

APPENDICES

## APPENDIX I

## KEY TO THE GRASSES OF NEW SOUTH WALES

Including notes on frequency  
and distribution.

The genera *Bambusa*, *Oryza* and  
*Saccharum* are omitted from the key.

The regions specified in notes on  
distribution are those employed by  
the New South Wales National Herbarium.

Introduced species are marked with  
an asterisk (\*).

## KEY TO GENERA

Being a key to artificial groups  
of genera followed by keys to  
genera within the groups.

1. Spikelets dimorphous within each inflorescence (fertile spikelets accompanied by barren spikelets which consist of numerous 'sterile' lemmas), or plants monoecious and diclinous with both male and female inflorescences on each plant. GROUP I
- 1.\* Spikelets more or less identical (inflorescence sometimes containing barren spikelets with reduced lemmas), borne in hermaphrodite inflorescences on monoecious plants, or plants dioecious.
2. Inflorescence a compound spatheate panicle with several to numerous spathes arising at the nodes of the panicle axis and main branches, the panicle sometimes reduced to a globular head. GROUP II
- 2.\* Inflorescence without spathes, or with one spathe clasping the peduncle.
3. Spikelets with 1 fertile floret, which may be associated with 1 or 2 sterile or staminate lemmas.
4. Spikelets conspicuously awned, usually with an abrupt junction where the awn arises (excluding spikelets whose glumes or lemmas narrow gradually into an acuminate point which continues as a bristle for less than 5 mm), or lemma 3-lobed.
5. Lemma bearing more than 1 awn, or with a terminal awn that branches into 3 bristles. GROUP III
- 5.\* Lemma with only 1 awn, or the lemma awnless and the glume(s) awned.
6. Spikelets arranged along the axis of a solitary spike or raceme, or inflorescence digitate or subdigitate. GROUP IV
- 6.\* Spikelets arranged randomly in an open or condensed branched inflorescence (the branches sometimes very short), or spikelets borne in racemes at the ends of the panicle branches.
7. Awn terminal on the lemma, which may be reduced to a short stipe, sometimes with 2 soft membranous lobes on either side of the awn and then the awn arising between the lobes, or the glume(s) awned.
8. Awn on the lemma geniculate with a twisted column. GROUP V

8.\* Awn not geniculate, more or less straight or curved, sometimes scarcely twisted near the base. GROUP VI

7.\* Awn basal or dorsal or distinctly subterminal on the lemma, sometimes emerging from the keel and passing to the back of, but not between, two pointed teeth at the summit; glumes awnless.  
GROUP VII

4.\* Spikelets awnless or mucronate, the bristle up to 1 mm long, or spikelets with acuminate points that narrow gradually into short bristles less than 5 mm long.

9. Spikelets subtended by an involucre of fused spines or hairs or bristles or sterile branches, or the terminal spikelet of a raceme or raceme-branch subtended by a solitary bristle or pointed continuation of the rachis.

GROUP VIII

9.\* Spikelets not subtended by an involucre, nor the terminal spikelet of a raceme or raceme-branch subtended by a bristle or pointed tip of the rachis, though inconspicuous hairs may encircle the top of the pedicel.

10. Spikelets more or less sunken in the hollows of the thickened axis of a solitary true or false spike.

GROUP IX

10.\* Spikelets not sunken in the hollows of the axis of a solitary spike, the axis of the inflorescence usually slender and the branches (if present) slender or rarely thickened.

11. Glumes (or outermost bracts) rigidly ciliate on the spinal keels or bearing rows of hooked spines or tufts of stiff cilia, or covered with hooked spreading hairs.

GROUP X

11.\* Glumes scabrous or smooth on the keels, glabrous or pubescent or hairy, the hairs soft and not manifestly hooked and spreading.

GROUP XI

3.\* Spikelets with 2 or more fertile florets, or with more than 3 lemmas.

12. Spikelets (usually in even rows) attached directly to the rachis of a solitary spike or raceme, or inflorescence digitate.

GROUP XII

12.\* Spikelets borne in a dense or open branched panicle which is not digitate, or spikelets clustered at intervals along the panicle axis.

13. Lemmas acuminate or conspicuously awned, the awn equalling the lemma or being at least 3 mm long and arising dorsally or from the tip, or produced in the sinus of a bilobed summit.

## GROUP XIII

- 13.\* Lemmas obtuse or acute, awnless, or mucronate with a bristle less than 2 mm long which arises terminally or subterminally, or from the sinus of a notched apex.

## GROUP XIV

## GROUP I

1. Inflorescence bisexual, barren spikelets present.
2. Fertile spikelets with 1 to 5 florets; bracts of barren spikelets acuminate or awned. *Cynosurus* 10
- 2.\* Fertile spikelets with 1 fertile floret and a small sterile lemma at the tip of a long rachilla; bracts of barren spikelets obtuse and awnless. *Lamarckia* 9
- 1.\* Inflorescences unisexual, male and female spikelets in separate inflorescences on the same plant. *Zea* 140

## GROUP II

1. Plants dioecious and creeping with rhizomes or stolons, the spikelets awnless; female inflorescences reduced to a globular head and male inflorescences consisting of a number of racemes more or less radiating from the top of the peduncle in an ovate or obovate panicle.
2. Inflorescences 1-3.5 cm in diameter; semi-arid species. *Zygochloa* 117
- 2.\* Inflorescences 10-30 cm in diameter; coastal sand-dune species. *Spinifex* 116
- 1.\* Plants monoecious, caespitose, the spikelets usually awned but if awnless then the panicle long and linear.
3. Racemes solitary in the ultimate spathes.

4. Each raceme consisting of 1 awned fertile spikelet subtended by an involucre of sterile or staminate awnless spikelets.
5. Awn 1-2 cm long; racemes falling entire at maturity.  
Iseilema 139
- 5.\* Awn 4-10 cm long; racemes breaking up at maturity.  
Themeda 138
- 4.\* Each raceme consisting of 3 or more awned fertile spikelets.
6. Awn 5-12 cm long with a twisted pubescent column.  
Heteropogon 137
- 6.\* Awn about 1 cm long, glabrous. Schizachyrium 133
- 3.\* Racemes paired or up to 4 together in the ultimate spathes.
7. Spikelets all sessile, each awned spikelet accompanied by a sterile pedicel.  
Andropogon 134
- 7.\* Spikelets paired, each sessile spikelet accompanied by an awnless pedicellate spikelet.
8. Racemes reflexed at maturity; sessile spikelets awnless or with an awn up to 15 mm long which is glabrous towards the base; pedicellate spikelets neuter.  
Cymbopogon 135
- 8.\* Racemes subparallel or slightly diverging, frequently the awns of the two racemes becoming intertwined; sessile spikelets with an awn 15-30 mm long which is pubescent on the column; pedicellate spikelets male.  
Hyparrhenia 136

## GROUP III

1. Spikelets with 2 or 3 florets, each mature lemma bearing 9 awns in an even row around the summit.  
Enneapogon 22
- 1.\* Spikelets with only 1 floret, the lemma with 3 to 5 awns or bristles.
2. Lemma with a long terminal geniculate awn and 4 shorter bristles in a pair each side of the central awn.  
Pentapogon 73
- 2.\* Lemma with 3 awns or bristles or awned lobes.

3. Lemma with a dorsal awn and 2 bristles at the apex.  
Lagurus 62
- 3.\* Lemma with 3 awned lobes or 3 terminal awns or bristles.
4. Lemma with 3 awned lobes, the palea with 2 awned lobes.  
Amhipogon 74
- 4.\* Lemma with 3 terminal awns or bristles, the palea awnless.
5. Awns more or less similar, the central one sometimes more robust and curved but without a strongly twisted column.  
Aristida 69
- 5.\* Awns dissimilar, the central one robust, very long and geniculate with a strongly twisted column, the 2 lateral bristles slender, much shorter, more or less straight and scarcely twisted.  
Anisopogon 72

## GROUP IV

1. Awn basal, about 8 mm long. Arthraxon 126
- 1.\* Awn terminal or arising in the sinus of a bilobed summit.
2. Pedicels and internodes of raceme stout, thickened, more or less hollowed out on one side, the spikelets often partially sunk in the hollows of the axis.
3. Racemes solitary; upper glume with a bristle-like awn.  
Sehima 120
- 3.\* Racemes paired or digitate; upper glume awnless.  
Ischaemum 119
- 2.\* Pedicels and internodes of raceme slender, cylindrical or flattened, the spikelets not sunk in hollows of the raceme axis.
4. Awn geniculate, with a conspicuously twisted column.
5. Awn 5-12 cm long, the column pubescent.  
Heteropogon 137
- 5.\* Awn up to 4.5 cm long, the column glabrous, smooth or scaberulous.
6. Spikelets paired, all identical and awned.  
Eulalia 124

- 6.\* Spikelets paired, the sessile spikelets fertile and awned, the pedicellate spikelets awnless, barren or male.
7. Racemes pedunculate; pedicels and joints of the racemes with a longitudinal line of soft tissue which may be translucent.  
Bothriochloa 131
- 7.\* Racemes sessile; pedicels and joints of the racemes solid throughout, without a longitudinal central portion of soft tissue.  
Dichanthium 132
- 4.\* Awn not geniculate, more or less straight and not twisted at the base.
8. Inflorescence digitate or subdigitate.
9. Upper glume densely ciliate along the marginal nerves or along the edges of wings arising from the marginal nerves.  
Alloteropsis 100
- 9.\* Upper glume not ciliate along the marginal nerves.
10. Spikelets paired at each node of the raceme with one sessile and the other pedicellate; inflorescence subdigitate.  
Microstegium 125
- 10.\* Spikelets solitary, all equally sessile; inflorescence with 1 or 2 digitate whorls. Chloris 37
- 8.\* Inflorescence a solitary spike or raceme.
11. Spikelets borne in groups of 3 at each node, the triplets alternately arranged in 2 dense rows on opposite sides of the axis.  
Hordeum 17
- 11.\* Spikelets borne singly, or if paired at 1 or 2 nodes then the pedicels of very unequal length.
12. Glumes exceeding the floret and tapering into long bristles, the spikelets falling entire. Perotis 77
- 12.\* Glumes awnless, very small, the lemmas raised on a stipe with 2 awned sterile lemmas enclosing the pointed fertile floret, the rachilla disarticulating above the glumes.  
Microlaena 81

## GROUP V

1. Spikelets at the ends of each panicle branch or raceme in a group of 3, with the terminal spikelet lying between twin pedicellate spikelets whose pedicels arise at the same level immediately below the central spikelet, or spikelets arranged evenly along distinct racemes with a pair at each node of a raceme.
2. Spikelets all identical, shortly pedicellate, fertile and equally awned. Miscanthus 123
- 2.\* Spikelets dissimilar, the pedicellate spikelets male or neuter and usually awnless or at least more weakly awned than the adjacent sessile spikelets.
3. Pedicels with a central longitudinal region of soft tissue which lies between the solid margins and forms a lighter or darker longitudinal line.
4. Inflorescence sparingly branched and consisting of long racemes each with more than eight joints. Bothriochloa 131
- 4.\* Inflorescence much branched and consisting of spikelets arranged in groups of 3 or in short racemes of up to 8 joints. Capillipedium 130
- 3.\* Pedicels uniformly solid, without a strip of soft tissue forming a light or dark line down the middle.
5. Upper (adaxial) glume terminating in a fine awn 3 to 10 mm long. Chrysopogon 128
- 5.\* Upper glume awnless. Sorghum 127
- 1.\* Spikelets more or less randomly arranged, the last three spikelets, of a panicle branch produced at different levels and not forming a tight group of 3 (as described above).
6. Spikelets with 1 floret. Stipa 68
- 6.\* Spikelets with 2 florets. Arundinella 86

## GROUP VI

1. Glumes minute, the florets raised above them on a long stipe and the 2 sterile lemmas awned. Microlaena 81

- 1.\* Glumes embracing at least the lower part of the lemma(s), not separated from them by a long stipe.
2. Spikelets paired with one sessile and long-awned and the other pedicellate and awnless.
3. Panicle subdigitate. Bothriochloa 131
- 3.\* Panicle axis elongate, the branches naked for up to 5 cm. Vetiveria 129
- 2.\* Spikelets all awned, or if some spikelets awnless then the spikelets equally sessile.
4. Lower glume awned, the glumes subequal.
5. Glumes smooth or scabrous on the keels.
6. Upper glume with an awn similar to that on the lower glume. Polypogon 67
- 6.\* Upper glume awnless or very shortly awned. Oplismenus 98
- 5.\* Glumes ciliate on the keels. Phleum 61
- 4.\* Lower glume awnless, the glumes subequal or the lower glume up to half the length of the upper.
7. Upper glume similar to the awned sterile lemma and twice the length of the lower glume; fertile floret smooth and shiny. Echinochloa 99
- 7.\* Upper and lower glumes subequal.
8. Spikelets with 2 large sterile florets enclosing the awnless fertile floret. Ehrharta 79
- 8.\* Spikelets with only 1 floret, which is awned.
9. Awn up to 4 mm long, deciduous. Oryzopsis 71
- 9.\* Awn more than 10 mm long, persistent.
10. Awn excentrically attached to the lemma. Nassella 70
- 10.\* Awn centrally attached to the lemma. Stipa 68

## GROUP VII

1. Spikelets about 2 mm long, glabrous, with the lower glume minute (about  $\frac{1}{8}$  the length of the spikelet or less). Melinis 112

- 1.\* Spikelets usually longer, either the lower glume at least half the length of the spikelet or spikelets hairy.
2. Glumes, or upper glume and sterile lemma, both clothed with long hairs, the spikelet conspicuously hairy in appearance.
3. Upper glume a sterile lemma covered with reddish hairs, both subterminally awned; lower glume very small.  
Rhynchelytrum 113
- 3.\* Both glumes covered with white hairs, awnless, the lemma bearing a dorsal awn and 2 fine bristles at the apex.  
Lagurus 62
- 2.\* Glumes glabrous or almost so, sometimes ciliate on the keels but not covered with long hairs.
4. Glumes swollen and shiny at the base.  
Gastridium 63
- 4.\* Glumes not swollen at the base.
5. Spikelets with 2 or 3 florets.
6. Spikelets with 3 florets, 2 of which are sterile and awned.  
Anthoxanthum 80
- 6.\* Spikelets with 2 florets.
7. Spikelets 7-10 mm long, the lower lemma with a geniculate awn.  
Arrhenatherum 51
- 7.\* Spikelets 4-6 mm long, the lower lemma awnless but the upper lemma bearing a short bristle.  
Holcus 52
- 5.\* Spikelets with only 1 floret.
8. Awn arising just below the apex of the lemma and extending at least 2 or 3 times the length of the lemma; glumes not ciliate on the keels.  
Dichelachne 64
- 8.\* Awn less than twice the length of the lemma or arising near the middle of the back, or glumes ciliate on the keels.
9. Inflorescence open and spreading or contracted but not dense.
10. Lemma papery to indurated, glabrous, scaberulous, or if almost smooth then the floret subequal to or exceeding the glumes.  
Deyeuxia 59

- 10.\* Lemma thin and membranous, smooth or hairy, the floret shorter than the glumes.  
Agrostis 58
- 9.\* Inflorescence contracted and narrow with very short branches, often dense.
11. Spikelets falling entire at maturity.  
Alopecurus 65
- 11.\* Spikelets disarticulating above the glumes, which persist on the pedicel.
12. Glumes rigidly ciliate on the keels; inflorescence usually less than 8 cm long.  
Echinopogon 60
- 12.\* Glumes smooth or scabrous on the keels.  
Deyeuxia 59

## GROUP VIII

1. Spikelets subtended by an involucre of fused spines or of long hairs or bristles, or by several bristles or sterile branches; inflorescence evenly dense and spike-like, sometimes lobed.
2. Spikelets subtended by several sterile branches which divide into bristle-like branchlets exceeding the spikelets.  
Plagiosetum 106
- 2.\* Spikelets subtended by spines, simple bristles or hairs, or by short clavate sterile branches.
3. Spikelets subtended by clavate sterile branches, sometimes the branches bearing reduced or rudimentary spikelets.  
Phalaris 78
- 3.\* Spikelets subtended by fused spines or hairs or bristles.
4. Spikelets enveloped by long, soft, smooth, simple white hairs.  
Imperata 122
- 4.\* Spikelets subtended by scabrous or plumose bristles, or enclosed in a spiny bur.
5. Bristles more or less secund on the top of the pedicel and persistent on the pedicel when the spikelet falls.  
Setaria 107

- 5.\* Bristles or bur falling with the spikelet at maturity.
6. Scabrous bristles flattened near the base, united at the base into a shallow cup, or fused spines forming a bur around 2 or 3 spikelets.  
Cenchrus 108
- 6.\* Scabrous or plumose bristles cylindrical, not united into a shallow cup at the base of the spikelet.  
Pennisetum 109
1. Spikelet terminating each raceme or raceme-branch subtended by a bristle or by a pointed continuation of the rachis; inflorescence interrupted, consisting of several racemes attached at intervals to the panicle axis.
7. Spikelets long-acuminate.  
Pseudoraphis 105
- 7.\* Spikelets obtuse or acute.
8. Terminal spikelet of the racemes and raceme-branches (if present) subtended by a fine bristle, the racemes remaining erect and not disarticulating from the panicle axis.  
Paspalidium 103
- 8.\* Terminal spikelet and lowest spikelet of the raceme both subtended by a firm flattened bristle, the racemes deflexed at maturity and disarticulating from the panicle axis.  
Paractaenum 104

## GROUP IX

1. Lower glume fringed with stiff, curved spines.  
Eremochloa 121
- 1.\* Lower glume not fringed with spines.
2. Spikelets borne on a second false spike, solitary or in groups of 2-5 on short appressed branches, the axis fleshy.  
Stenotaphrum 115
- 2.\* Spikelets borne on both sides of the spike, the axis not fleshy.
3. Spikelets solitary, aligned in 2 vertical rows, one row on each side of the axis.
4. Lateral spikelets with glumes placed side by side, both abaxial.  
Parapholis 41

- 4.\* Lateral spikelets without both glumes side by side, the upper glume (minute in *Psilurus*) abaxial and the lower absent or suppressed in the hollow of the axis.
5. Spike about 2 mm in diameter, the upper glume well-developed.  
Monerma 40
- 5.\* Spike 1 mm wide or less, the upper glume minute.  
Psilurus 42
- 3.\* Spikelets paired, but the pairing obscured by the fusion of the pedicels of pedicellate spikelets to the axis, the spikelets aligned in 4 vertical rows around the axis. Hemarthria 118

## GROUP X

1. Glume and lower lemma (if present) bearing rows of hooked spines or covered with spreading hooked hairs.
2. Glume and lower lemma covered with spreading, hooked, tubercle-based hairs.  
Ancistrachne 89
- 2.\* Glume bearing rows of curved spines, the lower glume absent and the spikelets paired and facing one another, falling together as a unit.  
Tragus 76
- 1.\* Glumes (or outermost bracts) with a row of rigid cilia along the spinal keel, or glume bearing tufts of rigid cilia at about the middle.
3. Glume(s) bearing tufts of stiff cilia near the middle of the back.  
Neurachne 92
- 3.\* Glumes (or outermost bracts) rigidly ciliate along the keels.
4. Glumes absent, the lemma and palea ciliate on the keels.  
Leersia 84
- 4.\* Glumes present and well-developed.
5. Inflorescence up to 3 cm long; lemma and glumes acute.  
Echinopogon 60
- 5.\* Inflorescence usually 6-15 cm long; lemma truncate, the glumes produced into a short bristle at the tip.  
Phleum 61

## GROUP XI

1. Spikelets with 2 barren or staminate lemmas on either side of the fertile floret, the glumes well-developed (the upper glume at least one quarter the length of the spikelet).
2. Glumes much longer than the lemmas. *Phalaris* 78
- 2.\* Glumes shorter than or equal to the lemmas.
3. Lower florets staminate, each enclosing a palea.  
*Hierochloa* 83
- 3.\* Lower florets barren, without paleas.
4. Inflorescence a solitary spike or raceme; spikelets 4-5 mm long, glabrous, the lemmas not rugose.  
*Tetrarrhena* 82
- 4.\* Inflorescence branched; either the spikelets more than 8 mm long or the sterile lemmas hairy or transversely rugose.  
*Ehrharta* 79
- 1.\* Spikelets with 1 or 2 florets, the glumes minute or well-developed.
5. Lower and upper glumes conspicuously truncate, the inflorescence a spike-like panicle whose axis very readily breaks up at maturity.  
*Uranthoecium* 114
- 5.\* Lower and upper glumes acute or obtuse, the panicle axis not disarticulating at maturity.
6. Spikelets at the end of each panicle branch arranged in a tight group of 3, with one large spikelet lying between twin pedicellate spikelets which are reduced in size and whose pedicels arise at the same level immediately below the central spikelet.  
*Sorghum* 127
- 6.\* Spikelets not forming tight groups of 3 as described above.
7. Spikelets subtended by a swollen annular callus to which the minute lower glume adheres and which falls with the spikelet at maturity; inflorescence a panicle of racemes.  
*Eriochloa* 93
- 7.\* Spikelets not subtended by a swollen annular callus.
8. Spikelets with 2 florets, both lemmas indurated and similar.  
*Isachne* 110

- 8.\* Spikelets with 1 or 2 florets, if 2 florets present then the upper lemma indurated and the lower much softer.
9. Spikelets with 2 florets - a more or less indurated fertile floret and a sterile or staminate, herbaceous-membranous lemma similar in texture to the upper glume; lower glume often much shorter than the spikelet, and if absent then the spikelet dorsally compressed and/or the inflorescence a panicle of racemes.
10. Fertile lemma white, due to a dense pubescence of short, fine white hairs. *Entolasia* 91
- 10.\* Fertile lemma glabrous, or almost so, usually greenish or brownish, sometimes almost black.
11. Fertile lemma shiny and pointed, very smooth, the lower glume well-developed; inflorescence an elongate panicle of racemes. *Echinochloa* 99
- 11.\* Fertile lemma usually not both shiny and pointed, sometimes smooth.
12. Upper glume a little shorter than the fertile lemma, so that the dorsal tip or upper dorsal surface of the floret is exposed.
13. Leaf-blades 3 cm wide or more; inflorescence a large spreading panicle. *Paspalidium* 103
- 13.\* Leaf-blades up to 1 cm wide; inflorescence spike-like or a panicle of racemes.
14. Spikelets borne on racemes which are 3 cm long or more; margins of fertile lemma becoming flat and hyaline over the lateral parts of the back of the palea. *Digitaria* 101
- 14.\* Spikelets borne in a spike-like panicle or along branches up to 3 cm long, or spikelets solitary on short culm branches or in the leaf axils; hardened texture of fertile lemma persisting to the margins, which are inrolled at the sides of the palea.
15. Lower glume present, subequal to the upper glume, which exposes the top third of the obtuse fertile floret; inflorescence of 1 kind. *Ottochloa* 111
- 15.\* Lower glume minute or absent, the upper glume a little shorter than the spikelet and exposing only the tip of the pointed fertile floret; inflorescences of 2 kinds.

