly involute; ligules 0.5 to 1 mm long.....***Spartina patens***
38. Sheaths often conspicuously inflated, margins usually not overlapping; cleistogenes usually present in basal sheaths (plants often appearing vegetative); lower margins of blades often with scattered glands and/or long hairs with pustulate bases (usually varying on different leaves of the same plant).....***Sporobolus*** spp.
38. Sheaths not or scarcely inflated, margins usually over-lapping; cleistogenes absent; lower margins of blades without glands or scattered long hairs with pustulate bases .....39
39. Margins of the collars (auricle position) with a conspicuous tuft of long hairs (see Fig. 5E); blades 1 to 2 mm wide; the margins usually involute .....***Eragrostis pectinacea***
39. Margins of the collars glabrous or hairs not in a tuft; blades usually wider than 2 mm; the margins usually not involute .....40
40. Stems usually not erect from the base (recumbent, decumbent or somewhat trailing), zigzagging at the nodes; basal part of sheaths often reddish .....***Panicum dichotomiflorum***
40. Stems erect from the base, straight and not zigzagging; basal part of sheaths usually green .....41
41. Margins of sheaths glabrous; blades sparsely pubescent at base on the adaxial surface, the hairs long, twisted and flexuous; collars glabrous .....***Setaria pumila***
41. Margins of sheaths pubescent; blades glabrous; base of collars fringed with hairs.....***Setaria viridis***
42. Margins of the blades with small raised glands which have a central depression and appear somewhat crater-like, often glands are also present on the sheaths, especially the mid-vein (the glands are small requiring magnification to see properly and may be hidden when the margins are involute); blades and sheaths usually with scattered long hairs (some leaves may be glabrous).....43
42. Margins of the blades and the sheaths without small raised glands (sometimes long hairs have swollen bases); hairs on blades and/or sheaths dense .....44
43. Blades 2 to 8 mm wide; sheaths usually with scattered glands (especially near top); reputed to have a disagreeable odour (not always detectable).....***Eragrostis cilianensis***
43. Blades 1 to 4 mm wide; sheaths usually without glands or with glands only on the mid-vein.....***Eragrostis minor***
44. Blades with long hairs only on the adaxial surface; sheaths pubescent on the distal margins, elsewhere glabrous .....***Setaria faberi***
44. Blades with long hairs on both surfaces (sometimes glabrous); sheaths glabrous or pubescent.....45
45. Basal leaves short, ovate and coarse, forming a rosette; ligules a loose or dense ring of hairs with at least some hairs 3 to 5 mm long; plants perennial with short (usually less than 5 cm long) leaves .....***Dichanthelium acuminatum***
45. Basal leaves long, soft and similar to the stem leaves, not forming a rosette; ligules a dense ring of hairs up to 2 mm long; plants annual with large (10 to 40 cm long) leaves.....46
46. Ligules 0.5 to 1.5 mm long; young sheaths usually reddish .....***Panicum capillare***
46. Ligules 1 to 3 mm long; young sheaths usually greenish .....***Panicum miliaceum***
47. Sheaths closed to near the top (Fig. 3C).....48
47. Sheaths open (margins usually overlapping) at least half way (Fig. 3A, B).....52

48. Sheath margins hyaline, joined to top and continuous with ligule margins which are joined in front forming a tube around the stem. Initially there is simply a longitudinal strip of hyaline tissue at the front of the sheath where the margins would normally be. The tissue is very delicate and easily splits with age, often with a few oblique transverse fibres temporarily remaining before complete separation ..... **Schizachne purpurascens**
48. Sheath margins hyaline or not, not joined to the top and continuous with ligule margins to form a tube .....49
49. Long creeping rhizomes present; sheaths and blades mostly glabrous (western genotypes usually at least partly pubescent) ..... **Bromus inermis**
49. Rhizomes absent; sheaths and blades pubescent .....50
50. Plants perennial; ligules 0.5 to 1 mm long, truncate ..... **Bromus ciliatus**
50. Plants annual; ligules 1 to 5 mm long, acute .....51