16. Chasmogamous spikelets borne on short racemes attached to the common axis of a terminal panicle; cleistogamous spikelets borne singly on short culm branches.  
Dimorphochloa 97
- 16.\* Chasmogamous spikelets borne on a solitary terminal raceme; cleistogamous spikelets borne singly in the axils of the leaf-sheaths.
- 12.\* Upper glume equalling or exceeding the fertile floret, which is thereby concealed.
17. Fertile floret transversely rugose; inflorescence a panicle of racemes.  
Urochloa 94
- 17.\* Fertile floret smooth or papillose or punctulate, or if transversely rugose then the panicle open.
18. Inflorescence narrow, spike-like, the branches very short.  
Sacciolepis 88
- 18.\* Inflorescence open and spreading, or a panicle of racemes.
19. Inflorescence open and spreading.  
Panicum 87
- 19.\* Inflorescence a panicle of racemes attached to a common axis, or a solitary raceme.
20. Fertile lemma with margins becoming flat and hyaline over the lateral parts of the back of the palea.  
Digitaria 101
- 20.\* Fertile lemma remaining hardened to the margin edges, which are inrolled at the sides of the palea.
21. Lower glume present and well-developed, though shorter than the spikelet.  
Brachiaria 90
- 21.\* Lower glume absent, the fertile lemma enclosed by the upper glume and sterile lemma.
22. Back of the fertile lemma abaxial.  
Axonopus 95
- 22.\* Back of the fertile lemma adaxial.  
Paspalum 102

- 9.\* Spikelets with only 1 floret, which is softer than or similar in texture to the glumes, or if indurated then the spikelets not dorsally compressed nor evenly arranged along racemes.
23. Inflorescence digitate or a solitary spike.
24. Inflorescence digitate.
25. Floret exceeding the glumes. *Cynodon* 39
- 25.\* Floret shorter than the glumes.  
*Brachyachne* 38
- 24.\* Inflorescence a solitary spike. *Zoysia* 75
- 23.\* Inflorescence a branched, open or contracted panicle.
26. Glumes reduced to 2 minute scales at the base of the spikelet, the fertile floret membranous and subtended by 2 sterile lemmas  $\frac{1}{6}$  the length of the fertile lemma.  
*Potamophila* 85
- 26.\* Glumes present, at least  $\frac{1}{3}$  the length of the spikelet.
27. Fertile floret very hard, obtuse and glabrous.  
*Oryzopsis* 71
- 27.\* Fertile floret acute if hardened, usually membranous to papery.
28. Glumes shorter than the floret or subequal to it, or glumes unequal.
29. Lemma usually 1-nerved, soft and membranous, similar in texture to the glumes; grain falling free from the lemma and palea. *Sporobolus* 36
- 29.\* Lemma 3-5-nerved, firm and papery to indurated, usually more rigid than the glumes; grain falling within the lemma and palea.  
*Deyeuxia* 59
- 28.\* Glumes distinctly longer than the floret.
30. Lemma soft, smooth and shiny, sometimes lightly pubescent or hairy.
31. Spikelets 5-10 mm long, lemma acute, the glumes strongly keeled and usually winged on the keels.  
*Phalaris* 78

- 31.\* Spikelets 2-4 mm long, lemma truncate or obtuse, the glumes weakly keeled. *Agrostis* 58
- 30.\* Lemma scabrous or scaberulous, glabrous, somewhat rigid, not shiny.
32. Spikelets 9-16 mm long. *Ammophila* 66
- 32.\* Spikelets less than 8 mm long. *Deyeuxia* 59

## GROUP XII

1. Rachis of each spike or raceme terminating in a naked bristle. *Dactyloctenium* 34
- 1.\* Rachis of each spike or raceme terminating in a spikelet and bearing spikelets right to the tip.
2. Inflorescence digitate, with more than 2 spikes or racemes.
3. Florets bearing short bristles or with pointed lobes at the summit.
4. Spikelets 3-4 mm long, the inflorescence with usually at least 8 racemes. *Chloris* 37
- 4.\* Spikelets 6-10 mm long, the inflorescence with 3-4 racemes. *Astrebala* 46
- 3.\* Florets awnless, not lobed at the summit.
5. Lemmas acute, prominently keeled, especially towards the tip. *Eleusine* 33
- 5.\* Lemmas obtuse to truncate, rounded on the back. *Leptochloa* 27
- 2.\* Inflorescence a solitary spike or consisting of a pair of spikes or racemes.
6. Plant dioecious, creeping rhizomatously on saline soils, the leaves distichous, short, rigid and pointed; spike with 2-5 spikelets. *Distichlis* 8
- 6.\* Plant monoecious, vegetative habit differing from the above.
7. Spikelets with only 2 florets, the lemmas with long terminal awns and ciliate on the keels. *Secale* 18

- 7.\* Spikelets usually with 3 or more florets, sometimes the upper ones much reduced.
8. Spikelets about 1 mm wide, the lemmas emarginate and mucronate.  
Tripogon 29
- 8.\* Spikelets more than 1.5 mm wide, the lemmas awned or awnless but not mucronate.
9. Lemmas prominently lobed, with a geniculate awn in the sinus of a bilobed summit, or with a central lobe tapering into a straight bristle.
10. Awn in the sinus geniculate with a twisted column.  
Danthonia 43
- 10.\* Awn on the central lobe straight or curved.  
Astrebla 46
- 9.\* Lemmas awnless or terminally awned.
11. Spikelets with the backs of the adaxial row of lemmas against the rachis; lower (adaxial) glume absent on lateral spikelets or reduced to a membranous scale.  
Lolium 4
- 11.\* Spikelets with one edge of both rows of lemmas against the rachis; both glumes present and well-developed.
12. Glumes 4-6 mm broad, bulging at the back.  
Triticum 19
- 12.\* Glumes up to 3 mm broad, not bulging.
13. Spikelets sessile; leaves with prominent auricles.  
Agropyron 20
- 13.\* Spikelets shortly pedicellate; leaves without auricles.  
Brachypodium 21

## GROUP XIII

1. Lemmas each with 9 awns when fully-developed.  
Enneapogon 22

- 1.\* Lemmas with 1 or 3 awns.
2. Lemmas with a basal awn, or a geniculate or recurved dorsal awn produced near the middle of the lemma or about  $\frac{1}{3}$  from the tip.
3. Awn basal or arising in the lower third of the lemma.
4. Spikelets 2.5-6 mm long, the glumes subequal.
  5. Lemma obtuse at the tip. [For species in N.S.W. - awn straight; rachilla produced as a hairy bristle beyond the base of the upper floret.] Deschampsia 55
  - 5.\* Lemma finely 2-toothed at the tip; awn geniculate; rachilla not produced beyond the base of the upper floret.  
Aira 57
- 4.\* Spikelets 7-11 mm long, the lower glume much shorter than the upper and both shorter than the floret.  
Arrhenatherum 51
- 3.\* Awn arising from the middle of the lemma or above the middle.
  6. Lemmas 10 mm long or longer. Avena 49
  - 6.\* Lemmas 4-7 mm long.
    7. Lemmas erose, obtuse, greatly exceeding the glumes; spikelets with 4-10 florets. Amphibromus 50
    - 7.\* Lemmas bidentate, acute, slightly exceeding the glumes; spikelets with 2-4 florets. Trisetum 53
- 2.\* Lemmas acuminate or with an awn arising from the tip or just below the apex, or with an awn in the sinus of a bilobed summit.
  8. Spikelets with 2 florets.
    9. One floret only awned, the awn terminal and geniculate with a twisted column. Arundinella 86
    - 9.\* Both florets awned.
      10. Lemmas terminating in a solitary straight awn. Eriachne 47
      - 10.\* Lemmas terminating in a geniculate awn produced between 2 lateral bristles. Pentaschistus 44

8.\* Spikelets with 3 or more florets.

11. Leaves hard, rigid, rolled, with needle-like points.  
Triodia 48

11.\* Leaves flat or rolled, the blades not hard or needle-pointed.

12. Lemma with a central awn arising between 2 terminal teeth, plus  
2 additional awns arising from the upper sides of the lemma.  
Triraphis 31

12.\* Lemma terminally awned or with an awn arising between 2 awned or  
awnless lobes.

13. Inflorescence a narrow panicle of spikelets borne in discrete,  
dense, annular clusters, the panicle axis naked between the  
clusters.  
Elytrophorus 30

13.\* Inflorescence variously branched, the spikelets not crowded  
in discrete, dense clusters.

14. Florets enveloped by long white hairs.

15. Lemmas glabrous, the rachilla hairy.  
Phragmites 25

15.\* Lemmas hairy.

16. Lemmas bilobed with an awn in the sinus.  
Danthonia 43

16.\* Lemmas entire, or split into 2 acuminate points.

17. Leaves crowded at the base of the culms.  
Cortaderia 24

17.\* Leaves borne along the culms.  
Arundo 23

14.\* Florets glabrous or pubescent, but not enveloped by long  
white hairs.

18. Upper florets male or neuter, with awns conspicuously  
longer than the lower bisexual floret(s).  
Ectrosia 35

18.\* Upper florets with awns as long as or shorter than  
those of the lower florets.

19. Spikelets 2-5 mm long. Koeleria 54
- 19.\* Spikelets more than 5 mm long.
20. Glumes very unequal, the lower up to half the length of the upper; annual grasses. Vulpia 3
- 20.\* Glumes subequal; annual or perennial grasses.
21. Glumes nearly equalling or exceeding the florets, or if much shorter than the spikelet then the awn geniculate with a twisted column; lemmas deeply lobed with an awn in the sinus. Danthonia 43
- 21.\* Glumes much shorter than the spikelet; lemmas awned subterminally or from the tip, the apex entire or 2-toothed.
22. Awn more than 5 mm long, or lemmas obtuse or compressed-keeled, or spikelets more than 2 cm long; ovary with a hairy appendage above the insertion of the styles. Bromus 2
- 22.\* Awn up to 5 mm long, lemmas acute or acuminate, rounded on the back in the lower part, spikelets up to 1.8 cm long; ovary without a hairy terminal appendage. Festuca 1

## GROUP XIV

1. Spikelets with only 2 florets.
2. Spikelets 1.5-2 mm long.
3. Panicle 6-12 cm long; lemmas indurated, rounded. Isachne 110
- 3.\* Panicle 1-4 cm long; lemmas soft, truncate. Molineria 56
- 2.\* Spikelets at least 3.5 mm long; leaves usually harsh. Eriachne 47
- 1.\* Spikelets with 3 or more florets.
4. Spikelets borne in dense, one-sided clusters at the ends of naked panicle branches. Dactylis 5
- 4.\* Spikelets not borne in dense, secund clusters.
5. Lemma as wide as it is long, very broadly obtuse; spikelets inflated. Briza 6
- 5.\* Lemma longer than broad; spikelets not inflated.

6. Leaf-blades very hard, rigid, needle-pointed.  
Triodia 48
- 6.\* Leaf-blades soft or rigid, not very hard nor with a needle-like point.
7. Lemmas 1-nerved, thin and membranous, the spikelets with 3-4 florets and paired in a narrow, dense panicle.  
Thellungia 32
- 7.\* Lemmas 3-many-nerved, the spikelets solitary.
8. Panicle almost enveloped by the broad leaf-sheaths and exceeded by the blades; pedicels short and thick.  
Sclerochloa 13
- 8.\* Panicle exserted from the leaves.
9. Lemmas narrowing to a more or less acute apex, awnless, entire (or finely erose at the tip), somewhat laterally compressed and usually keeled, at least towards the summit; if more than 3-nerved then the nerves converging at the summit.
10. Lemmas 1-2.5 mm long, 3-nerved, the upper glume 1-nerved or nerve-less.  
Eragrostis 26
- 10.\* Lemmas 2.5 to more than 10 mm long, 5-many-nerved, the upper glume usually with 3 or more nerves.
11. Lemmas 2.5-6 mm long, the spikelets less than 10 mm long.
12. Plant 150-300 cm high, loosely tufted; ligule 8-20 mm long and striate with delicate nerves.  
Dryopoa 16
- 12.\* Plant up to 150 cm high, rhizomatous or stoloniferous or densely tufted; ligule up to 8 mm long, not striate.  
Poa 7
- 11.\* Lemmas more than 5 mm long, the spikelets 10 mm long or longer.
13. Lemmas compressed-keeled or spikelets more than 2 cm long; ovary with a hairy appendage above the insertion of the styles.  
Bromus 2
- 13.\* Lemmas rounded on the back in the lower part, becoming keeled towards the summit, the spikelets up to 1.8 cm long; ovary without a hairy terminal appendage.  
Festuca 1

- 9.\* Lemmas either prominently truncate or obtuse, frequently the nerves remaining parallel and not converging at the summit, or lemmas emarginate or notched with a mucro in the sinus, usually rounded on the back.
14. Panicle conspicuously secund, the pedicels short and thick.  
Catapodium 112
- 14.\* Panicle not particularly secund, the pedicels slender.
15. Lemmas 3-nerved, the panicle with irregular branching or the spikelets arranged along racemes.
16. Lemmas truncate, or notched and mucronate, the panicle branches racemose.
17. Lemmas truncate, sometimes notched but not mucronate, the spikelets closely and evenly arranged on more or less equal racemes attached to the panicle axis.  
Leptochloa 27
- 17.\* Lemmas notched and mucronate, the spikelets borne on racemose panicle branches.  
Diplachne 28
- 16.\* Lemmas obtuse or subacute; the panicle branches not racemose.  
Eragrostis 26
- 15.\* Lemmas 5-many-nerved; panicle with irregular branching, the spikelets not borne in a distinct racemose pattern.
18. Lemmas emarginate or notched at the apex with a mucro or bristle in the sinus, or glumes exceeding the florets.
19. Lemmas 2-5 mm long.
20. Glumes longer than the individual lemmas or subequalling the spikelet.
21. Lemma hairy on the marginal nerves.  
Schismus 45
- 21.\* Lemmas pubescent over the lower back.  
Danthonia 43
- 20.\* Glumes shorter than or subequal to the individual lemmas, shorter than the spikelet.  
Koeleria 54
- 19.\* Lemmas more than 5 mm long.
22. Lemmas 3-toothed at the apex, the 3 teeth equal or the central one mucronate. Notochloe 11

- 22.\* Lemmas with a short awn produced just below the apex or exceeding the membranous lobes of the split tip.  
Bromus 2
- 18.\* Lemmas truncate or obtuse, without a notch or mucro, if shortly toothed at the apex then the nerves not converging at the summit; florets exceeding the glumes.
23. Spikelets laterally compressed, ovate or broadly oblong to wedge-shaped.  
Poa 7
- 23.\* Spikelets slightly laterally compressed, narrowly oblong to sub-linear.
24. Plants tall, growing in freshwater marshes or damp forested areas; lemmas 3-10 mm long. Glyceria 15
- 24.\* Plants short, growing in saline or alkaline areas; lemmas 2-3 mm long. Puccinellia 14

## KEY TO SPECIES

The genera are grouped  
into Tribes based on  
the classification employed  
by the New South Wales  
National Herbarium.

[Genera placed within other  
tribes by some taxonomists  
are given the alternative  
tribal name in parenthesis.]

## Tribe FESTUCEAE

## 1 Festuca

1. Leaves terete, tightly rolled and often bristle-like (especially the basal leaf-blades).
2. Panicle dense and spike-like, weakly exerted from the topmost sheath. Coast, chiefly sand dunes. Not common. Coast fescue.  
*F. littoralis* Labill.
- 2.\* Panicle open or contracted with spreading branches, strongly exerted from the topmost sheath.
3. Plants with creeping rhizomes, forming a turf or with scattered shoots and culms. Central and north coast, rarely on northern tableland. Not common. Red fescue.  
*\*F. rubra* L. subsp. *rubra*
- 3.\* Plants tufted, without creeping rhizomes.
4. Leaves smooth. Southern tableland. Uncommon. Chewings fescue.  
*\*F. rubra* subsp. *commutata*  
Gaud.
- 4.\* Leaves very scabrous.
5. Lemma with tuft of hairs on the callus, narrowly truncate and bifid at the tip with a 1 mm awn between the lobes. Tablelands. Not common. *F. eriopoda* J. Vickery
- 5.\* Lemma with a glabrous callus, acuminate at the tip with the apex produced into an awn 1-4 mm long. Northern and southern tableland. Uncommon. Graceful fescue.  
*F. asperula* J. Vickery
- 1.\* Leaves broad, flat or loosely rolled, or folded with broad flat sides.
6. Callus of each lemma bearing a tuft of hairs. Southern tableland. Uncommon. Hooker's fescue. *F. hookeriana* F. Muell. in Hook.f.
- 6.\* Callus of each lemma more or less glabrous.

7. Culms and foliage very scabrous. Southern tableland and Barrington Tops. Uncommon. *F.muelleri* J. Vickery
- 7.\* Culms smooth, sometimes scabrous below the panicle, the foliage smooth or scabrous.
8. Auricles glabrous; the shorter of each pair of panicle branches bearing 1 or 2 spikelets. Coast and tablelands. Not common. Meadow fescue. *\*F.oratensis* Huds.
- 8.\* Auricles minutely hairy; the shorter of each pair of panicle branches bearing 3 or more spikelets. Coast, tablelands and western slopes. Common. Tall fescue. *\*F.arundinacea* Schreb.
2. *Bromus* [Bromeae]
1. Awns 4-6 cm long. Coast, tablelands and western slopes. Common. Great Brome. *\*B.diandrus* Roth
- 1.\* Awns up to 3 cm long.
2. Lemmas compressed, keeled on the back.
3. Spikelets bright green and shiny before fruiting, usually borne on flexuous branches. Widespread. Common. Prairie grass. *\*B.unioides* H.B.K.
- 3.\* Spikelets glaucous green, dull, erect and appressed to one another in a compact panicle with more or less rigid branches. Coast, tablelands and western slopes. Not common. *\*B.brevis* Steud.
- 2.\* Lemmas rounded on the back, the spikelets not compressed.
4. Lower glume narrow, usually 1-nerved, the upper glume 1-3-nerved.
5. Lemmas awnless or with an awn 1-3 mm long; leaves glabrous. Coast, tablelands and western slopes. Not common. Awnless brome. *\*B.inermis* Leyss.
- 5.\* Awns more than half the length of the lemma; leaves usually hairy.
6. Panicle open and loose, spreading with weeping branches, each branch bearing 1, rarely 2 or 3, spikelet(s).