51. Basal part of sheaths reddish (sometimes the whole plant with a reddish colour), hairs on sheaths straight and retrorse; ligule 1 to 5 mm long ..... **Bromus tectorum**
51. Basal part of sheaths green, hairs on sheaths usually somewhat wavy and spreading or retrorse; ligule 1 to 2 mm long ..... **Bromus japonicus**
52. Rhizomes short and shallow, with hardened and densely imbricate scaly bracts; plants perennial; stem internodes and basal parts of sheaths usually reddish; ligules a minute truncate membrane ..... **Muhlenbergia** species
52. Rhizomes present or absent, but if present then strongly creeping and without hardened densely imbricate scaly bracts; plants annual or perennial; stem internodes and sheaths reddish or green; ligules various .....53
53. Sheaths (at least basal ones) usually pubescent; blades mostly pubescent (at least on adaxial surface and basally); collars with long hairs (except *Hordeum jubatum*) .....54
53. Leaves completely or mostly glabrous (except with short retrorse hairs on basal blade margins in *Phleum pratense* and the basal sheaths and blade margins of *Avena fatua*) or scabrous .....58
54. Sheaths compressed (flattened); auricle region with crinkly hairs; ligules entire (crenate but not ciliate); plants annual .....55
54. Sheaths not compressed; auricle region glabrous or with straight hairs; ligules minutely ciliate; plants perennial .....56
55. Sheaths with long hairs; blades pubescent, 4 to 10 mm wide ..... **Digitaria sanguinalis**
55. Sheaths (at least the basal ones) usually sparsely pubescent; blades glabrous except for crinkly hairs near base (adaxial surface), 1 to 4 mm wide (rarely to 6 mm) ..... **Digitaria ischaemum**
56. Long hairs on margins of collars; ligules about 2 mm long; blades usually yellow-green or bright green, broad and flat; coumarin scented when crushed ..... **Anthoxanthum odoratum**
56. Margins of collars glabrous; ligules 0.5 to 1 mm long; blades bluish green, glaucous, narrow and flat or rolled; not scented when crushed .....57
57. Auricles, if present, small or rudimentary, often only one ..... **Elymus trachycaulus**
57. Auricles, if present, small and fragile, in pairs ..... **Hordeum jubatum**
58. Blades less than 1.5 mm wide, soft, usually rolled (or involute) and thread-like especially when dry; plants tufted, without rhizomes ..... **Agrostis scabra**
58. Blades more than 1.5 mm wide, flat, rolled or involute, plants with or without rhizomes .....59
59. Ligules less than 1.5 mm long, truncate .....60
59. Ligules more than 1.5 mm long .....61
60. Basal leaf blades 30 to 90 cm (much longer than twice the sheath length), recumbent, evergreen (persisting through the winter), gradually narrowed to a more or less stiff and twisted base (mature blades are oriented "upside down"), opposite surfaces distinctly different in colour, the upper (abaxial) surface glossy dark green, the lower (adaxial) surface glaucous ..... **Oryzopsis asperifolia**
60. Basal leaf blades less than 30 cm long (less than twice as long as leaf sheath), erect of lax but not recumbent, not evergreen, not gradually narrowed to a stiff and twisted at base, surfaces similar in colour, not glossy dark green, sometimes glaucous .....61
61. Blades 1.5 to 3.5 mm wide, never glaucous; auricles absent; plant with short rootstocks or stolons ..... **Agrostis capillaris**
61. Blades 3 to 8 mm wide, sometimes glaucous; auricles rudimentary or absent; plant caespitose ..... **Elymus trachycaulus**
62. Margins of collars with retrorse hairs; ligules with a prominent notch at either side, abaxially glabrous; stems often with corm-like bases ..... **Phleum pratense**
62. Margins of collars glabrous; ligules without a notch at either side (sometimes lacerate), abaxially minutely pubescent; stems without corm-like bases, except rarely in some varieties of *Arrhenatherum elatius* .....63
63. Sheaths keeled; nodes usually puberulent ..... **Arrhenatherum elatius**
63. Sheaths not keeled; nodes glabrous .....64
64. Rhizomes absent (or if present, short and non-creeping, plants being loosely caespitose) .....65
64. Rhizomes present (plants not caespitose) .....68
65. Plants annual; basal sheaths glabrous or with scattered long hairs; young blades with long hairs along basal margins ..... **Avena fatua**
65. Plants perennial; basal sheaths glabrous; young blades without long hairs on margins .....66