7. Awns curving away from the spikelet. Western slopes and plains.  
Not common. Sand brome. *B.arenarius* Labill.
- 7.\* Awns straight. Central coast and tablelands. Uncommon. Sterile  
brome. *\*B.sterilis* L.
- 6.\* Panicle contracted with short branches and dense with spikelets, or  
if open and spreading then the longer panicle branches bearing up  
to 8 spikelets.
8. Panicle very dense with the spikelets stiffly erect on short  
branches; culms usually densely pubescent beneath the panicles;  
teeth on the lemmas 2-4 mm long. Widespread, chiefly western  
slopes and plains, rarely on northern tableland. Not common.  
Red brome. *\*B.rubens* L.
- 8.\* Panicles moderately dense, the lower spikelets spreading; culms  
smooth or lightly pubescent below panicles; teeth on the lemmas  
1-2 mm long.
9. Panicles drooping to one side with the longer branches bearing  
up to 8 spikelets; the spikelets 2.5-3.5 cm long, including  
awns. Chiefly southern tableland. Uncommon. Drooping brome.  
*\*B.tectorum* L.
- 9.\* Panicles erect or slightly inclined, with the longer branches  
bearing 1 or 2 spikelets; the spikelets 3.5-6 cm long,  
including awns. Chiefly coastal districts, rarely on northern  
tableland. Uncommon. Compact brome.  
*\*B.madritensis* L.
- 4.\* Lower glume 3-7-nerved, the upper 5-9-nerved.
10. Awns recurved at maturity, almost at right angles to the lemmas.  
North coast and northern tableland. Uncommon.  
*\*B.macrostachys* Desf.
- 10.\* Awns more or less straight.
11. Lower sheaths hairy; lemmas overlapping.
12. Lemmas usually hairy, thin, with prominent nerves; panicle  
contracted and dense after flowering.
13. Spikelets turgid, the lemmas 8-11 mm long and 4.5-5.5  
mm wide. Coast and tablelands to western slopes. Common.  
Soft brome. *\*B.mollis* L.

13.\* Spikelets compressed with narrow lemmas 7-8 mm long. Coast and tablelands to western slopes. Common. Soft brome.

\**B.molliformis* Lloyd

12.\* Lemmas glabrous, thick and tough, the nerves not prominent; panicle more or less open. Northern tableland and south coast. Uncommon. Smooth brome.

\**B.racemosus* L.

11.\* Lower sheaths glabrous or weakly hairy; margins of the lemmas becoming incurved. Tablelands. Uncommon. Rye brome.

\**B.secalinus* L.

### 3. *Vulpia*

1. Lemmas hairy on the margins near the apex. Widespread. Common. Foxtail fescue.

\**V.megalura* (Nutt.) Rydb.

1.\* Lemmas without hairs near the apex.

2. Upper glume 3 to 4 times as long as the lower glume (in lateral spikelets of the branches only). Widespread. Common. Rat's-tail fescue.

\**V.myuros* (L.) Gmel.

2.\* Upper glume twice as long as the lower glume (in lateral spikelets of the branches only). Widespread. Common. Squirrel-tail fescue.

\**V.bromoides* (L.) S.F. Gray

### 4. *Lolium*

1. Glume much shorter than the spikelet, about half its length.

2. Lemmas awned. Coast and tablelands to western slopes. Common. Italian rye grass.

\**L.multiflorum* Lam.

2.\* Lemmas awnless. Widespread. Common. Perennial rye grass.

\**L.perenne* L.

1.\* Glume more than half the length of the spikelet, often subequal to it.

3. Lemmas very turgid at maturity; all lemmas awned with awns up to 2 cm long. Widespread. Common. Darnel.

\**L.temulentum* L.

3.\* Lemmas not turgid, awned or awnless.

4. Spike axis thin and slender. Widespread. Common. Wimmera rye grass. \**L.rigidum* Gaud.
- 4.\* Spike axis thick and robust. Coast and southern half of N.S.W. Not common. Rigid rye grass. \**L.loliaceum* (Bory et Chaub.) Hand-Maz.

## 5. *Dactylis*

Widespread. Common in eastern half of State, especially on the tablelands. Cocksfoot. \**D.glomerata* L.

## 6. *Briza*

1. Lemmas broadly obtuse, the margins curving evenly to the summit.
2. Spikelets 3-5 mm long; panicle with many spikelets. Coast and tablelands to western slopes. Common. Shivery grass, Small quaking-grass. \**B.minor* L.
- 2.\* Spikelets 15-25 mm long; panicle with 1-12 spikelets. Coast and tablelands to western slopes. Not common. Large quaking-grass. \**B.maxima* L.
- 1.\* Lemmas with a point at the summit with two pointed lobes or blunt shoulders on either side of the apex. Coast and tablelands. Rare. \**B.triloba* Nees in Mart.

## 7. *Poa*

1. Plants with bulbous bases due to the enlarged and fleshy inner basal leaf-sheaths. Chiefly tablelands and western slopes. Not common. Bulbous blue grass. \**P.bulbosa* L.
- 1.\* Plants not bulbous at the base.
2. Annuals with soft leaves; ligule thinly membranous.
3. Panicle narrow with the spikelets erect and appressed to the branches; lemmas usually 9-11-nerved. Western and far western plains, infrequently on north-west slopes. Not common. Scaly Poa. \**P.fax* Willis et Court

- 3.\* Panicle triangular to ovate with more or less stiffly spreading capillary branches; lemmas 5-nerved. Widespread. Common in some areas. Winter grass. \**P.annua* L.
- 2.\* Perennials; ligule various.
4. Panicle linear with short erect branches and few turgid spikelets; lemma very broadly ovate, palea densely ciliate on the keels, the cilia on each keel in more than one row. Southern tableland (alpine). Not common. *P.saxicola* R.Br.
- 4.\* Panicle pyramidal and spreading at maturity, or if contracted then with numerous spikelets; floret not very broad, palea not densely ciliate on the keels.
5. All internodes of the culm strongly compressed and 2-sided; blades bolded. Tablelands and central coast. Not common. Canada blue grass. \**P.compressa* L.
- 5.\* Internodes of culm terete or slightly compressed, if strongly compressed then blades flat.
6. Blades smooth or scabrous on lower or outer surface, any pubescence confined to upper surface.
7. Blades (at least some of them) folded and 2-sided or flat, the margins sometimes inrolled on drying, broad or narrow.
8. Blades 4-15 mm wide, flat; culms 5-9-noded and 50-150 cm high. Rainforest margins on the coast, extending to the eastern edge of the tablelands. Not common. *P.queenslandica* C.E. Hubbard
- 8.\* Blades up to 8 mm wide; plants usually shorter.
9. Ligule usually 2 mm long or more, thinly membranous.
10. Ligule acute to acuminate, 4-10 mm long. Central coast, southern tableland and south-west slopes. Rare. Rough meadow grass. \**P.trivialis* L.
- 10.\* Ligule obtuse or truncate, up to 5 mm long; plants with creeping scaly rhizomes.
11. Spikelets 8-10 mm long, lemma woolly-hairy all over the lower part of the back. Western to far western plains, also on the north-west slopes. Relatively common. *P.fordeana* F. Muell.

- 11.\* Spikelets 2.5-6 mm long, lemma hairy on the keel and marginal nerves but not on the internerves. Coast and tablelands to western slopes. Common in some places. Kentucky blue grass.  
\**P.pratensis* L.
- 9.\* Ligule 0.1-2 mm, firmly membranous, usually more or less puberulous or scabrous on the back and/or ciliolate at the apex, or reduced to cilia.
12. Lemma usually pubescent on the internerves on the lower back as well as the keel and marginal nerves; culms leafy and branching from the nodes, or stoloniferous, or lower leaf-sheaths purplish.
13. Culms often leafy and branching from the aerial nodes or stoloniferous; lower sheaths not purplish.
14. Blades firm, 1-5 mm wide when expanded, the plants comparatively robust and erect; panicle 5-18 cm long with many spikelets. Central coast and central western slopes. Common on the coast. *P.affinis* R.Br.
- 14.\* Blades soft and more or less filiform, 1-1.5 mm wide when expanded, the plants flaccid and often with trailing stolons; panicle 2-12 cm long with few spikelets on delicate, capillary branches. Chiefly central tableland and central western slopes. Uncommon. *P.tenera* F. Muell.ex Hook.f.
- 13.\* Culms with leaves and shoots produced mostly from the base, the plant rhizomatous; lower leaf-sheaths purplish. Southern tableland. Not common. Cabramurra grass.  
*P.ensiformis* J. Vickery
- 12.\* Lemmas more or less hairy on the keels and lateral nerves but not glabrous on the internerves; plants caespitose or rhizomatous, the lower sheaths rarely somewhat purplish.
15. Plants developing rhizomes which initiate new shoots more or less remote from the parent tussock.
16. Blades herbaceous, not rigid, the rhizomes slender with thin pointed scales. See above.  
\**P.pratensis*
- 16.\* Blades relatively rigid, the rhizomes short and robust, with firm obtuse scales. Central coast to the tablelands. Not common. *P.cheelii* J. Vickery
- 15.\* Plants caespitose and not normally developing rhizomes.

17. Panicle usually contracted and linear, if the branches widely spreading then some branches short and bearing spikelets almost to their bases; blades usually smooth on the lower surface. Central and south coast. Not common. Coast tussock grass.  
*P. poiformis* (Labill.) Druce

17.\* Panicle at length widely spreading and the branches devoid of spikelets in the lower part; blades generally scabrous.

18. Blades 1-3.5 mm wide, dull green, greyish or glaucous-green; peduncle usually more or less terete below the panicle. Coast, tablelands and western slopes. Common. Tussock grass.  
*P. labillardieri* Steud.

18.\* Blades 3-8 mm wide, usually light green in vivo; peduncle usually compressed below the panicle. Southern tableland. Common in damp areas. Broad-leaved snow grass.  
*P. helmsii* J. Vickery

7.\* Blades closely folded and/or rolled, more or less cylindrical, narrow.

19. Blades smooth on the outer (lower) surface except sometimes at the base, more or less rigid.

20. Lemmas hairy on the keels and lateral nerves, rarely with a few loose hairs on the internerves, or glabrous; lower sheaths mostly pale.

21. Panicle usually contracted, or if the branches spreading then some of them short and with spikelets borne almost to their bases; blades more or less convolute. See above.  
*P. poiformis*

21.\* Panicle at length spreading, the branches devoid of spikelets in the lower part; blades mostly folded. Northern and southern tablelands. Common in moist situations.  
*P. costiniana* J. Vickery

20.\* Lemmas usually pubescent all over the lower part of the back; lower sheaths often purplish. Southern tableland (alpine). Not common. Smooth-blue snow grass.  
*P. fawcettiae* J. Vickery

19.\* Blades not rigid and smooth or scabrous, or if rigid then scabrous.

22. Blades rigid and scabrous, the lower sheaths usually purplish. Southern tableland. Not common.  
*P. phillipsiana* J. Vickery

22.\* Blades not rigid, the lower sheaths rarely purplish.

23. Culms branching at the aerial nodes, or stoloniferous and trailing.
24. Tussocks soft and flaccid, the aerial shoots mostly extravaginal; leaves green. See above.  
P.tenera
- 24.\* Tussocks not flaccid, the aerial shoots mostly intravaginal; leaves often bluish. Central and southern tablelands. Not common.  
P.sieberana var. cyanophylla  
J. Vickery
- 23.\* Culms very rarely branching at the aerial nodes, tussocks not stoloniferous.
25. Lemma hairy in the lower part on the keels and lateral nerves, but not on the internerves, or almost glabrous; palea scabrous on the upper part of the keels, not ciliolate on the lower part.
26. Tussocks generally large and coarse. See above.  
P.labillardieri Steud.
- 26.\* Tussocks small and fine-leaved.
27. Glumes narrow, the lemmas 2-3.5 mm long, obtuse. Coast to eastern slopes of tablelands in southern part of State. Not common. P.exilis J. Vickery
- 27.\* Glumes broad, the lemmas 3-4.5 mm long, acute to subacute. Chiefly southern tablelands also on Barrington Tops. Not common.  
P.clivicola J. Vickery
- 25.\* Lemmas hairy on the internerves on the lower back; with or without more conspicuous hairs on the keels and lateral nerves; palea scabrous on the upper part and ciliolate on the lower part of the keels.
28. Blades smooth to touch.
29. Blades soft, usually bright green in vivo. Southern tableland (subalpine). Not common. Soft snow grass.  
P.hiemata J. Vickery
- 29.\* Blades somewhat rigid, usually bluish. See above.  
P.fawcettiae

28.\* Blades more or less scabrous.

30. Leaves green to greyish-green, rarely glaucous-green. Chiefly tablelands, also coast and western slopes. Very common. Fine-leaved tussock grass, Snow grass.

*P.sieberana* Spreng. var.  
*sieberana*

30.\* Leaves often bluish, very fine. See above.

*P. sieberana* var. *cyanophylla*

6.\* Blades pubescent or hirsute on the lower (outer) surface.

31. Blades sparsely to densely hirsute with rather stiff hairs. Tablelands, western slopes and plains. Not common. Tussock grass.

*P.sieberana* var. *hirtella*  
J. Vickery

31.\* Blades densely pubescent with velvety long or short hairs.

32. Blades hairy with hairs in two lengths, or else distinctly scabrous between the hairs. Central and southern tablelands. Not common.

*P.induta* J. Vickery

32.\* Blades densely pubescent with short soft hairs more or less equal in length. Southern tableland. Uncommon.

*P.petrophila* J. Vickery

## 8. *Distichlis*

Solitary New South Wales record from Lake Cargelligo probably erroneous.

*D.maritima* Rafin.

## 9. *Lamarckia*

Widespread. Not common. Golden top.

\**L.aurea* (L.) Moench

## 10. *Cynosurus*

1. Panicle 10-20 mm wide, bristly, the awns conspicuous; lemmas 5-7 mm long. Coast and tableland to western slopes. Uncommon. Rough dog's-tail.

\**C.echinatus* L.

1.\* Panicle up to 10 mm wide, the awns inconspicuous; lemmas 3-4 mm long. Coast and tableland to western slopes. Uncommon. Crested dog's-tail.

\**C.cristatus* L.

## 11 Notochloe

Central tableland. Rare

*N.microdon* Domin

## 12 Catapodium

Chiefly coast and tableland to western slopes. Not common. Rigid fescue.

*\*C.rigidum* (L.) C.E. Hubbard

## 13 Sclerochloa

Southern tableland. Rare

*\*S.dura* (L.) Beauv.

## 14 Puccinellia

Southern tableland. Rare. Marsh grass. *P.stricta* (Hook.f.) Blom

## 15 Glyceria [Glycerieae]

1. Lower glume 3-5-nerved, 7-8 mm long. Not common. Northern tableland. *G.latispica* (F. Muell.) Benth.

1.\* Lower glume 1-nerved, 1.5-5.5 mm long.

2. Lemmas 7-10 mm long. Tablelands and western slopes, also on south coast. Not common. *G.australis* C.E. Hubbard

2.\* Lemmas 3-5 mm long.

3. Spikelets 13-25 mm long, the lemmas toothed at the tip. South coast, south-west slopes and western plains. Uncommon. *\*G.declinata* Bréb.3.\* Spikelets 5-12 mm long, the lemmas entire. Tablelands, south west slopes and plains. Uncommon. Water meadow grass. *\*G.maxima* (Hartm.) Holmb.

## 16 Dryopoa

South coast and southern tableland. Uncommon. Giant mountain grass *D.dives* (F. Muell.) J. Vickery

## Tribe HORDEAE

17 *Hordeum*

1. Leaves with prominent auricles.
  2. Inflorescence axis breaking up below each node at maturity; lateral spikelets of each trio pedicellate. Widespread weed. Common. Barley grass. \**H.leporinum* Link
  - 2.\* Inflorescence axis not breaking up at maturity. Cereal crop in wheat belt. Barley. \**H.vulgare* L.
- 1.\* Leaves without auricles.
  3. Lateral spikelets with both glumes similar, bristle-like. Southern part of State. Not common. \**H.hystrix* Roth
  - 3.\* Lateral spikelets with glumes dissimilar, one bristle-like and the other broadly winged at the base. Southern tableland, southern part of western plains. Uncommon. Sea barley. \**H.marinum* Huds.

18 *Secale*

Cereal crop. Rye. \**S.cereale* L.

19 *Triticum*

Cereal crop. Wheat. \**T.aestivum* L.

20 *Agropyron*

1. Lemmas up to 1 cm long with awns up to 5 mm long.
2. Blades pubescent on the lower surface.
3. Glumes sharply reflexed outwards and downwards at maturity. Southern tableland. Uncommon. \**A.retrofractum* J.Vickery
- 3.\* Glumes not reflexed at maturity, remaining erect and adjacent to the lemmas. Southern tableland. Rare. \**A.velutinum* Nees

- 2.\* Blades smooth or scabrous but without a hairy pubescence on the lower surface. Chiefly tablelands and coast. Uncommon.  
English couch grass. \**A.repens* (L.) Beauv.
- 1.\* Lemmas, excluding awns, up to 2 cm long, the awns up to 4 cm long.
4. Glumes acute or acuminate, 6-15 mm long with 3-4 (rarely 5) nerves. Widespread. Common. Common wheat grass.  
*A.scabrum* (R.Br.) Beauv.
- 4.\* Glumes obtuse to acute, 10-15 mm long with 6-8 nerves. Northern tableland and north-west slopes, rarely on central western slopes. Not common. *A.scabrum* var. *plurinerve* J.Vickery

## 21 *Brachypodium* [Brachypodieae]

- Central coast and south-west slopes. Rare.  
\**B.distachyon* (L.) Beauv.

## Tribe PAPPOPHOREAE

## 22 *Enneapogon*

1. Lemma smooth on the back, evenly thickened, the nerves not prominent apart from thickenings below the origin of the awns resembling the knuckles on the back of a fist.
2. Glumes 13-21-nerved, the upper 8-9 mm long; awns 6-12 mm long. Western and far western plains. Common. Bottle-washers.  
*E.avenaceus* (Lindl.)  
C.E.Hubbard
- 2.\* Glumes 5-13-nerved, the upper 5-7 mm long; awns 4-7 mm long.
3. Leaves erect, short (blades 4-8 cm) and mostly basal, the sheaths almost glabrous. Western slopes and plains, rarely on the tablelands. Not common.  
*E.gracilis* (R.Br.) Beauv.
- 3.\* Leaves erect or spreading, longer (blades 7-18 cm), not mostly basal, the lower sheaths conspicuously pubescent.

4. Glumes 4 and 5 mm long; fertile lemma 1.5 mm long with awns 4-6 mm long. Western and far western plains. Not common. *E.intermedius* N.T.Burbidge
- 4.\* Glumes 5-7 mm long; fertile lemma 2-3 mm long with awns 6-7 mm long. Chiefly western and far western plains, also on north-west slopes. Not common. *E.polyphyllus* (Domin) N.T.Burbidge
- 1.\* Lemma more or less ribbed, thickened along the nerves which are prominent the whole of its length.
5. Culms readily disarticulating at the nodes; main inflorescence linear, axillary inflorescences present in uppermost leaf-sheaths. Far western plains. Uncommon. *E.cylindricus* N.T.Burbidge
- 5.\* Culms not disarticulating at the nodes; inflorescence ovate, elliptical or lanceolate.
6. Glumes 4 and 5 mm long, the lower acute or acuminate.
7. Lemma deeply ribbed, dorsally straight, bearing a tuft of hairs on the callus but otherwise glabrous. Western slopes and plains. *E.flavescens* (Lindl.) N.T.Burbidge
- 7.\* Lemma not very deeply ribbed, dorsally convex, hairy in the lower half. Tablelands, western slopes and plains. Not common. Nigger-heads. *E.nigricans* (R.Br.) Beauv.
- 6.\* Glumes 1.5 - 3 mm long, the lower obtuse or ragged at the apex.
8. Panicle 3-8 cm long, 1.5 - 4 cm wide. North-west slopes and plains. Uncommon. *E.pallidus* (R.Br.) Beauv.
- 8.\* Panicle 1-2 cm long, 7-10 mm wide. North-west slopes to far western plains. Rare. *E.pallidus* var. *breviseta* N.T.Burbidge

## Tribe ARUNDINEAE

## 23 Arundo

North and central coast. Uncommon. Giant Reed.  
\*A.donax L.

## 24 Cortaderia

Chiefly townships on coast and tablelands. Rare. Pampas grass.

\**C.selloana* (Schult.) Aschers.  
et Graebn.

## 25 Phragmites

Coast, tablelands, western slopes and plains. Common near water.  
Common reed.

*P.australis* (Cav.) Trin.  
ex Steud.

## Tribe ERAGROSTEAE

## 26 Eragrostis

1. Glands present in a ring below the nodes of the culms or  
panicle axis, or on the margins of the blades.

2. Spikelets 2-4 mm wide, lemmas usually more than 2 mm long.  
Widespread. Common. Stink grass.

\**E.cilianensis* (All.) Lutati

2.\* Spikelets 1-2 mm wide, if about 2 mm wide then lemmas 2 mm  
long or less.

3. Grain subglobular, scarcely longer than broad, about 0.5 mm  
long. Western Plains. Rare. Smaller stink grass.

\**E.poaeoides* Beauv.

3.\* Grain oblong or elliptic-oblong, much longer than broad,  
0.5-1 mm long.

4. Spikelets 1-1.3 mm wide, 3-6 mm long. Western slopes and  
plains. Uncommon. Soft love grass.

\**E.pilosa* (L.) Beauv.

4.\* Spikelets 1.5-2 mm wide, 5-15 mm long. Western and far  
western plains. Uncommon. \**E.barrelieri* Daveau

1.\* Glands not present on culms, panicle axis or blades.

5. Spikelets terete, very narrow, more than 4 mm long.

6. Lateral nerves of the lemmas closer to the margin than to the  
midvein, lemmas acute. North-west slopes, western and far  
western plains. Not common. Purple love grass.

*E.lacunaria* F. Muell.

- 6.\* Lateral nerves of the lemmas midway between the margin and the midvein, lemmas obtuse or emarginate.
7. Plant more or less scabrous, culms and leaves not particularly slender. Western and far western plains. Not common. Mallee love grass. *E.dielsii* Pilger in Diels et Pritzel
- 7.\* Plant smooth, culms and leaves very slender. Western plains. Uncommon. *E.bergracilis* S.T.Blake
- 5.\* Spikelets distinctly flattened (laterally compressed), with or without a longitudinal furrow.
8. Spikelets 1 mm long or less with 3 florets, the glumes slightly exceeding the lower florets. Western and far western plains. Not common. *E.kennedyae* F.Turner
- 8.\* Spikelets more than 1 mm long, the glumes not exceeding the lower florets.
9. Lateral nerves of lemma subequal to the midvein, all three fading half-way along the lemma; glumes long and membranous. Western slopes, western and far western plains. Not common. Cane grass. *E.australasica* (Steud.) C.E.Hubbard
- 9.\* Lateral nerves of the lemma shorter than the midvein, which persists for at least  $\frac{3}{4}$  the length of the lemma.
10. Spikelets with 3-5 florets, the pedicels 2-6 times the length of the spikelets. Central coast, tablelands. Common on northern tableland. *E.trachycarpa* (Benth.)Domin
- 10.\* Spikelets with more than 5 florets or relatively shorter pedicels.
11. Keels of the paleas bearing long rigid cilia, appearing pectinate under a hand lens or with the naked eye. Far western plains. Not common. *E.basedowii* Jedw.
- 11.\* Keels of the paleas smooth, scabrous or minutely ciliate.
12. Branches of the panicle pubescent on upper surface for several mm from their axils. North coast. Not common. *E.pubescens* (R.Br.) Steud.

- 12.\* Branches of the panicle glabrous or bearing cilia in their axils, not pubescent near their bases.
13. Panicle open, with spreading branches, spikelets usually pedicellate with pedicels of lateral spikelets at least 2 mm long.
14. Panicle branches and pedicels ciliate in their axils. North coast. Rare. \**E.tenuifolia* Hochst.ex Steud.
- 14.\* Panicle branches glabrous or ciliate in their axils, the axils of pedicels always glabrous.
15. Inflorescence branches mostly alternate, the spikelets strongly flattened.
16. Spikelets leaden-green or grey-green in colour with yellow, conspicuous lateral nerves, the grain very truncate with square shoulders and scarcely longer than broad.
17. Lemmas over 2 mm long (2.25-2.75 mm), frequently gaping, the upper glume 1.75-2 mm long. Northern and central tableland, north- and central western slopes. Relatively common.  
*E.molybdea* J. Vickery
- 17.\* Lemmas less than 2 mm long (1.5-1.75 mm), not gaping at the summit, the upper glume up to 1.5 mm long. Coast and tablelands, north-west slopes. Common. Paddock love grass. *E.leptostachya* Steud.
- 16.\* Spikelets tinged with purple, often the lemmas with purple tips and margins, the grain very obtuse and rounded at the summit, without square shoulders.
18. Spikelets about 1 mm wide.
19. Lateral spikelets with pedicels 2-4 mm long; annual. See above.  
\**E.pilosa*
- 19.\* Lateral spikelets sessile or very shortly pedicellate; perennial. Western plains. Not common. *E.microcarpa* J. Vickery
- 18.\* Spikelets 1.5-2.5 mm wide; perennials.

20. Panicle 10-15 cm long, the branches not weeping; spikelets usually sessile, 2-2.5 mm broad. Coast, tablelands, western slopes and plains. Common. Brown's love grass.  
*E. brownii* Nees ex Steud.
- 20.\* Panicle 10-40 cm long, the branches often weeping; spikelets 1.5-2 mm broad, shortly pedicellate with pedicels 1-5 mm long. Coast, tablelands and western slopes. Not common.  
*E. philippica* Jedw.
- 15.\* Inflorescence branches, or some of them, opposite or whorled, the spikelets subterete to strongly flattened.
21. Spikelets 1-1.5 mm wide (rarely to 2 mm wide in *E. curvula*); annuals or perennials.
22. Spikelets subterete, about 1 mm wide, purplish; grain semi-circular in outline, truncated at the base, with a deep groove on the curved margin. See above.  
*E. lacunaria*
- 22.\* Spikelets flattened; grain elliptic-oblong to subglobose and without a deep groove on one side.
23. Grain sub-globular, scarcely longer than wide.
24. Pedicels less than 2 mm long, the spikelets with 10-12 florets and the panicle 15-20 cm long and almost as wide. See above. *E. microcarpa*
- 24.\* Pedicels more than 2 mm long for some spikelets, the spikelets with 10-20 florets and the panicle 20-30 cm long with somewhat drooping branches. Northern and central coast and tablelands, western slopes and plains. Not common. Weeping love grass.  
*E. parviflora* (R.Br.) Trin.
- 23.\* Grain twice as long as broad.
25. Densely tufted perennial; lemmas 2-2.5 mm long. Coast, tablelands, central western slopes and western plains. African love grass. \**E. curvula* (Schrad.) Nees
- 25.\* Annual grasses; lemmas 1-1.5 mm long.
26. Lateral pedicels equalling some of the spikelets, the lemmas tinged with purple on the tips and margins. See above. \**E. pilosa*

- 26.\* Lateral pedicels shorter than the spikelets, the lemmas pale grey-green, not tinged with purple. Western and far western plains. Not common. *E.leptocarpa* Benth.
- 21.\* Spikelets 2-3 mm wide; annuals with flat blades 5-10 mm wide.
27. Culms less than 40 cm high. Central coast, rarely on central tableland and north coast. Not common. Mexican love grass. *\*E.mexicana* (Hornem.) Link
- 27.\* Culms 40-100 cm high. South coast, central and southern tableland, central and south-west slopes. Not common. *\*E.neomexicana* Vasey
- 13.\* Panicle narrow, with short, rigid, reduced branches or the branches very erect, or the culms with bulbous bases.
28. Spikelets very broad, the lemmas 4-5 mm long and spreading at maturity. Far western plains. Not common. *E.concinna* (R.Br.) Steud.
- 28.\* Spikelets up to 3 mm broad, the lemmas up to 3 mm long.
29. Spikelets 3-8 mm long in dense sessile clusters along the axis of an interrupted spike-like panicle. Coast, northern tableland, western slopes and plains. Common. Clustered love grass. *E.elongata* Jacq.
- 29.\* Spikelets scattered on short panicle branches, or if clustered in a spike-like panicle then the clusters pedunculate or the spikelets more than 8 mm long.
30. Culms with bulbous bases which are usually woolly or slightly woolly.
31. Lemmas woolly at their bases. North-west slopes, western and far western plains. Not common. Woollybutt grass. *E.laniflora* Benth.
- 31.\* Lemmas glabrous.
32. Spikelets with 7-9 florets, 4 mm long by 1 mm wide. Western and far western plains. Not common. *E.desertorum* Domin
- 32.\* Spikelets with more than 10 florets, longer and broader.

33. Spikelets curving from the branches at maturity; lemmas soft with hyaline margins, the lateral nerve midway between the margin and midvein. Western and far western plains. Common in places. Neverfail. *E.setifolia* Nees
- 33.\* Spikelets more or less straight or slightly curving; lemmas firm, without a broad hyaline margin, the lateral nerve clearly closer to the margin than to the midvein. Western and far western plains. Common in places. Woollybutt grass. *E.eriopoda* Benth.
- 30.\* Culms without bulbous bases.
34. Palea half the length of the lemma. Western and far western plains. Uncommon. *E.speciosa* (Roem. et Schultz.) Steud.
- 34.\* Palea  $\frac{3}{4}$  the length to subequal to the lemma.
35. Spikelets about 1 mm wide. North-west slopes and western plains. Uncommon. *E.megalosperma* F. Muell. ex Benth.
- 35.\* Spikelets 1.5-3 mm wide.
36. Upper glume 2.5-3 mm long, spikelets in sessile clusters, convex or flat on each side without a median longitudinal depression. North coast. Not common. *E.interrupta* (R.Br.) Beauv.
- 36.\* Upper glume 1.5-2 mm long, spikelets borne on short branches and with a median longitudinal depression down each side.
37. Lemmas 1.5-2 mm long, the paleas oblong-obovate with the 2 keels narrowing and almost meeting at the apex. See above. *E.brownii*
- 37.\* Lemmas about 2.5 mm long, the paleas almost rotund and with a broad membranous connection at the apex between the 2 keels. Central tableland, north-west slopes. Uncommon. *E.sororia* Domin

27 *Leptochloa*

1. Racemes subdigitate. Northern tableland (Inverell), north-west slopes, western and far western plains. Relatively common. Umbrella cane grass. *L.digitata* (R.Br.) Domin

- 1.\* Racemes scattered racemosely along the panicle axis.
2. Spikelets 2.5-3.5 mm long.
3. Margins of lemmas and paleas densely ciliate (visible under a handlens); spikelets purplish. North coast (no recent records), western plains. *L.peacocki* (Maiden and Betche) Domin
- 3.\* Margins of lemmas and paleas glabrous or very shortly and inconspicuously ciliate; spikelets leaden green. Northern and central coast, northern tableland, north- and central western slopes, western plains. Uncommon. Slender Cane grass. *L.decipiens* (R.Br.) Stapf ex Maiden
- 2.\* Spikelets 5-10 mm long. Widely cultivated at experimental farms; possibly naturalised. \**L.dubia* (H.B.K.) Nees

28 *Diplachne*

1. Lower lemmas 2-3 mm long, usually glabrous on the back, rarely with an obscure line of hairs on the midnerve. Western and far western plains. Rare. *D.parviflora* (R.Br.) Benth.
- 1.\* Lower lemmas more than 3 mm long, strongly hairy along the midnerve in the lower part.
2. Lemmas 3.5-5 mm long, convex on the back with the palea concave, the spikelets sub-terete to laterally compressed. Central coast, western slopes (including Inverell), western and far western plains. Common. Brown beetle grass. *D.fusca* (L.) Beauv.
- 2.\* Lemmas 4.5-6 mm. long, the lemmas and paleas almost flat, the florets broad and the spikelets sub-terete to dorsiventrally compressed. Western and far western plains, also on central western slopes. Not common. *D.muelleri* Benth.

29 *Tripogon*

Northern and central tablelands, western slopes and plains to far western plains. Common. Five-minute grass.

*T.loliiformis* (F.Muell.)  
C.E.Hubbard

## 30 Elytrophorus

Western and far western plains. Rare. *E.spicatus* (Willd.) A.Camus

## 31 Triraphis

North-west slopes, western and far western plains. Common in the west. Needle grass, Purple plume grass.

*T.mollis* R.Br.

## 32 Thellungia

North-western slopes and western plains. Common in places.

*T.advena* Stapf

## 33 Eleusine

1. Spikes usually 2-3 in number, 1-2.5 cm long and 8-10 mm wide, the spikelets densely pectinate along the rachis in 2 parallel rows. Coast, tablelands and western slopes. Common in places. Crab grass. *\*E.tristachya* (Lam.) Lam.

1.\* Spikes 2-10 in number, 3-12 cm long and about 5 mm wide, the spikelets appressed to the rachis with both rows overlapping. Coast, northern tableland and central western slope. Not common. Crowsfoot grass. *\*E.indica* (L.) Gaertn.

## 34 Dactyloctenium

1. Racemes 2-4 cm long, 2-5 in number, radiating freely so that only the lowest spikelets of adjacent racemes are touching. North coast. Rare. *\*D.australe* Steud.

1.\* Racemes 0.5-1.5 cm long, usually more than 5 in number, densely crowded so that most spikelets in adjacent racemes are touching. Northern and central western slopes, western and far western plains. Common. Button grass. *D.radulans* (R.Br.) Beauv.

## 35 Ectrosia

Occurrence uncertain.

*E.leporina* R.Br.

## Tribe SPOROBOLAE

## 36 Sporobolus

1. Lowest node of panicle with branches whorled.
2. Spikelets distant, the pedicels and branches spreading. Western slopes and plains to far west. Common. Fairy grass.  
*S.caroli* Mez
- 2.\* Spikelets crowded in false spikes, with the pedicels and branchlets appressed.
3. Upper glume almost equalling the spikelet; each main branch of the panicle with several false spikes. Western Plains. Uncommon.  
*S. contiguus* S.T. Blake
- 3.\* Upper glume  $\frac{3}{4}$  the length of the spikelet; each main branch of the panicle with only 1 false spike. Western and far western plains. Uncommon. Katoora.  
*S.actinocladus* (F.Muell.)  
F. Muell.
- 1.\* Lowest node of panicle with only 1 or 2 branches.
4. Upper glume equal to the floret.
5. Creeping, somewhat hairy perennial with stolons or rhizomes, the sheaths usually exceeding the internodes of non-flowering culms, the internodes being unequal and the blades approximated in pairs. Coastal margins, including littoral zone. Common. Sand couch. *S.virginicus* (L.) Kunth
- 5.\* Caespitose, glabrous perennial often with geniculate culms, the sheaths usually shorter than the internodes, which are subequal, the blades alternate and distant. Chiefly western plains, also to the far west and on the western slopes. Common. Rat's-tail couch. *S.mitchellii* (Trin.)C.E.Hubbard  
ex S.T. Blake
- 4.\* Upper glume  $\frac{1}{4}$  to  $\frac{3}{4}$  the length of the floret.
6. Spikelets 2-2.5 mm long; panicle very dense, usually interrupted only in the lowest third, the remainder of the axis concealed by spikelets, the longest panicle branches 1.5-2.5 cm long. Chiefly coastal districts, rarely on the tablelands or western slopes. Common. Parramatta grass.  
*\*S.africanus* (Poir.)Robyns et  
Tourn.

- 6.\* Spikelets 1.5-2 mm long; panicle interrupted for most of its length or the panicle branches more than 3 cm long and spreading at anthesis.
7. Upper glume very obtuse, almost truncate,  $\frac{1}{4}$  to  $\frac{1}{2}$  the length of the spikelet. North coast. Rare.  
\**S.pyramidalis* Beauv.
- 7.\* Upper glume acute to obtuse,  $\frac{1}{2}$  to  $\frac{3}{4}$  the length of the spikelet.
8. Lower glume truncate, at least in the majority of spikelets. North and central coast. Uncommon. Tussock sporobolus.  
*S.diander* (Retz.) Beauv.
- 8.\* Lower glume obtuse. Coast to tablelands and western slopes and plains. Common. Slender rat's-tail.  
*S.elongatus* R.Br.

## Tribe CHLORIDEAE

## 37 Chloris

1. Spikelets with 4-7 sterile lemmas above the fertile floret which have broad hyaline margins and are dorsally awned.  
Western plains (northern part). Rare.  
*C.scariosa* F. Muell.
- 1.\* Spikelets with 1-3 sterile lemmas above the fertile floret which are without broad margins, the awns terminal or in the sinus of a terminal notch.
2. Fertile lemma conspicuously hairy on the margins or at the apex.
3. Fertile lemma bearded only at the summit with hairs 2 mm long. Widespread. Common. Feathertop rhodes grass.  
\**C.virgata* Swartz
- 3.\* Fertile lemma hairy along the margins, glabrous at the apex. North and central coast. Rare. Evergreen chloris.  
\**C.distichophylla* Lag.
- 2.\* Fertile lemma glabrous or with the upper margins weakly and shortly ciliate, not bearded or hairy.
4. Spikelets with 2-3 sterile florets above the fertile floret; racemes frequently in 2 whorls. Widespread on coast, infrequent on tablelands or further west.  
\**C.gayana* Kunth

- 4.\* Spikelets with 1 sterile floret above the fertile floret; racemes in 1 whorl, rarely 2.
5. Upper, sterile lemma distinctly truncate or very obtuse.
6. Spikelets 3.5-5 mm long, the upper awn shorter than the spikelet and up to 2.5 mm long. Coast and western slopes and plains. Not common. Tall chloris.  
*C.ventricosa* R.Br.
- 6.\* Spikelets 2.5-3 mm long, the upper awn longer than the spikelet and at least 4 mm long. Widespread. Common. Windmill grass.  
*C.truncata* R.Br.
- 5.\* Upper, sterile lemma subulate, or bifid with acute or acuminate lobes.
7. Fertile lemma 3.5-5 mm long, the awn arising from the sinus between lobes about 1 mm long.
8. Racemes 4-8 cm long, the spikelets pectinate and densely arranged with pedicels 0.7-1 mm apart; fertile lemma 4.5-5 mm long. Western plains. Uncommon.  
*C.pectinata* Benth.
- 8.\* Racemes 10-18 cm long, the spikelets appressed to the raceme rachis, the pedicels 1.5-2 mm apart; fertile lemma 3.5-4 mm long. Coast, western slopes and plains. Not common. Slender chloris. *C.divaricata* R.Br.
- 7.\* Fertile lemma 5.5-7 mm long, the awn apparently terminal but in fact arising from a small notch with lobes scarcely 0.2 mm long. Central coast and western slopes and plains. Common in the west. Curly windmill grass.  
*C.acicularis* Lindl.

38 *Brachyachne*

1. Inflorescence with 2 spikes; lemma villous on the nerves with a ring of long hairs below the summit. North-west plains. Rare. Hairy native couch.  
*B.ciliaris* (Benth.)  
C.E.Hubbard
- 1.\* Inflorescence with 3-5 spikes; lemma villous on the nerves but without a ring of hairs below the summit. North-west plains. Rare. Spider grass.  
*B.convergens* (F. Muell.) Stapf

## 39 Cynodon

1. Rachilla produced beyond the floret; leaf-blades folded in bud.
2. Blades up to 1.5 mm wide; glumes  $\frac{1}{4}$  to  $\frac{1}{3}$  the length of the spikelet. Central coast and tableland. Rare. Florida grass.  
\*C.transvaalensis Burtt-Davy
- 2.\* Blades up to 5 mm wide; glumes usually  $\frac{1}{2}$  to  $\frac{3}{4}$  the length of the spikelet. Widespread. Common. Couch grass.  
\*C.dactylon (L.) Pers.
- 1.\* Rachilla not produced beyond the floret; leaf-blades rolled in bud.
3. Glumes subequal, half as long as the spikelet; blades densely hairy on both surfaces. Ben Lomond, on northern tableland. Rare. Hairy couch grass. \*C.hirsutus Spent.
- 3.\* Glumes unequal, the lower often minute and half as long as the upper; blades loosely hairy on the upper surface, loosely to densely hairy on the lower surface. Central coast, northern tableland, north-and central western slopes. Uncommon.  
\*C.incompletus Nees

## Tribe MONERMAE

## 40 Monerma

Western slopes and plains, central coast. Not common. Common barb grass.