66. Stolons and rhizomes absent; blades 1 to 20 mm wide, usually about 10 mm, widest near the middle and gradually tapering toward both ends; ligules 2 to 10 mm long, usually about 5 to 8 mm; stems erect; plants usually of forests ..... **Cinna latifolia**
66. Stolons or rhizomes usually present; blades less than 8 mm wide, widest near the base and gradually tapering toward the apex; ligules less than 4 mm long; stems usually decumbent at base; plants usually of open or semi-open habitats .....67
67. Stolons absent, short non-creeping rhizomes often present (loosely caespitose); stems more or less erect; blades 3 to 8 mm wide; ligules on basal leaves 1.5 to 2.5 mm long, truncate ..... **Alopecurus pratensis**
67. Stolons present, long, leafy, prostrate, rooting at nodes; stems usually decumbent or recumbent; blades usually less than 3 mm wide; ligules on basal leaves 2 to 4 mm long, rounded or obtuse ..... **Agrostis stolonifera**
68. Stems stiffly erect from base; new shoots dark brownish, stiffly erect and long attenuate (subulate); base of stems with reduced scaly leaves that are hard and sharp; sheaths glabrous or sometimes pubescent ..... **Calamagrostis canadensis**
68. Stems erect, decumbent or recumbent; new shoots pale or light brown, erect or decumbent, acute but not long attenuate; if reduced leaves present at the base of stems, then not hard and scaly; sheaths glabrous .....69
69. Large robust plants, usually in moist areas; base of the stems 3 to 8 mm wide; blades 5 to 15 mm wide; ligules white, papery, 2 to 8 mm long, acute or obtuse; sheaths often with cross veins visible (especially on older sheaths) ..... **Phalaris arundinacea**
69. Plants various; base of stems 1 to 3 mm wide; blades 1.5 to 7 mm wide; ligules translucent, thinly membranous, 1.5 to 4 mm long, rounded or acute; sheaths with cross veins rarely visible .....70
70. Stolons absent; long creeping underground rhizomes; leaf blades usually more than 3 mm wide ..... **Agrostis gigantea**
70. Stolons long, leafy, prostrate, rooting at nodes; leaf blades usually less than 3 mm wide ..... **Agrostis stolonifera**

Table 1. List of grass species in the key with authorities, common names and common synonyms.

Name and Authority	Common name	Common synonyms and comments
<i>Agropyron pectiniforme</i> Roem. & Schult.	Crested wheatgrass	<i>Agropyron cristatum</i> auct.
<i>Agrostis capillaris</i> L.	browntop	<i>Agrostis tenuis</i> Sibth.
<i>Agrostis gigantea</i> Roth	redtop	<i>Agrostis alba</i> auct.
<i>Agrostis scabra</i> Willd.	hair grass	
<i>Agrostis stolonifera</i> L.	creeping bent grass	<i>Agrostis palustris</i> Huds.
<i>Alopecurus pratensis</i> L.	meadow foxtail	
<i>Andropogon gerardii</i> Vitman	big bluestem; turkey foot	
<i>Anthoxanthum odoratum</i> L.	sweet vernal grass	
<i>Arrhenatherum elatius</i> (L.) J. & C. Presl	tall oat grass	
<i>Avena fatua</i> L.	wild oat	
<i>Bromus ciliatus</i> L.	Canada brome	
<i>Bromus inermis</i> Leysser	smooth brome	
<i>Bromus japonicus</i> Murray	Japanese brome	
<i>Bromus tectorum</i> L.	downy brome, hairy brome	
<i>Calamagrostis canadensis</i> (Michx.) P. Beauv.	Canada blue joint	<i>Calamagrostis langsdorffii</i> (Link) Trin.
<i>Cinna latifolia</i> (Trevir. ex Göpp.) Griseb.	drooping woodreed	
<i>Dactylis glomerata</i> L.	orchard grass	
<i>Danthonia spicata</i> (L.) Roem. & Schult.	poverty oatgrass	
<i>Dicanthelium acuminatum</i> (Sw.) Gould & Clark	hairy panic grass	<i>Panicum lanuginosum</i> Elliot; <i>Panicum acuminatum</i> Sw.
<i>Digitaria ischaemum</i> (Schreber) Muhl.	smooth crab grass	
<i>Digitaria sanguinalis</i> (L.) Scop.	large crab grass	
<i>Echinochloa</i> species	barnyard grass	including <i>Echinochloa crusgalli</i> (L.) P. Beauv., <i>E. microstachya</i> (Wieg.) Rydb., <i>E. wiegandii</i> Dore, <i>E. muricata</i> (P. Beauv.) Fernald
<i>Elymus canadensis</i> L.	Canada wild-rye	
<i>Elymus repens</i> (L.) Gould	quack grass	<i>Agropyron repens</i> (L.) P. Beauv.; <i>Elytrigia repens</i> (L.) Nevski
<i>Elymus trachycaulus</i> (Link) Shinnery	slender wheatgrass	<i>Agropyron trachycaulum</i> (Link) H.F. Lewis
<i>Elymus virginicus</i> L.	Virginia wild-rye	
<i>Eragrostis cilianensis</i> (All.) Janchen	stink grass	
<i>Eragrostis minor</i> Host	little love grass	<i>Eragrostis pooides</i> P. Beauv.