\*M.cylindrica (Willd.) Coss.

## 41 Parapholis

1. Glumes with a pronounced hyaline wing on the keels. Western plains (southern part). Rare. \*P. filiformis (Roth) C.E. Hubbard

1.\* Glumes without wings on the keels.

\*P. incurva (L.) C.E. Hubbard

## 42 Psilurus [Festuceae]

Southern tableland. Rare.

\*P. incurvus (Gouan) Schinz et Thell.

## Tribe DANTHONIEAE

## 43 Danthonia

1. Body of the lemma hairy on the back with hairs evenly dense and all the same length, without a very conspicuous row of longer hairs below the sinus nor with hairs of uneven length or density over the back.
2. Central awn not more than 2 mm long or absent, the whole lemma 3-5 mm long, the lobes shorter than the body of the lemma.
3. Central awn absent or reduced to a minute mucro, the lobes 0.5 mm long. Central tableland (south-east sector - Budawang range). Rare. *D.rodwayi* C.E.Hubbard
- 3.\* Central awn distinct, about 1 mm long, reflexed, the lobes 1-1.5 mm long. Central and south coast. Not common. *D.paradoxa* R.Br.
- 2.\* Central awn more than 2 mm long, at least 3 mm.
4. Body of the lemma<sup>†</sup> 3.5-4 mm long with 2 mm lateral lobes which are obtuse or acute and scarcely awned. Central tableland. Not common. *D.vickeryi* C.E.Hubbard
- 4.\* Body of the lemma 4-7 mm long with the lobes usually longer than the body (3-8mm) and usually awned.
5. Basal sheaths 1 cm wide and flattened; florets 4-8 and usually exceeding the glumes, the paleas glabrous on the back between the keels. Southern tableland (alpine). Common. Robust wallaby grass. *D.frigida* J. Vickery
- 5.\* Basal sheaths narrower and not conspicuously flattened; florets 2-4, exceeded by the glumes, the paleas pilose on the lower part of the back. Chiefly tablelands, also coast and western slopes. Common. Red-anther wallaby grass. *D.pallida* R.Br.

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† Measurements of the length of the body of the lemma are taken from the tip of the callus and include the callus and dorsal surface up to the sinus between the lobes. The lateral lobes comprise the flat portion and bristles (if present).

- 1.\* Body of the lemma with hairs reduced to tufts and glabrous for the most part, or with a conspicuous row of long hairs below the sinus, or with hairs short at the base and grading upwards into longer hairs.
6. Body of lemma with an even and complete transverse row of hairs or hair-tufts below the sinus.
7. Lobes 2 mm long, broad, obtuse or abruptly narrowed, scarcely awned, shorter than the body of the lemma; palea broadly obovate. Chiefly tablelands, also on western slopes and rarely on central coast. Not common. Short wallaby grass.  
*D.carphoides* F.Muell. ex Benth.
- 7.\* Lobes equal to or longer than the body of the lemma<sup>†</sup>, if equal to the body then the lobes tapering into short or long awns.
8. Body of the lemma with a row of long hairs placed just below the sinus, and then uniformly villous on the back down to the callus with much shorter hairs 0.5-1 mm long and all the same length.
9. Lobes 3.5-4 mm long, scarcely awned and subequal to the upper row of hairs. Central coast. Not common. Wallaby grass.  
*D.semiannularis* (Labill.)R.Br.
- 9.\* Lobes about 7 mm long, including long bristles, and distinctly exceeding the upper row of hairs. Coast, northern and central tablelands. Not common.  
*D.longifolia* R.Br.
- 8.\* Body of the lemma with a row of long hairs placed just below the sinus, and then unevenly hairy on the back, usually with a marked concentration of hairs above the callus and often with a few scattered hairs between the rows, or the body of the lemma with hairs of even density gradually lengthening from above the callus to a little below the sinus.
10. Body of the lemma with an even scattering of hairs, the short dorsal hairs at the base grading upwards into much longer hairs below the sinus.
11. Central awn reflexed or with approximately one loose twist at the base.

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† See previous page

12. Palea broadly obovate and obtuse, usually very shortly exceeding the sinus; lateral lobes up to  $1\frac{1}{2}$  times the length of the body. Northern and central tablelands, western slopes and plains. Common. Wallaby grass.  
*D.richardsonii* Cashmore
- 12.\* Palea lanceolate-elliptical, acute, distinctly exceeding the sinus; lateral lobes often twice as long as the body of the lemma. Tablelands, north- and central western slopes, north coast, rarely on the central coast. Common. Wallaby grass.  
*D.linkii* Kunth
- 11.\* Central awn strongly twisted at the base.
13. Central awn exceeding the bristles on the lobes by 6-9 mm; body of the lemma 4.5-5 mm long, the palea 6-8 mm long and much exceeding the sinus. Chiefly northern tableland, also on the southern tableland. Not common.  
*D.induta* J.Vickery
- 13.\* Central awn equal to or exceeding the bristles on the lobes by up to 5 mm; body of the lemma 3-4 mm long, the palea less than 5 mm long and shortly exceeding the sinus. Central and south-west slopes, central coast. Not common.  
*D.linkii* var. *fulva* J.Vickery
- 10.\* Body of the lemma with hairs concentrated below the sinus (and usually above the callus) in a transverse row of long hairs or hair-tufts, with a few hairs scattered over the back or with the middle of the back glabrous and shiny.
14. Lemma without a complete transverse row of hairs or hair-tufts just above the callus, though marginal tufts may be present. North coast, northern and central tableland and central western slopes. Not common.  
*D.laevis* J. Vickery
- 14.\* Lemma with a complete row of hairs or hair-tufts just above the callus.
15. Lateral lobes awnless, acute or obtuse; basal sheaths woolly and often swollen. Western and far western plains. Not common. Bandicoot grass. *D.bipartita* F.Muell.
- 15.\* Lateral lobes narrowing into short or long bristles; basal sheaths neither woolly nor swollen.
16. Bristles on the lobes usually 2 mm long and much shorter than the flat portion of the lobes (rarely nearly half their length); body of the lemma 3.5-5.5 mm long.

17. Body of the lemma 3.5 mm long, the palea exceeding the sinus by about 1 mm. Northern and central coast and tablelands, western slopes, central and south coast. Not common.  
D.purpurascens J. Vickery
- 17.\* Body of the lemma 4-5.5 mm long, the palea 6-8 mm long and greatly exceeding the sinus.
18. Glumes narrow, the lemma slender with abundant hairs on the back, the palea membranous. See above.  
D.induta
- 18.\* Glumes broad, the lemma broad with scant dorsal hairs between the transverse rows, the palea firm. Southern tableland (alpine): occurrence uncertain.  
D.procera J. Vickery
- 16.\* Bristles on the lobes as long as or longer than the flat portion of the lobes, or the body of the lemma less than 3 mm long.
19. Palea broadly obtuse, shortly exceeding the sinus, or the palea 2.5 mm long or less.
20. Bristles on the lobes 2-4 mm long; central awn shortly exceeding the lateral lobes. Tablelands, central and south-west slopes, rarely on the central coast. Not common.  
D.monticola J. Vickery
- 20.\* Bristles on the lobes 4-6 mm long; central awn usually exceeding the lobes by 3-6 mm.
21. Body of the lemma 2-3 mm long and up to 1 mm broad. Western and far western plains; central and south-west slopes, rarely on the central coast. Common. Small-flower wallaby grass. D.setacea R.Br.
- 21.\* Body of the lemma 3.5-4 mm long and 1.5-2 mm broad.
22. Membranous margins of the lobes ending abruptly in a small triangular auricle and not narrowing evenly to the bristles. Central and south-western slopes, southern part of western plains, rarely on the central and southern tablelands. Not common. Lobed wallaby grass.  
D.auriculata J.M.Black

- 22.\* Membranous margins of the lobes narrowing evenly into the bristles, not auriculate. Western slopes and plains, to the edge of far western plains, also on northern and southern tablelands. Not common.  
*D.eriantha* Lindl.
- 19.\* Palea narrowing to a pointed and shortly bifid summit, distinctly exceeding the sinus, at least 3 mm long.
23. Leaves short (5-10 cm long), thick and rigid, the plant 10-30 cm high; panicle compact, dense and ovate, 3-4 cm long. Southern tableland (alpine). Not common.  
*D.alpicola* J. Vickery
- 23.\* Leaves 10-30 cm long, usually neither rigid nor thick, the plant usually taller and the panicle longer and looser.
24. Body of lemma deep golden-brown at maturity with pale lobes. Western slopes and plains. Not common.  
*D.duttoniana* Cashmore
- 24.\* Body of lemma pale. Western slopes, western and far western plains, rarely on the central coast. Common. Ringed wallaby grass. *D.caespitosa* Gaud.
- 6.\* Body of the lemma glabrous on the back apart from an interrupted row of hair-tufts below the sinus and tufts above the callus, the tufts often wholly or partly suppressed.
25. Lateral lobes shorter than the body of the lemma<sup>†</sup>, the whole lemma 3-4 mm long. Southern tableland (alpine). Not common.  
*D.nivicola* J. Vickery
- 25.\* Lateral lobes longer than the body of the lemma, the whole lemma more than 6 mm long.
26. Lower and upper dorsal tufts of hairs absent, only the marginal tufts present. Southern tableland (alpine). Not common.  
*D.nudiflora* P.F.Morris
- 26.\* Lower and usually some upper dorsal tufts of hairs present, as well as the marginal tufts.
27. Glumes exceeding the group of florets, the lateral lobes tapering evenly into bristles.
28. Panicle 4-5 cm long, contracted and crowded; palea obovate, very obtuse at the summit. Tablelands, central and south-western slopes, rarely on the central coast. Common in places. Smooth-flower wallaby grass.  
*D.pilosa* R.Br.

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† See earlier note

28.\* Panicle 5-15 cm long, linear, not crowded; palea linear-lanceolate, narrow at the summit. Central and (chiefly) southern tablelands. Not common. Slender wallaby grass.  
*D.penicillata* (Labill.) Beauv.

27.\* Glumes shorter than the group of florets, the lateral lobes narrowing acutely or abruptly into the bristles; panicle linear, sub-racemose.

29. Lateral lobes narrowing acutely or obtusely into the bristles. Tablelands and western slopes, central and south coast. Common. Wallaby grass. *D.racemosa* R.Br.

29.\* Lateral lobes very acute or almost truncate, awnless or with very short excentric points. Northern tableland, north-west slopes and plains. Uncommon. *D.racemosa* var. *obtusata*  
 F. Muell. ex Benth.

#### 44 *Pentaschistus*

Central and southern tablelands, south-west slopes. Uncommon.  
 \**P.airoides* (Nees) Stapf

#### 45 *Schismus*

Western and far western plains, rarely on south-west slopes and north coast. Not common. Arabian grass.  
 \**S.barbatus* (L.) Thell.

#### 46 *Astrebla*

1. Spike or raceme 2-3 mm broad (including spikelets), the spikelets with 2-4 florets and rachilla internodes 2-4 mm long. North- and central western slopes and plains (northern part). Not common. Hoop mitchell grass.  
*A.elymoides* F.Muell. ex  
 F.M. Baill.

1.\* Spike or raceme 8-20 mm wide (including spikelets), the spikelets with 3-9 florets and rachilla internodes 1 mm long or less.

2. Lobes of the lemma all similar, the lemma villous on and around the lateral nerves only. Western plains (northern part). Rare. Bull mitchell grass. *A.squarrosa* C.E.Hubbard
- 2.\* Lobes of the lemma dissimilar, the middle lobe alone tapering into a sharp point; body of the lemma villous all over the back.
3. Spikelets densely imbricate, the glumes subequal, shorter than the florets, the lower glume 5-9-nerved. North-west slopes, western and far western plains. Not common. Barley mitchell grass. *A.pectinata* (Lindl.)F. Muell.  
ex Benth.
- 3.\* Spikelets loosely imbricate, alternate, the glumes unequal, the upper longer and subequal to the spikelet, the lower 1-3-nerved. North-west slopes, western and far western plains. Common. Curly mitchell grass. *A.lappacea* (Lindl.)Domin

## 47 Eriachne

1. Glumes rigidly hairy. Western and far western plains. Not common. *E.aristidea* F. Muell.
- 1.\* Glumes glabrous.
2. Lemmas bearing terminal awns equal to them in length, or longer. North coast. Uncommon. *E.pallescens* R.Br.
- 2.\* Lemmas awnless or mucronate.
3. Culms with bases densely woolly and bulbous. Western plains. Common. Wanderrie grass. *E.helmsii* (Domin)W.Hartley
- 3.\* Culms neither woolly nor bulbous at their bases.
4. Lemma conspicuously villous in the lower  $\frac{2}{3}$  with long (more than 1 mm), spreading hairs, glabrous in the upper third, mucronate at the tip. Western and far western plains. Common. Wanderrie grass. *E.mucronata* R.Br.
- 4.\* Lemma pubescent with sparse, short, fine, appressed hairs to almost glabrous. North and central coast. Not common. *E.glabrata* (Maiden) W.Hartley

48 *Triodia*

1. Lobes of the lemma as long as or longer than the base of the lemma. Far western plains. Uncommon.  
*T.basedowii* Pritzel
- 1.\* Lobes of the lemma very short, forming a shallow notch at the apex with a short or minute mucro in the sinus.
2. Leaf-sheaths hirsute or fringed with hairs on the upper margins.
  3. Sheaths hirsute over the back with soft hairs and producing little or no resin. North- and central western slopes and plains. Not common.  
*T.mitchellii* Benth.var.  
*pubivagina* N.T. Burbidge
  - 3.\* Sheaths resinous, glabrous on the back, the margins fringed with hairs in the upper part. Western and far western plains. Not common. Buck spinifex.  
*T.mitchellii* Benth.var.  
*breviloba* N.T. Burbidge
- 2.\* Leaf-sheaths glabrous, or glaucous and minutely pubescent.
  4. Glumes and lemmas stiff and more or less hardened; sides of the lemmas flat, the 2 or 3 nerves in each lateral group distinct. North coast and northern tableland (Barrington Tops district), north- and central western slopes, western and far western plains. Common in the western mallee and on serpentine soils in the east. Porcupine grass.  
*T.irritans* R.Br. var.  
*laxispicata* N.T.Burbidge
  - 4.\* Glumes and lemmas of thin dry membranous texture; lemma with nerves in each lateral group closely aligned, the combination forming a ridge in the upper part so that the lemma appears dorsally flattened near the apex. Western edge of central western slopes, western and far western plains. Not common.  
*T.scariosa* N.T.Burbidge

## Tribe AVENEAE

## 49 Avena

1. Lemma terminating in 2 slender bristles 3-9 mm long.
2. Florets not articulated, separating by fracture of the rachilla. Widespread in eastern half of state. Not common. Fodder crop. Small oat.  
\*A.strigosa Schreb.
- 2.\* Florets articulated. Southern half of State except far west. Common. Bearded oat.  
\*A.barbata Pott
- 1.\* Lemma terminating in 2 small teeth or lobes, not produced into bristle-like awns.
3. Lemma glabrous or with a few hairs at the base; rachilla not at all articulated, the florets separating from one another or from the glumes by a fracture.
4. Fracture below the lower floret oblique and most of the rachilla remaining with the upper floret on threshing; lemma usually with a few hairs at the base. Eastern half of State. Uncommon. Fodder crop. \*A.byzantina Koch
- 4.\* Fracture below the lower floret horizontal and most of the rachilla remaining with the lower floret on threshing; lemma glabrous at the base. Widespread. Common. Cereal crop.  
\*A.sativa L.
- 3.\* Lemma densely bearded at the base; rachilla articulated below the lowest or all florets.
5. Lower floret articulated with the rachilla, the upper floret(s) not articulated and the 2 or 3 florets falling as a unit. Widespread, mainly northern part of State. Very common, except in far west. Wild oat, Sterile oat.  
\*A.sterilis L.
- 5.\* Lower and upper floret(s) articulated with the rachilla. Widespread, mainly southern part of State. Very common, except in far west. Wild oat, Black oat.  
\*A.fatua L.

50 *Amphibromus*

1. Spikelets 7-10 mm long, the glumes 2-3 mm long. Northern tablelands, western slopes and plains. Uncommon.  
*A.whitei* C.E.Hubbard
- 1.\* Spikelets 10-20 mm long, the glumes 3-7 mm long.
2. Lemmas 4-7 in number, about 6 mm long.
3. Glumes narrowing gradually to the acute summit, the lower 3-4 mm and the upper 4-5 mm long. Central coast, tablelands, western slopes and plains. Not common. Swamp wallaby grass.  
*A.neesii* Steud.
- 3.\* Glumes broad, narrowing abruptly at the summit to the acute apex, the lower 4 mm and the upper to 7 mm long. Northern tablelands and Yanco. Uncommon.  
*Amphibromus* sp. nov.
- 2.\* Lemmas 7-10 in number, 3.5-4 mm long. South-west slopes. Rare.  
*A.gracilis* P.F. Morris

51 *Arrhenatherum*

1. Basal internodes not swollen. South coast, tablelands, central western slopes. Uncommon. False oat grass.  
*\*A.elatius* (L.) J. et C.Presl
- 1.\* Basal internodes bulbous and pear-shaped, up to 1 cm broad. Coast and tablelands to edge of western slopes. Uncommon.  
*\*A.elatius* var. *bulbosum*  
(Willd.) Spenner

52 *Holcus*

1. Awn on upper lemma curved into a hook when dry; caespitose perennial. Coast and tablelands. Common. Yorkshire fog.  
*\*H.lanatus* L.
- 1.\* Awn on upper lemma more or less straight, slightly bent in the middle; perennial with creeping rhizomes. Central tableland (Mt. Wilson). Rare. Creeping fog.  
*\*H.mollis* L.

53 *Trisetum*

1. Peduncle and panicle axis glabrous.
2. Glumes pubescent; rachilla produced as a hairy bristle beyond the uppermost floret. Far western plains. Common annual in places.
  - \**T.pumilum* (Desf.) Kunth  
[*Lophochloa pumila*  
(Desf.) Bor]
- 2.\* Glumes glabrous; rachilla, if produced, shortly hairy. Northern and central tablelands. Rare. Golden oat grass.
  - \**T.flavescens* (L.) Beauv.
- 1.\* Peduncle and panicle axis pubescent. Southern tableland (sub-alpine). Not common. Bristle grass.
  - T.spicatum* (L.) Richt.

54 *Koeleria*

1. Lemmas acute, entire, awnless. Southern tableland. Uncommon. Crested hair grass.
  - \**K.cristata* (L.) Pers.
- 1.\* Lemmas with a short fine bristle arising from the bifid apex. Widespread annual, except in far west. Common. Annual cat's-tail.
  - \**K.phleoides* (Vill.) Pers.  
[*Lophochloa phleoides*  
(Vill.) Reichb.]

55 *Deschampsia*

- Southern tableland. Not common. Tufted hair grass.
- \**D.caespitosa* (L.) Beauv.

56 *Molinera*

- South-west slopes. Uncommon. Small hair grass.
- \**M.minuta* (Loefl.) Parl.

## 57 Aira

1. Panicle dense and spike-like. Central coast. Rare. Early hair grass. *\*A.praecox* L.
- 1.\* Panicle open and spreading.
  2. Spikelets about 3-5 mm long; pedicels clavate. Central tableland (Woodford). Rare. *\*A.provincialis* Jord.
  - 2.\* Spikelets 2-3.2 mm long.
    3. Pedicels  $\frac{1}{2}$ -3 times as long as the spikelets.
    4. Spikelets 2-2.5 mm long, the florets mostly up to  $\frac{3}{4}$  the length of the glumes. Coast and tablelands. Common. Silvery hair grass. *\*A.cupaniana* Guss.
    - 4.\* Spikelets 2.5-3.2 mm long, the florets from  $\frac{3}{4}$  the length to equalling the glumes. Coast and tablelands. Common. Silvery hair grass. *\*A.caryophyllea* L.
- 3.\* Pedicels 3-8 times the length of the 2 mm spikelets. Central and southern tablelands, south-west slopes. Uncommon. *\*A.elegans* Willd. ex Gaud.

## Tribe AGROSTIDEAE

## 58 Agrostis

1. Palea absent or minute, rarely up to  $\frac{1}{3}$  the length of the lemma.
2. Lemma awnless.
  3. Panicle 12-35 cm long with long verticillate, spreading branches; leaf-blades flat, 2-3 mm wide or more. Northern and southern tablelands. Not common. Winter bent. *A.hiemalis* (Walt.) B.S.P.
  - 3.\* Panicle less than 15 cm long; blades fine, up to 1 mm wide.
    4. Panicle spreading with lax or divaricate branches; floret up to 2 mm long.

5. Spikelets 1.5-2 mm long, pale green; panicle long-exserted from the topmost leaf-sheath, the leaves mostly crowded at the base of the culms. Southern tableland (alpine). Rare. Hair bent.  
*A. parviflora* R.Br.
- 5.\* Spikelets 2.3-3 mm long, often purplish; panicle partly enclosed by the topmost sheath or shortly exserted, the culms leafy. Southern tableland (alpine). Not common. Australian bent.  
*A. australiensis* Mez
- 4.\* Panicle contracted with erect branches; floret 2.7-3 mm long. Southern tableland (alpine). Uncommon. Mueller's bent.  
*A. muelleriana* J. Vickery
- 2.\* Lemma awned.
6. Panicle contracted, linear-lanceolate, with more or less erect branches which branch again or bear spikelets within 1 cm from their bases.
7. Spikelets 2 mm long, a dorsal awn arising from near the middle of the back of the lemma. Central western slopes. Rare.  
*A. boormanii* J. Vickery
- 7.\* Spikelets 3-3.5 mm long with an awn near the tip of the lemma. See above.  
*A. muelleriana*
- 6.\* Panicle broadly pyramidal, spreading with long capillary branches which are naked and undivided for the first 2-6 cm. Tablelands. Uncommon. Graceful bent.  
*A. venusta* Trin.
- 1.\* Palea from half the length to as long as the lemma.
8. Lemma awnless or rarely with a short awn on the back.
9. Spikelets disarticulating above the glumes, which persist on the panicle; palea up to  $\frac{2}{3}$  the length of the lemma.
10. Ligule of vegetative shoots shorter than the width; perennial with rhizomes. Tablelands. Not common. Brown top bent.  
*\*A. tenuis* Sibth.
- 10.\* Ligule of vegetative shoots as long as or longer than the width.
11. Panicle usually open and loose; perennial with tough creeping rhizomes. Central and south coast, tablelands. Not common. Red top bent.  
*\*A. gigantea* Roth

- 11.\* Panicle contracted and usually dense after flowering; perennial with leafy stolons forming a loose or close turf. Central coast and tableland. Uncommon. Creeping bent.  
\**A.stolonifera* L.
- 9.\* Spikelets falling entire at maturity; palea about as long as the lemma. Central coast, rarely on the central western slopes. Uncommon. Water bent.  
\**A.semiverticillata* (Forsk.)  
C. Christ.
- 8.\* Lemma with an exerted and usually geniculate dorsal awn.
12. Lemma glabrous. Coast. Not common. Coastal blown grass.  
*A. billardieri* R.Br.
- 12.\* Lemma hairy on the back.
13. Culm smooth below the panicle. Central coast. Rare.  
*A.plebeia* R.Br.
- 13.\* Culm retrorsely scabrous below the panicle.
14. Awn straight or slightly geniculate, panicle up to 10 cm long, the leaves 1-7 cm long. Southern tableland (alpine). Rare.  
*A.meionectes* J. Vickery
- 14.\* Awn geniculate; panicle longer and the leaves 8-25 cm long.
15. Spikelets 2-4 mm long, usually light green or straw-coloured, sometimes slightly tinged with purple; pedicels remaining appressed to the branchlets; blades narrow, 2 mm wide. Coast, tablelands, western slopes and western plains. Common annual. Blown grass.  
*A.avenacea* Gmel.
- 15.\* Spikelets 3.5-6 mm long, usually strongly tinged with purple; pedicels usually diverging from the branchlets; blades flat, 2-7 mm wide. Coast and tablelands. Common annual in places. Blown grass.  
*A.aemula* R.Br.

59 *Deyeuxia*

1. Floret with a dorsal awn attached in the lowest third.
2. Lower glume longer than the upper or glumes equal. Tablelands, central and south coast. Not common. Reed bent grass.  
*D.quadriseta* (Labill.) Benth.

- 2.\* Lower glume shorter than the upper.
3. Spikelets 4.5-6 mm long, greenish or slightly purplish; leaves strongly involute, subsetaceous. Tablelands. Uncommon.  
*D. monticola* (Roem. et Schultz.)  
 J. Vickery
- 3.\* Spikelets 6-7 mm long, purplish; leaves loosely involute, often flat at the base. Southern tableland (A.C.T.). Rare.  
*D. monticola* var. *valida*  
 J. Vickery
- 1.\* Floret awnless or with a dorsal or subterminal awn attached in the middle of the back or near the apex of the lemma.
4. Awn attached in the middle of the back of the lemma or slightly above the middle.
5. Awn exceeding the lemma by the length of the lemma or the awn geniculate and twisted in the lower part.
6. Panicle 7-15 cm long, contracted, narrow, the branches bearing spikelets or branchlets almost to their bases; glumes subequal or the lower glume a little shorter than the upper.
7. Rachilla produced into a hairy bristle 2 mm long, the hairs up to 1.5 mm long. New South Wales occurrence uncertain.  
*D. densa* Benth.
- 7.\* Rachilla produced into a short glabrous bristle 0.5 mm long. Southern tableland (alpine). Rare.  
*D. carinata* J. Vickery
- 6.\* Panicle about 25 cm long, loose and spreading with slender branches which are naked and undivided for 2-4 cm; lower glume  $\frac{3}{4}$  the length of the upper, Southern tableland. Uncommon.  
*D. frigida* F. Muell. ex Benth.
- 5.\* Awn straight, and exceeding the lemma by less than half the length of the lemma.
8. Spikelets 3 mm long, the lower glume slightly longer than the upper. Central coast. Rare. *D. mesathera* J. Vickery
- 8.\* Spikelets 3.5 - 4.5 mm long, the lower glume slightly shorter than the upper glume or glumes subequal.

9. Panicle loose and spreading, up to 20 cm long, the longer branches bare and undivided at their bases for 2-5 cm and the lowest internode 4-5 cm long. New South Wales occurrence uncertain.  
D.benthamiana J. Vickery
- 9.\* Panicle contracted and dense or somewhat spreading, 5-11 cm long, the longer branches bare and undivided at their bases for 0.5-2 cm and the lowest internode up to 2.5 cm long.
10. Sheaths longer than the internodes, the blades 4-6 mm wide, thick; culms stiff and more than 1 mm in diameter just below the panicle. Southern tableland (alpine). Rare.  
D.crassiuscula J. Vickery
- 10.\* Sheaths shorter than the internodes, the blades 1-3 mm wide, thin; culms slender and less than 0.5 mm wide just below the panicle. Southern tableland (alpine). Rare.  
D.rodwayi J. Vickery.
- 4.\* Awn attached near the apex of the lemma or lemma awnless.
11. Awn exserted, 2-5 mm long and reflexed or recurved.
12. Spikelets 3 mm long with an awn 2-2.5 mm long, the panicle effuse and laxly spreading. North coast. Rare.  
D.reflexa J. Vickery
- 12.\* Spikelets 3.8-6 mm long with an awn 4-5 mm long, the panicle contracted and narrow.
13. Panicle 20-30 cm long; sheaths and upper surface of the blades densely pubescent, the blades 2-4 mm wide. Central coast. Rare.  
D.appressa J. Vickery
- 13.\* Panicle 8-17 cm long; sheaths and blades more or less glabrous, the blades up to 7 mm wide. Tablelands. Not common.  
D.brachyathera (Stapf)  
J. Vickery
- 11.\* Awn, if present, very short, up to 2 mm long but usually shorter, straight, scarcely exceeding the lemma.
14. Lemma nearly twice as long as the glumes, panicle 2-9 cm long with short, rigid branches. Northern and southern tablelands. Not common.  
D.gunniana (Nees) Benth.
- 14.\* Lemma shorter than or subequal to the glumes, or exceeding them by less than half their length.

15. Callus completely glabrous.
16. Spikelets 4-5 mm long, the lemma subequal to the glumes and bearing a short, thick awn; panicle branches divided almost from their bases. Central tableland. Not common.  
D.angustifolia J. Vickery
- 16.\* Spikelets 3-3.5 mm long, the lemma slightly exceeding the glumes and awnless; lower panicle branches undivided for the first 1-2 cm. South coast. Rare. D.nudiflora J. Vickery
- 15.\* Callus moderately or densely hairy, often barbed with very short hairs.
17. Rachilla produced into a bristle 0.7-1.3 mm long bearing hairs 0.5-1.5 mm long.
18. Lemma distinctly exceeding both glumes.
19. Spikelets 5-5.5 mm long. Northern tableland, near Guyra. Rare.  
D.acuminata J. Vickery
- 19.\* Spikelets less than 4 mm long.
20. Spikelets 3-3.8 mm long; panicle 20-40 cm long with the lowest internode 5-8 cm long. North coast, northern and central tablelands. Not common.  
D.mckiei J. Vickery
- 20.\* Spikelets 1.5-2.5 mm long; panicle 12-20 cm long with the lowest internode 2.5-3.5 cm long. Northern and central tablelands, rarely on the north coast. Not common.  
D.parviseta J. Vickery
- 18.\* Lemma shorter than the glumes, or subequal to and scarcely exceeding them.
21. Panicle 12-25 cm long, loose, with long spreading branches.
22. Spikelets about 2.5 mm long, the lemma equalling the obtuse glumes; hairs on the rachilla up to 1.5 mm long. Southern tableland. Rare.  
D.parviseta var. boormanii  
J. Vickery
- 22.\* Spikelets 3-3.5 mm long, the lemma shorter than the acute glumes; hairs on the rachilla up to 0.5 mm long. Central tableland. Rare. D.scaberula J. Vickery

- 21.\* Panicle 3-10 cm long with short appressed or spreading branches 0.5-2 cm long; spikelets 3.5-4 mm long. Central tableland. Not common. *D.microseta* J. Vickery
- 17.\* Rachilla produced into a glabrous bristle or scarcely produced at all.
23. Lemma  $\frac{3}{4}$  the length of the glumes, the palea  $\frac{2}{3}$  the length of the lemma. Northern and central tablelands. Not common. *D.imbricata* J. Vickery
- 23.\* Lemma subequal to or slightly exceeding the glumes, the palea equalling or a little shorter than the lemma.
24. Spikelets about 4 mm long; panicle dense and narrow, 6-7 cm long, with short appressed branches; blades 4-6 mm wide. See above. *D.crassiuscula*
- 24.\* Spikelets 2.5-3 mm long; panicle contracted and narrow or loose and spreading, 7-30 cm long; blades 2-4 mm wide.
25. Lemma thin, faintly scaberulous, almost smooth; panicle spreading, with the longer branches naked and undivided at their bases for 3-5 cm and with the lowest internode 5-6 cm long. Central and southern coast and tablelands. Not common. *D.decipiens* (R.Br.) J. Vickery
- 25.\* Lemma turgid, densely scaberulous; panicle contracted with the longer branches undivided at their bases for 1-2 cm and with the lowest internode 2-3 cm long. Southern tableland. Rare. *D.contracta* (F. Muell.) J. Vickery

## 60 Echinopogon

1. Lemma 5-7 mm long, including pointed lobes up to 2.5 mm long; glumes acuminate.
2. Peduncle smooth beneath the panicle, sometimes scaberulous, the panicle nodding or inclined.
3. Spikelets 7-10 mm long, the lower ones slightly spreading; lemma a little shorter than the glumes, bearing setaceous lobes up to 2.5 mm long. Tablelands. Not common. Long-flower hedgehog grass. *E.cheelii* C.E.Hubbard

- 3.\* Spikelets 5-7 mm long, appressed; lemma equalling the glumes, bearing setaceous lobes 1-2 mm long.
4. Panicle 2-5.5 cm long by 0.8 - 2 cm wide; awn 6-14 mm long. North coast and northern tableland. Uncommon. Nodding hedgehog grass. *E.nutans* C.E.Hubbard
- 4.\* Panicle 4-7.5 cm long by 1-3 cm wide; awn up to 2 cm long. Northern tableland. Rare. *E.nutans* var. *major* C.E.Hubbard
- 2.\* Peduncle retrorsely scabrous below the panicle, which is stiffly erect. North coast, northern and central tablelands, western slopes. Not common. Erect hedgehog grass. *E.intermedius* C.E.Hubbard
- 1.\* Lemma 2.5-5 mm long, entire at the apex or with acute lobes (rarely the lobes setiform and up to 1.5 mm long); glumes acute to obtuse.
5. Awns 4-15 mm long; spikelets 3-5 mm long.
6. Culms tufted, erect or geniculate at the base, 2-4-noded, up to 100 cm high; blades linear, 1.5-5mm wide, erect.
7. Glumes rigidly ciliate on the upper part of the keels, otherwise glabrous; peduncle usually scabrous; spikelets 3-5 mm long. Coast and tablelands, rarely on south-west slopes. Common. Tufted hedgehog grass. *E.caespitosus* C.E.Hubbard
- 7.\* Glumes conspicuously ciliate on the keels with less rigid hairs, minutely pubescent; spikelets 3-3.5 mm long. Central western slopes. Rare. *E.caespitosus* var. *cunninghamii* C.E.Hubbard
- 6.\* Culms loosely tufted or solitary, geniculately ascending from a creeping rhizome, 15-70 cm high, 3-7-noded; blades linear-lanceolate to linear, 2-8 mm wide, the upper ones spreading or deflexed. Coast, tablelands, and western slopes. Common. Forest hedgehog grass. *E.ovatus* (Forst.) Beauv.
- 5.\* Awns up to 3 mm long or the lemma mucronate; spikelets 2.5-4 mm long.
8. Panicle bristly, 0.6-2 cm long; spikelets 2.5-3.5 mm long with an awn up to 3 mm long. Northern tableland, rarely on the southern tableland. Uncommon. *E.mckiei* C.E.Hubbard

- 8.\* Panicle not bristly, 1.5-3 cm long; spikelets 3.5-4 mm long with a bristle on the lemma 0.2-1.5 mm long. Northern tableland.  
Rare. *E.phleoides* C.E. Hubbard

## 61 Phleum

Chiefly tablelands, rarely on the south coast, south-west slopes or western plains. Not common. Timothy.

\**P.pratense* L.

## 62 Lagurus

Coast, rarely on central tableland. Not common. Hare's-tail grass.

\**L.ovatus* L.

## 63 Gastridium

Central tableland. Rare. Nit grass.\**G.ventricosum* (Gouan) Schinz et Thell.

## 64 Dichelachne

1. Panicle dense and spike-like, the branches erect, up to 4 cm long, often spreading at anthesis and afterwards contracting; primary axis and branches largely concealed by the spikelets.
2. Awn 3-5 cm long; panicle very dense, often slightly purplish, 10-20 cm long, the spikelets 8-9 mm long, almost concealed by the awns. Tablelands and western slopes, also on the central coast. Not common. Long-hair plume grass.  
*D.crinita* (L.) Hook.f.
- 2.\* Awn 0.8-3 cm long, often spirally twisted towards the base; panicle less dense, 10-15 cm long, the spikelets 6-7 mm long and usually visible or slightly concealed by the awns. Coast and tablelands to western slopes. Common. Short-hair plume grass.  
*D.sciurea* (R.Br.) Hook. f.
- 1.\* Panicle loose, open and spreading or loosely contracted when mature, the branches up to 15 cm long and usually naked for the most part, the spikelets borne thinly. Coast and tablelands. Not common.  
*D.rara* (R.Br.) J. Vickery

## 65 Alopecurus

1. Glumes united by their margins for  $\frac{1}{3}$  to  $\frac{1}{2}$  their lengths, minutely hairy on the keels, otherwise almost glabrous. Coast and tablelands. Rare. Slender fox-tail.

\**A.myosuroides* Huds.

- 1.\* Glumes united by their margins only near the base, the keels fringed with fine hairs and the sides also hairy.

2. Spikelets 2.5-3.3 mm long; culms usually spreading, geniculate, rooting at the nodes; panicle 3-7 mm wide. Northern and southern tablelands. Rare. Knee-jointed fox-tail, Marsh fox-tail.

\**A.geniculatus* L.

- 2.\* Spikelets 4-6 mm long; culms erect, or geniculate at the base; panicle 5-10 mm wide. Western slopes and plains, rarely on the southern tableland. Not common.

\**A.pratensis* L.

## 66 Ammophila

Coastal districts. Not common. Marram grass.

\**A.arenaria* (L.) Link

## 67 Polypogon

1. Awn on glumes up to 2 mm long; panicle loose, with the branches visible. Coast, northern tableland. Uncommon. Perennial beard-grass.

\**P.littoralis* Sm.

- 1.\* Awn on glumes 4-7 mm long; panicle dense, the branches concealed by the spikelets. Coast and tablelands to western slopes, rarely on western plains. Not common. Annual beard-grass.

\**P.monspelienis* (L.) Desf.

## Tribe STIPEAE

## 68 Stipa

1. Lemma glabrous for the most part, apart from a hairy callus.
2. Lemma narrowed into a smooth cylindrical neck at the summit with an erose crown encircling the base of the awn; the base of the keel on the lemma shortly hairy.
3. Lemma 7-11 mm long, the awn 7-10 cm long. Northern tableland (Glen Innes district), western plains. Rare.  
\**S. neesiana* Trin. et Rupr.
- 3.\* Lemma 3-5 mm long, the awn 2-4 cm long. Northern tableland and north-west slopes. Rare.\**S. hyalina* Nees
- 2.\* Lemma with 2 minute or obsolete lobes at the summit, not producing a crown encircling the base of the awn; keel on the lemma glabrous.
4. Panicle branches long-plumose; lemma 8 mm long, the glumes 10-12 mm long. Western slopes and plains to far west plains. Not common. Feather spear grass.  
*S. elegantissima* Labill.
- 4.\* Panicle branches glabrous, pubescent or shortly plumose; lemma 3-5 mm long, the glumes 3-8 mm long.
5. Lemma 4-5 mm long; the glumes 6-8 mm long. Culms not branching profusely at the nodes. Western slopes and plains.  
*S. tuckeri* F. Muell.
- 5.\* Lemma 3-4 mm long, the glumes 3-5 mm long. Culms branching profusely at the nodes. Coastal districts and western plains, rarely on the northern tableland and central western slopes. Not common. Stout bamboo grass.  
*S. ramosissima* Trin.
- 1.\* Lemma pubescent for the most part, the hairs sometimes thinning out towards the apex.
6. Awn (at least the column) plumose with white hairs 1 mm long or more.
7. Column plumose, bristle scabrous. Coast and tablelands to western slopes and plains. Not common.  
*S. densiflora* Hughes

- 7.\* Column and bristle both plumose. Central coast and tablelands.  
Uncommon. Soft spear grass.. *S.mollis* R.Br.
- 6.\* Awn scabrous or pubescent.
8. Bristle of the awn distinctly flattened. Nyngan, on the western  
plains. Rare. Flat-awn spear grass.  
*S.platychaeta* Hughes
- 8.\* Bristle of the awn more or less terete.
9. Lemma densely hirsute with shiny brown hairs, the body 4 mm long  
with a callus 3-4 mm. Western and far western plains in  
southern half of State. Rare. *S.fusca* C.E. Hubbard
- 9.\* Lemma pubescent or hirsute with white or light brown hairs, the  
body far exceeding the length of the callus.
10. Apex of the lemma with 2 hairy, prominent lobes 2 mm long.  
Coastal districts. Rare. *S.teretifolia* Steud.
- 10.\* Apex of the lemma with 2 minute or obsolete lobes.
11. Lemma 10-15 mm long (including callus), the glumes 20 mm  
long or more.
12. Culms up to 40 cm high with rigid, terete blades up to  
20 cm long; panicle with less than 16 spikelets, the  
lemmas (including callus) 13-15 mm long. Southern  
tableland (alpine). Uncommon.  
*S.nivicola* J. H. Willis
- 12.\* Culms taller with longer blades; panicle usually with  
more than 16 spikelets, the lemmas 10-13 mm long  
(including callus). Coast and tablelands, rarely  
further west. Not common. Tall spear grass.  
*S.pubescens* R.Br.
- 11.\* Lemma 3-8 mm long (including callus), the glumes usually  
less than 20 mm long.
13. Awn 1-1.5 cm long. Coonabarabran and Merriwa, on the  
central western slopes. Rare.  
*\*S.brachychaeta* Godr.
- 13.\* Awn at least 2 cm long.
14. Margins of the glume ciliate towards the summit,  
especially on the lower glume. Far western plains.  
Rare. *S.acrociliata* F.M. Reader

- 14.\* Margins of the glumes smooth or scabrous not ciliate.
15. Lemma 3-4 mm long, the glumes 3-5 mm long. Coastal districts, tablelands, north-west slopes and western plains. Common.  
Slender bamboo grass. *S.verticillata* Nees
- 15.\* Lemma more than 4 mm long or the glumes 7 mm long or more.
16. Lemma 4-4.5 mm long, densely hirsute with the hairs at the apex produced into a tuft up to 3 mm long. Western and far western plains. Rare. *S.blackii* C.E.Hubbard
- 16.\* Lemma without a long tuft of hairs at the apex.
17. Lateral nerves of lower glume continuing for nearly the whole of its length, almost as prominent as the midnerve, the glume striate.
18. Lemma becoming sparsely hirsute towards the naked summit, revealing the papillose-roughened surface in the upper part.
19. Lemma 6-8 mm long, the awn 2-5 cm with a column of 1-2 cm. Coast and tablelands. Common.  
*S.nervosa* J. Vickery
- 19.\* Lemma 8-9 mm long, the awn 4.5-7 cm with a column of 2.5-3 cm. Central coast, northern and southern tablelands. Uncommon. *S.nervosa* var. *neutralis*  
J. Vickery
- 18.\* Lemma densely pubescent right to the summit, the hairs concealing the junction with the awn.
20. Awn 3-4 cm long, the lemma 5-7 mm long. Coast, western slopes and plains to far western plains. Common. Plains grass.  
*S.aristiglumis* F. Muell.
- 20.\* Awn 4.5 mm long, the lemma 7 mm long with white hairs produced for 1 or 2 mm at the apex; blades setaceous-convolute, attenuated to a sharp point. Central and southern tablelands, central and south-west slopes, western plains. Not common.  
*S.bigeniculata* Hughes
- 17.\* Lateral nerves of lower glume very faint or obsolete, present only at the base, the glume not striate.