<i>Eragrostis pectinacea</i> (Michx.) Nees	tufted love grass	
<i>Festuca rubra</i> L.	red fescue	
<i>Festuca</i> species	sheep fescue, hard fescue, etc.	including: <i>Festuca filiformis</i> Pourret (= <i>F. capillata</i> Lam.), <i>Festuca trachyphylla</i> (Hackel) Krajina (= <i>F. longifolia</i> Thuill., <i>F. brevipila</i> Tracey), <i>F. saximontana</i> Rydb., <i>F. brachyphylla</i> Schult. & Schult. f.)
<i>Glyceria grandis</i> S. Wats.	American manna grass	
<i>Glyceria maxima</i> (Hartm.) Holmb.	English water grass	
<i>Glyceria striata</i> (Lam.) Hitchc.	fowl manna grass	
<i>Hordeum jubatum</i> L.	foxtail barley	
<i>Leersia oryzoides</i> (L.) Swartz	rice cut grass	
<i>Leersia virginica</i> Willd.	white grass	
<i>Leymus mollis</i> (Trin.) Pilger	American dune grass	<i>Elymus mollis</i> Trin.
<i>Lolium multiflorum</i> Lam.	annual ryegrass	<i>Lolium perenne</i> var. <i>aristatum</i> Willd.
<i>Lolium perenne</i> L.	perennial ryegrass	
<i>Muhlenbergia</i> species	muhly	including: <i>Muhlenbergia frondosa</i> (Poir.) Fernald, <i>M. glomerata</i> (Willd.) Trin., <i>M. mexicana</i> Trin., <i>M. sylvatica</i> (Torr.) Torr.
<i>Oryzopsis asperifolia</i> Michx.	rough-leaved mountain-rice, winter grass	
<i>Panicum capillare</i> L.	witchgrass	
<i>Panicum dichotomiflorum</i> Michx.	fall panic grass	
<i>Panicum miliaceum</i> L.	proso millet	
<i>Phalaris arundinacea</i> L.	reed canary grass	
<i>Phleum pratense</i> L.	timothy	
<i>Phragmites australis</i> (Cav.) Steudel	common reed	<i>Phragmites communis</i> Trin.
<i>Poa annua</i> L.	annual blue grass	
<i>Poa compressa</i> L.	Canada blue grass	
<i>Poa palustris</i> L.	fowl blue grass	
<i>Poa pratensis</i> L.	Kentucky blue grass	
<i>Poa trivialis</i> L.	rough-stalked blue grass	
<i>Schedonorus arundinaceus</i> (Schreber) Dumort.	tall fescue	<i>Festuca arundinacea</i> Schreber.; <i>Lolium arundinaceum</i> (Schreber) Darbysh.
<i>Schedonorus pratensis</i> (Huds.) P. Beauv.		<i>Festuca pratensis</i> Huds.; <i>Lolium pratense</i> (Huds.) Darbysh.
<i>Schizachne purpurascens</i> (Torr.) Swallen	false melic	
<i>Schizachyrium scoparium</i> (Michx.) Nash	little bluestem	<i>Andropogon scoparium</i> Michx.
<i>Setaria faberi</i> R.A.W. Herm.	giant foxtail	
<i>Setaria pumila</i> (Poir.) Roem. & Schult.	yellow foxtail	<i>Setaria glauca</i> (L.) P. Beauv.
<i>Setaria viridis</i> (L.) P. Beauv.	green foxtail	
<i>Sorghastrum nutans</i> (L.) Nash	Indian grass	
<i>Spartina alterniflora</i> Loisel.	saltwater cord grass; cord grass	
<i>Spartina patens</i> (Aiton) Muhl.	salt-meadow cord grass	
<i>Spartina pectinacea</i> Link	tall cord grass; freshwater cord grass	
<i>Sporobolus cryptandrus</i> (Torr.) A. Gray	sand dropseed	
<i>Sporobolus heterolepis</i> (A. Gray) A. Gray	prairie dropseed	
<i>Sporobolus</i> species	dropseed	including: <i>Sporobolus neglectus</i> Nash, <i>Sporobolus vaginiflorus</i> (A. Gray) A.W. Wood