21. Bristle of the awn equal in length to the column. Coastal districts to western slopes and plains, rarely on the northern tableland. Not common. Corkscrew grass.  
*S.setacea* R.Br.

21.\* Bristle of the awn 2 or 3 times the length of the column. Widespread. Very Common. Spear grass.  
*S.variabilis* complex

[including *S.variabilis* Hughes, *S.scabra* Lindl., *S.falcata* Hughes, and *S.drummondii* Steud.]

## 69 *Aristida* [Aristideae]

1. Lemma convolute, tubulous.

2. Lemma with a 3-40 mm twisted column between its apex and the awns.

3. Lemma with an articulation at the base of the twisted column.

4. Column 25-40 mm long, the lemma 7-10 mm long; plant 40-50 cm high.

5. Column about 40 mm long; lemma 9-10 mm long and upper glume 22-24 mm long. North-west slopes. [Doubtfully distinct from *A.browniana*].

*A.muelleri* Henrard

5.\* Column 25-30 mm long; lemma 7-8 mm and upper glume 15-18 mm long. North-west slopes and plains to far west plains. Not common. *A.browniana* Henrard

4.\* Column less than 20 mm long, usually 10-15 mm, the lemma 6 mm long; plant up to 15 cm high. Central western slopes to western and far western plains. Not common. Kerosene grass.  
*A.contorta* F. Muell.

3.\* Lemma continuous with the column, without an articulation between them.

6. Central awn strongly curved, thicker than the more or less straight lateral awns; column 12 mm long and the callus on the lemma 2 mm long. Coast and tablelands. Not common.  
*A.warburgii* Mez

- 6.\* Central and lateral awns similar; column 3-6 mm long and the callus on the lemma 1 mm long.
7. Body of the lemma smooth, about 8 mm long with a twisted column of 3-4 mm; glumes unequal. North-west slopes and western plains (northern part). Rare. *A.psamphila* Henrard
- 7.\* Body of the lemma scabrous in the upper half, about 6 mm long with a twisted column 6 mm long; glumes subequal. Western plains. Rare. Feather-top wire grass.  
*A.latifolia* Domin
- 2.\* Lemma sometimes narrowing at the apex but otherwise undifferentiated below the awns, without a strongly twisted column.
8. Internodes of the culm pubescent with appressed hairs.
9. Panicle 7-8 cm long, the glumes 7 and 14 mm long. Western plains to edge of north-west slopes. Not common.  
*A.obscura* Henrard
- 9.\* Panicle 15 cm long, the glumes 15 and 20 mm long. Nyngan. Rare. [Possibly a hybrid between *A.obscura* and *A.behriana*]  
*A.obscura* var. *luxurians*  
Henrard
- 8.\* Internodes of the culm glabrous.
10. Lemma bearing antrorse spiny tuberculate hairs in the upper part.
11. Glumes subequal, as long as or longer than the lemma.
12. Panicle narrow, dense, 10-15 cm long, the branches strictly appressed. North-west slopes, western plains to far western plains. Common. Wire grass.  
*A.echinata* Henrard
- 12.\* Panicle lax, 20-25 cm long, the lower branches distinct and flexuous and more or less erect. Western Plains. Not common.  
*A.muricata* Henrard
- 11.\* Glumes unequal, the lower  $\frac{2}{3}$  the length of the upper and both shorter than the lemma. North and central western slopes to western plains, rarely on the north coast. Not common.  
*A.longicollis* Henrard
- 10.\* Lemma smooth or slightly scabrous in the upper part, not tuberculate.

13. Panicle narrow with erect appressed branches, usually over 6 cm long.
14. Upper glume shorter than the lemma or sometimes reaching the base of the awns; panicle up to 20 cm long.
15. Lemma more or less smooth, slightly narrowed below the awns; spikelets usually purplish. Coast, tablelands, western slopes and plains. Common. Wire grass.  
*A. ramosa* R.Br.
- 15.\* Lemma scabrous in the upper half, conspicuously narrowed into a loosely twisted beak below the awns; spikelets green. See above.  
*A. longicollis*
- 14.\* Upper glume longer than the lemma, exceeding the base of the awns by about 1 mm; panicle 30 cm long. Western slopes and plains, rarely on the coast and northern tableland. Not common.  
*A. personata* Henrard
- 13.\* Panicle broad with divaricately spreading branches or spikelets, or more or less ovate.
16. Upper glume 5-6 mm long, shorter than the lemma.
17. Panicle 3-6 cm long, up to 4 cm wide, relatively compact with spikelets on short branches. North-west slopes and plains. Uncommon. Many-headed wire grass.  
*A. caput-medusae* Domin
- 17.\* Panicle 10-20 cm long, up to 10 cm wide, open, the spikelets distant on lower branches up to 6 cm long. Coast and tablelands to western slopes. Common. Wire grass.  
*A. vagans* Cav.
- 16.\* Upper glume 10 mm long or longer, equalling or exceeding the lemma.
18. Panicle 20 cm long or longer, with spikelets sparsely spread around the perimeter of the inflorescence. North-west slopes and western plains. Common. White spear grass.  
*A. leptopoda* Benth.
- 18.\* Panicle 5-10 cm long.
19. Upper glume 17-20 mm long with an awn up to 3 mm long; panicle very dense. Western slopes, but mainly on the western plains, rarely on the coast. Not common. Brush wire grass.  
*A. behriana* F. Muell.

19.\* Upper glume 10-12 mm long, shortly awned; panicle lax, not very dense. Central western slopes and western plains. Not common.  
*A.leichardtiana* Domin

1.\* Lemma with both margins inrolled and forming a long furrow down the ventral side.

20. Lemma very scabrous all over. Western and far western plains. Uncommon.  
*A.anthoxanthoides* Henrard

20.\* Lemma smooth or punctulate, sometimes with rows of spines confined to the ventral furrow.

21. Lower glume distinctly longer than the upper glume.

22. Lemma about 5 mm long and glumes 5-6 mm long; awns up to 10 mm long. Coast, central tableland, western slopes and plains. Not common.  
*A.benthami* Henrard

22.\* Lemma 8-9 mm long and glumes more than 7 mm long; awns more than 12 mm long.

23. Lemma smooth on the back and with rows of spiny hairs along the involute margins in the furrow. Western slopes and plains. Not common. *A.armata* Henrard

23.\* Lemma punctulate and slightly rough, without rows of rigid spines in the furrow. North coast and northern tableland to north-west slopes. Rare.  
*A.acuta* S.T.Blake

21.\* Lower glume shorter than the upper or glumes equal.

24. Spikelets small with glumes 5-6 mm long subequalling the lemma and awns up to only 10 mm long. See above.  
*A. benthami*

24.\* Spikelets larger with glumes 6.5-9 mm long, at least the upper glume exceeding the lemma, and awns over 12 mm long.

25. Lemma 7-8 mm long, equalling the lower glume. Coast, northern tableland, mainly on the western slopes, also on the western plains. Common. Wire grass.  
*A.calycina* R.Br.

25.\* Lemma 5-6 mm long, distinctly shorter than the lower glume.

26. Blades flat, 2-2.5 mm wide, with a villous line across the collar; glumes subequal 8-9 mm long. Northern tableland, western slopes and plains. Uncommon.

*A. ingrata* Domin

- 26.\* Blades flat only near the junction with the sheaths, mostly convolute, 1-1.5 mm broad when flattened, without a villous line across the collar; glumes unequal, 6.5 and 8 mm long.

27. Lemma with rows of small tubercles on the involute margins forming the sides of the furrow. Western slopes to western and far western plains. Not common.

*A. jerichoensis* var.  
*subspinulifera* Henrard

- 27.\* Lemma without rows of tubercles in the furrow. Mainly on the western and far western plains, rarely on the central coast, tablelands and western slopes. Not common.

*A. jerichoensis* Domin ex Henrard

## 70 Nassella

South coast, tablelands, the near central western slopes. Not common, increasingly rare. Serrated tussock.

\**N. trichotoma* Hack.

## 71 Oryzopsis

Widespread. Uncommon. Rice millet.

\**O. miliacea* (L.) Benth. et  
Hook. f. ex Aschers. et  
Schweinf.

## 72 Anisopogon

Central and southern coast and tablelands. Not common. Oat spear grass.

*A. avenaceus* R.Br.

## 73 Pentapogon

Mainly southern tableland, also south coast and northern tableland. Not common. Five-awn spear grass.

*P. quadrifidus* (Labill.) Baill.

## 74 Amphipogon

1. Lemma 7-8 mm (including the callus and lobes), the lobes ciliate to the apex; panicle 2-4 cm long, the leaves up to 15 cm long. Western and far western plains, rarely on the north- and central western slopes. Not common. Grey-beard grass.

*A.caricinus* F. Muell.

- 1.\* Lemma 9-10 mm long (including the callus and lobes), the cilia on the lobes confined to the bottom half of the lobes, the upper part scabrous; panicle 1-2 cm long, the leaves mostly 1-5 cm long. Mainly central tableland, rarely on the northern and southern tableland and central coast. Not common. Grey-beard grass.

*A.strictus* R.Br.

## Tribe ZOYSIEAE

## 75 Zoysia

Coastal margins, on sand dunes. Not common. Prickly couch.

*Z.macrantha* Desv.

## 76 Tragus

Western and far western plains, western slopes, uncommon further east. Common. Small bur grass.

*T.australianus* S.T. Blake

## 77 Perotis [Perotideae]

North coast, western slopes and plains. Common in the west. Comet grass.

*P.rara* R.Br.

## Tribe PHALARIDEAE

## 78 Phalaris

1. Spikelets subtended by an involucre of 6 or 7 sterile branches, clavate or bearing sterile spikelets, and the group falling together. Coast and tablelands to western slopes and plains. Uncommon. \**P. paradoxa* L.
- 1.\* Spikelets not grouped with a fertile spikelet surrounded by sterile spikelets or branches.
2. Fertile floret turgid, almost circular in cross-section. Central coast. Rare. \**P. lemmoni* Vasey
- 2.\* Fertile floret flattened laterally, narrowly oval in cross-section.
3. Glumes wingless on the keel or with narrow inconspicuous wings, tapering evenly into a long acute point. Coast and tablelands. Uncommon. \**P. arundinacea* L.
- 3.\* Glumes prominently or narrowly winged on the keels, obtuse or narrowing abruptly into a short point.
4. Sterile lemmas subequal, about half as long as the fertile lemma.
5. Sterile lemmas more than 2 mm long; glumes broadly winged in the upper part and smooth on the edge of the wing. Coast and tablelands, rarely further west. Uncommon. Canary grass. \**P. canariensis* L.
- 5.\* Sterile lemmas 1 mm long or less; glumes narrowly winged and toothed on the keel. Chiefly coastal districts. Uncommon. \**P. angusta* Nees
- 4.\* Sterile lemmas unequal, the lower very small, or both obsolete.
6. Sterile lemmas obsolete, reduced to 2 minute, hardened scales; fertile floret glabrous. Armidale, Inverell, and near Nyngan. Rare. \**P. coerulescens* Desf.

- 6.\* Sterile lemmas unequal, the lower often almost obsolete; fertile floret pubescent.
7. Glumes drawn into a point at the tip, the wing on the keel narrowing evenly and similarly at each end and often dentate near the apex. Widespread. Not common. Lesser canary grass.  
\*P.minor Retz.
- 7.\* Glumes not drawn into a point at the tip, the wing on the keels broader towards the apex, giving the spikelet a broad-shouldered appearance, the wings entire. Coast, and especially tablelands and western slopes. Toowoomba canary grass; Phalaris  
\*P.tuberosa L.

## 79 Ehrharta [Ehrharteae]

1. Sterile lemmas glabrous.
2. Sterile lemmas obtuse. Central coast and northern and southern tablelands. Uncommon. \*E.erecta Lam.
- 2.\* Sterile lemmas produced into awn-like points. Chiefly coast and tablelands, occasionally western slopes and plains. Not common. Veldt grass. \*E.longifolia Sm.
- 1.\* Sterile lemmas villous. Coast and tablelands to western slopes. Uncommon. Perennial veldt grass.\*E.calycina Sm.

## 80 Anthoxanthum [Aveneae]

Coast and tablelands. Not common. Sweet vernal grass.  
\*A.odoratum L.

## 81 Microlaena

Coast and tablelands to western slopes. Common. Weeping grass.  
M.stipoides (Labill.) R.Br.

## 82 Tetrarrhena

Coast and tablelands, as far north as Barrington Tops on the tablelands. Not common. Wiry rice grass.  
T.junceae R.Br.

## 83 Hierochloa [Aveneae]

1. Glumes subequal to the spikelet; staminate lemmas ciliate on the keels and each producing a short awn near the tip. Southern tablelands and Barrington Tops. Uncommon. Sweet holy grass.  
H.redolens R.Br.
- 1.\* Glumes about half the length of the spikelet; staminate lemmas glabrous on the keels, obtuse, rarely with a short awn at the tip. Coast and tablelands, especially in southern half of State. Uncommon. Scented holy grass. H.rariflora Hook. f.

## Tribe ORYZEAE

## 84 Leersia

North coast. Uncommon. Swamp rice grass.  
L.hexandra Swartz

## 85 Potamophila

North coast, eastern edge of northern tableland. Rare.  
P.parviflora R.Br.

## Tribe ARUNDINELLEAE

## 86 Arundinella

North coast, tablelands and western slopes in northern half of State. Not common. Reed grass. A.nepalensis Trin.

## Tribe PANICEAE

## 87 Panicum

1. Lower glume from  $\frac{1}{2}$  to  $\frac{7}{8}$  the length of the spikelet.
2. Lower floret staminate.
3. Spikelets obtuse, fertile floret rugulose. Widespread in eastern half of State. Uncommon. Texas grass.  
\**P.bulbosum* H.B.K.
- 3.\* Spikelets acute, fertile floret smooth and shiny. North and central coast, northern tableland, north-west slopes and western plains. Uncommon. Giant panic.  
\**P.antidotále* Retz.
- 2.\* Lower floret neuter.
4. Spikelets 5-6.5 mm long.
5. Lower glume  $\frac{1}{2}$  the length of the spikelet, acute. Widespread. Not common. Broom millet, Millet panic.  
\**P.miliaceum* L.
- 5.\* Lower glume at least  $\frac{3}{4}$  the length of the spikelet, long acuminate. Northern tableland, north- and central western slopes, western plains (northern part). Not common.  
*P.queenslandicum* var.  
*acuminatum* J.Vickery
- 4.\* Spikelets less than 5 mm long.
6. Lower glume obtuse to sub-acute.
7. Lower glume about  $\frac{1}{2}$  the length of the spikelet. Central western slopes and western plains. Not common.  
*P.subxerophilum* Domin
- 7.\* Lower glume at least  $\frac{3}{4}$  the length of the spikelet. Western slopes, western and far western plains. Rigid panic, Coolah grass. *P.prolutum* F. Muell.
- 6.\* Lower glume acute to acuminate.

8. Lower glume at least  $\frac{3}{4}$  the length of the spikelet. North coast, western slopes and plains. Common in places on western slopes. Yabila grass. *P. queenslandicum* Domin
- 8.\* Lower glume half the length of the spikelet.
9. Aquatic grass with stems floating in water or rooting at the nodes in mud. North and central coast, possibly on northern tableland. Not common. Black-seed panic. *P. bisulcatum* Thunb.
- 9.\* Tufted grasses, non-aquatic.
10. Panicle 4-20 cm long, ovate, with few primary branches sparingly divided; spikelets sparse, often gaping, usually the golden fertile floret contrasting with the other purplish bracts at maturity. Coast, central tableland and north-west slopes. Common in places on the coast. Two-colour panic. *P. simile* Domin
- 10.\* Panicle large with long spreading branches, much divided; colour contrast within spikelets not conspicuous.
11. Blades 2-5 mm wide, not prominently rounded at the base. Widespread. Common. Hairy panic. *P. effusum* R.Br.
- 11.\* Blades 5-18 mm wide, rounded at the base.
12. Spikelets 2-2.5 mm long, plant hispid. Widespread. Uncommon. Witchgrass panic. *\*P. capillare* L.
- 12.\* Spikelets about 3 mm long, plant less pubescent. South-west slopes and western plains. Rare. *\*P. capillare* var. *occidentale* Rydb.
- 1.\* Lower glume  $\frac{1}{8}$  to  $\frac{1}{3}$  the length of the spikelet.
13. Lower floret staminate.
14. Fertile floret smooth and shiny.
15. Tufted annual with compressible culms. North and central coast, tablelands, north-west slopes. Not common. Sweet grass. *\*P. laevifolium* Hack.
- 15.\* Perennials with firm culms.

16. Culms arising from strong, creeping, horizontal rhizomes whose apices are sharp and covered with hard, polished scales. North coast, central western slopes. Not common. Creeping panic, Torpedo grass. \**P.repens* L.
- 16.\* Culms arising from a contracted rootstock or short rhizomes devoid of hard scales.
17. Spikelets ovate, acute, the fertile floret 2.5 mm long; spikelets loosely crowded in the panicle. See above. \**P.antidotale*
- 17.\* Spikelets oblong, acute, the fertile floret 1.75-2.25 mm long; spikelets well spaced in the panicle. Widespread. Uncommon. Coolah grass. \**P.coloratum* L.
- 14.\* Fertile floret transversely rugose.
18. Spikelets glabrous. North and central coast, northern tableland. Not common. Guinea grass. \**P.maximum* Jacq.
- 18.\* Spikelets pubescent. North and central coast, western plains. Common in places. Green panic. *P.maximum* var. *trichoglume* Eyles
- 13.\* Lower floret neuter.
19. Aquatic grass, the stems often floating, the leaves 8-20 mm broad; panicle large, with branchlets and spikelets more or less appressed to the main branches. North coast. Not common. Swamp panic. \**P.paludosum* Roxb.
- 19.\* Non-aquatic grasses, or semi-aquatic with narrower leaves and small panicles.
20. Low decumbent perennials with small panicles (up to 7 cm long) with few branches.
21. Leaf-blades abruptly narrowed into the sheaths and almost subpetiolate; grasses of rainforest floors and margins.
22. Culms mostly 4-5-noded, the blades soft. Central and north coast, rarely on northern tableland (Barrington Tops). ~~Panic.~~ Dwarf panic. *P.pygmaeum* R.Br.
- 22.\* Culms 7-8-noded, the blades firm. North coast. Not common. *P.lachnophyllum* Benth.

21.\* Leaf-blades not prominently narrowed at their bases; semi-aquatic grasses rooting freely at the nodes in mud and around streams and ponds. Coast and tablelands. Not common. White water panic. *P.obseptum* Trin.

20. Annuals or tufted perennials, with panicles large and spreading.

23. Fertile floret only about half the length of the spikelet (floret 1.75-2 mm, spikelet 3-4.5 mm long); panicle lanceolate in outline, nodding. Central coast, north- and central western slopes, western plains. Not common. *P.buncei* F. Muell. ex Benth.

23.\* Fertile floret no more than 1 mm shorter than the spikelet; panicle ovate or pyramidal, more or less erect.

24. Erect, leafy, tufted grasses; panicle branchlets at length spreading from the main branches.

25. Yellowish-green annual; main panicle branches remaining slender to their bases, not verticillate. South-west slopes, western and far western plains. Pepper grass. *P.whitei* J.M. Black

25.\* Glaucous-green perennial; main panicle branches becoming flattened and broad towards their bases, often verticillate. Central coast (adventive), western slopes, western and far western plains. Common. Native millet. *P.decompositum* R.Br.

24.\* Somewhat decumbent, tufted annual with geniculate, angular-compressed culms, the foliage often tinged with purple; branchlets remaining appressed to the main branches of the panicle. North coast, tablelands, western slopes, rarely on western plains. Not common. Sweet grass. *\*P.laevifolium* var. *contractum* Pilg.

## 88 Sacciolepis

Coast, rare on northern tableland. Not common. *S.indica* (L.) Chase

89 *Ancistrachne*

1. Spikelets 4.3-5 mm long, the lower glume 1-2.5 mm long. North- and central western slopes, western plains. Rare. Hooky grass, Hooked-hairy panic. *A.uncinulata* (R.Br.) S.T.Blake
- 1.\* Spikelets 2.4-3 mm long, the lower glume minute or absent. Central coast (Hawkesbury River district). Rare. *A.maidenii* (A.A.Hamilton) J.Vickery

90 *Brachiaria*

1. Lower floret with a palea.
  2. Lower glume  $\frac{1}{8}$  to  $\frac{1}{6}$  as long as the spikelet.
  3. Spikelets ciliate along nerves of the lower lemma towards the base, and pubescent on the upper glume. Western and far western plains. Not common. *B.gilesii* (Benth.) A.Chase
  - 3.\* Spikelets glabrous. Far western plains. Uncommon. *B.notochthona* (Domin)Stapf
- 2.\* Lower glume  $\frac{1}{3}$  to  $\frac{1}{2}$  as long as the spikelet.
  4. Spikelets 3-4 mm long, glabrous.
    5. Lower floret male; perennial. North coast. Not common. Para grass. *B.mutica* (Forsk.)Stapf
    - 5.\* Lower floret neuter; annual. Western and far western plains. Not common. *B.praetervisa* (Domin) C.E.Hubbard
- 4.\* Spikelets 5-6.5 mm long, pubescent.
  6. Tops of the pedicels with 12-15 fine hairs about 1 mm long (hairs clearly apparent when spikelets fall). North-west slopes and western plains (also coastal experiment farms). Uncommon. Texas millet. *B.texana* (Buckl.)S.T.Blake
  - 6.\* Tops of pedicels without hairs. North and central coast, rarely on north- and central western slopes. Not common. Leafy panic. *B.foliola* (R.Br.) Hughes

1.\* Lower floret empty.

7. Spikelets pubescent on upper glume and sterile lemma.

8. Spikelets 3-3.5 mm long, more or less uniformly pubescent on the upper glume and sterile lemma. Northern tableland. Uncommon. \**B.advena* J. Vickery

8.\* Spikelets 4-4.5 mm long, the upper glume and sterile lemma more prominently pubescent in the upper part with longer hairs forming a loose apical fringe. North- and central western slopes, western plains. Not common. *B.piligera* (F.Muell. ex Benth.) Hughes var. *intercedens* (Domin) Hughes

7.\* Spikelets glabrous. Western and far western plains. Not common. Green summer grass.

*B.miliiformis* (Presl) A.Chase

## 91 Entolasia

1. Upper glume and lower lemma distinctly exceeding the fertile floret. Coastal districts and edge of nearby tablelands, western slopes. Not common. Margined panic grass.

*E.marginata* (R.Br.) Hughes

1.\* Upper glume and lower lemma scarcely exceeding the fertile floret, the three apices almost level.

2. Spikelets 2.25-3.8 mm long. Coast and tablelands. Relatively common in places. *E.stricta* (R.Br.) Hughes

2.\* Spikelets 4-6 mm long. Coast. Uncommon. *E.whiteana* C.E.Hubbard

## 92 Neurachne

1. Lower glume with a window-like cavity near the base and a callosity bearing a tuft of hairs above it. Western and far western plains, rarely on western slopes. Not common. Mulga grass. *N.mitchelliana* Nees

1.\* Lower glume without the window or callosity, glabrous. Western plains. Rare. *N.munroi* (F. Muell.) F. Muell.

93 *Eriochloa*

1. Spikelets 4.5-12 mm long, acuminate, the upper glume narrowing into a bristle.
2. Spikelets 6-12 mm long, including the bristle; sheaths more or less inflated, much wider than the culms. Far western plains. Rare. *E.australiensis* Stapf ex Thell.
- 2.\* Spikelets 4.5-6 mm long; sheaths not inflated. Western slopes, western and far western plains, rarely on northern tableland and central coast. Common in places. Early spring grass. *E.pseudoacrotricha* (Stapf ex Thell.) C.E.Hubbard ex S.T.Blake
- 1.\* Spikelets less than 4.5 mm long, acute or shortly acuminate, rarely the upper glume produced into a bristle.
3. Spikelets 3.7-4.2 mm long, crowded and overlapping on the racemes. Western and far western plains. Not common. *E.crebra* S.T.Blake
- 3.\* Spikelets 3-3.75 mm long, neatly arranged in 2 rows on the racemes. Coast, rarely northern tableland, north- and central western slopes. Not common. *E.procera* (Retz.) C.E.Hubbard

94 *Urochloa*

Coast, western slopes and plains, rarely on northern tableland. Common in places. Liverseed. *\*U.panicoides* Beauv.

95 *Axonopus*

1. Upper glume and sterile lemma distinctly exceeding the fertile floret; spikelets 2.2-2.5 mm long, acute; blades 4-10 mm wide. North coast. Not common. Broad-leafed carpet grass. *\*A.compressus* (Swartz) Beauv.
- 1.\* Upper glume and sterile lemma subequal to the fertile floret; spikelets about 2 mm long, obtuse or sub-acute; blades 2-4 mm wide. Coast, rarely on southern tableland. Common on north coast. Narrow-leafed carpet grass. *\*A.affinis* A.Chase

96 *Cleistochloa*

Western plains, near Queensland border. Rare.

*C.subjuncea* C.E.Hubbard

97 *Dimorphochloa*

Central coast to central western slopes. Uncommon.

*D.rigida* S.T.Blake

98 *Oplismenus*

1. Leaves pubescent to almost glabrous, ovate-lanceolate, the margins flat; racemes reduced to a cluster of spikelets on several short branches splayed out from the axis, the upper clusters reduced to 2 spikelets. Coast, eastern edge of tablelands. Common near rainforests and in some moist situations.

*O.imbecillis* (R.Br.) Roem.  
et Schult.

1.\* Leaves pubescent, lanceolate, the margins usually wrinkled when dry; racemes up to 2.5 cm long near the base of the panicle and becoming shorter upwards, or reduced to a cluster of short branches.

2. Racemes reduced to a cluster of very short branches splayed out from the axis; leaves densely pubescent with hairs of similar length. North coast. Not common.

*O.undulatifolius* (Ard.)Beauv.  
var. *mollis* Domin

2.\* Racemes up to 2.5 cm long with spikelets evenly arranged along the raceme axis; leaves pubescent with hairs of varying length.

3. Axis of panicle with hairs concentrated near the nodes and varying in length and density along the internodes, the internodes frequently scabrous. Coast, tablelands, mountainous country on north-west slopes and on the Warrumbungles. Common in wet forests.

*O.aemulus* (R.Br.)Kunth

3.\* Axis of panicle evenly pubescent along the upper internodes. North coast. Not common.

*O.aemulus* var. *lasiorhachis*  
Domin

## 99 Echinochloa #

1. Spikelets 2.5-3 mm long, evenly arranged in dense rows along simple racemes up to 2 cm long; lower lemma and upper glume equally acute or pointed, both awnless. Widespread in eastern half of the State. Common in some coastal districts. Awnless barnyard grass. \*E.colonum (L.)Link
- 1.\* Spikelets 3-4 mm long, crowded and irregularly arranged on racemes which are sometimes branched and often more than 2 cm long; lower lemma acuminate or awned, upper glume acuminate or scarcely awned. Widespread. Common. Barnyard grass. \*E.crusgalli (L.)Beauv.

# The genus in Australia is currently being revised by Dr. Vickery and Dr. Michael. More than the 2 species cited occur in New South Wales.

## 100 Alloteropsis

North coast, northern tableland to north-west slopes and plains.  
Not common. Cockatoo grass. A.semialata (R.Br.)Hitche.

## 101 Digitaria

1. Racemes very long and rigid, naked near the base for 2-12 cm, ultimately divaricately spreading, the lower racemes whorled.
2. Spikelets 2-3.5 mm long, clothed with silky hairs which exceed the spikelet and obscure its outline.
3. Sterile lemma 2-2.5 mm long, uniformly villous over the back. ~~North-west slopes and western plains.~~ Not common. Silky umbrella grass. D.ammophila (F.Muell.)Hughes
- 3.\* Sterile lemma 3-3.5 mm long, villous on the sides but glabrous between the nerves and at the base and apex. Western plains. Not common. *D.hystrioides* J. Vickery
- 2.\* Spikelets 3.5-5 mm long, the hairs not concealing the outline of the spikelets.

4. Spikelets usually 5 mm long (4.5-5mm), the woolly hairs conspicuous and spreading in the upper part to give the spikelet an obtuse appearance, the upper glume subequal to the spikelet; axils of racemes with hairs 1-3 mm long; foliage usually greyish velvety pubescent.
5. Racemes simple. North-west slopes, western and far western plains. Not common. Finger panic grass.  
D.coenicola (F.Muell.) Hughes
- 5.\* Racemes of lower whorl unilaterally branched, the branches 3-12 cm long. North-west slopes. Uncommon.  
D.coenicola var. ramosa  
J.Vickery
- 4.\* Spikelets usually 4-4.5 mm long, the spreading hairs scarcely concealing the outline of the spikelet, the upper glume a little shorter and narrower than the spikelet; axils of racemes shortly pubescent with hairs up to 0.5 mm long; upper leaves pubescent to almost glabrous. North and central coast, western slopes and plains. Relatively common on western slopes. Umbrella grass.  
D.divaricatissima (R.Br.)  
Hughes
- 1.\* Racemes usually bearing spikelets right to their bases, rarely bare for a few mm or up to 2 cm in *D. brownii*.
6. Sterile lemma pubescent and with 2 tufts of long silky hairs on either side of the midvein near the middle. Western slopes and plains. Rare.  
D.hubbardii Henrard
- 6.\* Sterile lemma pubescent to glabrous, without tufts of long hairs.
7. Spikelets clothed with and almost concealed by long silky hairs on the upper glume and sterile lemma.
8. Lower glume minute and hyaline, or absent. North coast. Uncommon.  
D.leucostachya (Domin) Henrard
- 8.\* Lower glume firm, more or less triangular, up to  $\frac{1}{3}$  the length of the spikelet. Northern tableland, western slopes and plains to far western plains. Relatively common. Cotton panic grass.  
D.brownii (Roem.et Schult.)  
Hughes
- 7.\* Spikelets pubescent or glabrous, the hairs (if present) short and not concealing the spikelet.

9. Spikelets mostly ternate (borne in groups of 3) on the racemes.
10. Spikelets 1.3-1.8 mm long, bearing hairs which are verrucose (i.e covered with minute warty growths as if sprinkled with fine grains of sand - visible under high magnification).
11. Fertile floret purplish-black, the upper glume 3-nerved; racemes 2-13 in number. North and central coast, rarely on northern tableland and central western slopes. Not common.  
\**D.violascens* Link
- 11.\* Fertile floret pale, the upper glume 5-nerved; racemes 2-3 in number. North and central coast. Not common.  
*D.propinqua* (R.Br.)Beauv.
- 10.\* Spikelets 2-2.5 mm long, bearing hairs which have club-shaped or recurved or loosely coiled tips.
12. Pedicels with a ring of short hairs at the summit (clearly visible when spikelets have fallen); hairs on spikelets smoothly club-shaped at their tips. Northern tableland. Rare.  
\**D.ternata* (Hochst.)Stapf
- 12.\* Pedicels without a ring of hairs at the summit; hairs on spikelets somewhat crinkled, recurved or loosely coiled at their tips. Tablelands. Uncommon. Smooth summer grass.  
\**D.ischaemum* (Schreb.) Schreb.  
ex Muhl.
- 9.\* Spikelets mostly binate (in pairs) on the racemes.
13. Upper glume subequal to or equal to the spikelet.
14. Spikelets 2.5-3.5 mm long; racemes several, arising from a common axis which is 1 cm long or less.
15. Spikelets 2.5 mm long; hairs on margins of upper glume and sterile lemma spreading as a fringe at maturity. North coast. Occurrence uncertain.  
*D.baileyi* (Benth.)Hughes
- 15.\* Spikelets 3-3.5 mm long; hairs near margins of upper glume and sterile lemma not spreading at maturity. Sydney district. Uncommon. \**D.aequiglumis* (Hack. et Arech.)  
Parodi
- 14.\* Spikelets 1.5-2.2 mm long; racemes up to 20, but as few as 2, arising from a common axis 3-10 cm long.

16. Spikelets glabrous or with a few appressed hairs which do not spread at maturity; erect, robust, loosely tufted perennial with culms 45-150 cm high. Coast. Common in places. Small-flower finger grass. *D.parviflora* (R.Br.)Hughes
- 16.\* Spikelets with hairs at first appressed and inconspicuous but spreading at maturity as a purple fringe; delicate, slender decumbent perennial, branching and rooting at the nodes, the culms reaching up to 40 cm high. North and central coast and tablelands, north- and central western slopes, rarely on the western plains. Not common. *D.diffusa* J. Vickery
- 13.\* Upper glume up to  $\frac{3}{4}$  the length of the spikelet.
17. Upper glume up to  $\frac{1}{3}$  the length of the spikelet; spikelets 1.5-2 mm long.
18. Lower glume present, though small; upper glume  $\frac{1}{4}$  to  $\frac{1}{3}$  as long as the spikelet.
19. Sterile lemma 7-nerved, with 5 closely-spaced nerves visible from the front. North and central coast and tablelands, rarely on the western plains. Not common. *D.diminuta* Hughes
- 19.\* Sterile lemma 3-5-nerved with 3 widely-spaced nerves visible from the front. North coast, north-west slopes, western plains. Rare. *D.breviglumis* (Domin)Henrard
- 18.\* Lower glume absent; upper glume  $\frac{1}{8}$  to  $\frac{1}{4}$  as long as the spikelet. Western plains, near Queensland border. Rare. *D.orbata* Hughes
- 17.\* Upper glume more than half the length of the spikelet (if less than half, the spikelet at least 2.5 mm long).
20. Spikelets not exceeding 2.75 mm.
21. Racemes 3-15 in number, arising from a common axis 3-10 cm long; spikelets 1.5-2 mm long.
22. Panicle corymbiform, the tips of the racemes approaching the same level; upper glume acute. Sydney district. Uncommon. *\*D.velutina* (Forsk.)Beauv.
- 22.\* Panicle with racemes at first erect and then widely spreading, not corymbiform; upper glume very obtuse. Coast, north and central tablelands and western slopes, rarely on the western plains. Not common. *D.ramularis* (Trin.) Henrard

21.\* Racemes 2-3, digitate; spikelets 2-2.75 mm long. North and central coast, rarely on central western slopes. Uncommon. Queensland blue couch. \**D.didactyla* Willd.

20.\* Spikelets 2.75 - 3.5 mm long.

23. Spikelets acuminate, 3-3.5 mm long; sterile lemma smooth on the nerves. Central coast and west of the Divide. Not common. Summer grass. \**D.ciliaris* (Retz.)Koeler

23.\* Spikelets acute, 2.75-3 mm long; sterile lemma scabrous on the nerves in the upper part. Widespread, especially in eastern half of State. Common in places. Summer grass. \**D.sanguinalis* (L.) Scop.

## 102 Paspalum #

1. Panicle with usually 2 racemes which are conjugate at the top of the culm; spikelets solitary, the racemes with 2 rows of spikelets.

2. Spikelets 2.5-4.5 mm long, the racemes mostly 1.5-7 cm long.

3. Glume minutely pubescent; blades rounded at the base; usually found near fresh water. Widespread. Not common. Water couch. *P.paspaloides* (Michx.)Scribn.

3.\* Glume and sterile lemma glabrous; blades usually narrower than the summit of the sheath; usually found near salt water. North and central coast. Not common. Salt-water couch. *P.distichum* L.

2.\* Spikelets 1.4-2 mm long, the racemes mostly 8-12 cm long. North coast. Not common. Sour grass. \**P.conjugatum* Bergius

1.\* Panicle with 2 to many racemes which are scattered along a common axis, not conjugate.

4. Spikelets solitary, the racemes bearing spikelets in 2 rows. North and central coast. Relatively common in places. Ditch millet. *P.orbiculare* Forst.

4.\* Spikelets paired, the racemes bearing spikelets in 4 even or irregular rows.

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# The identity of an introduced species on the north coast thought to be *P.commersonii* Lam. is being checked by the National Herbarium, which has sent a specimen to the Smithsonian Institute, Washington, for clarification.

5. Spikelets 1.25-1.5 mm long; perennial with rhizomes covered with hairy bracts. North coast. Uncommon. Russell river grass.  
\**P. paniculatum* L.
- 5.\* Spikelets 2-4 mm long; caespitose perennials.
6. Upper glume glabrous or faintly puberulous towards the margins North coast. Not common. \**P. wettsteinii* Hack.
- 6.\* Upper glume pilose or pubescent on the back or fringed with long hairs.
7. Spikelets sparsely pubescent, fringed with long silky hairs.
8. Panicle with 2-11 racemes, but usually 3-7; spikelets 2.8-4 mm long. Widespread, especially in eastern half of the State. Common. Paspalum. \**P. dilatatum* Poir.
- 8.\* Panicle with 6-30 racemes, but usually 12-18; spikelets 2-3 mm long. Coast, especially north coast, rarely on northern tableland. Common on north coast. Vasey grass.  
\**P. urvillei* Steud.
- 7.\* Spikelets pubescent or pilose, not fringed with longer silky hairs.
9. Blades 5-8 mm broad; panicle with 15-25 racemes, the longest being 6-8 cm long. Central coast. Uncommon.  
\**P. quadrifarium* Lam.
- 9.\* Blades about 20 mm broad; panicle with 6-15 racemes, the longest up to 18 cm long. North coast. Not common.  
\**P. regnellii* Metz.

### 103 Paspalidium

1. Lower floret with a palea almost as long as the lemma.
2. Spikelets 4.5 mm long, shortly pedicellate; upper glume 9-15-nerved, the fertile lemma smooth. North-west slopes and plains. Not common. Shot grass.  
*P. globoideum* (Domin) Hughes
- 2.\* Spikelets 2.6-3 mm long; sessile; upper glume 7-nerved, the fertile lemma granular-rugose. N.S.W. occurrence uncertain, possibly north coast. *P. flavidum* (Retz.) A. Camus

- 1.\* Lower floret empty or subtending a very small palea.
3. Outline of spikelet not constricted about  $\frac{1}{3}$  from the base; racemes with spikelets in 2 even rows, the racemes usually unbranched (but if branched, then the branches bearing spikelets in 2 even rows).
4. Leaf-sheaths and blades and inflorescence axis conspicuously hairy with long white hairs. North and central coast, north- and central western slopes, western plains. Common in places.  
*P.albovillosum* S.T.Blake
- 4.\* Leaves glabrous or sparsely hairy, the inflorescence axis glabrous.
5. Lower glume of spikelet not inflated, the spikelets lying more or less straight along the raceme axis and often appressed to it.
6. Spikelets 2.5-3 mm long; lower racemes equalling or exceeding the internodes of the panicle axis; blades flat, 3-5 mm wide. Central coast and tableland, western slopes to western and far western plains. Common in places. Warrego summer grass.  
*P.jubiflorum* (Trin.) Hughes
- 6.\* Spikelets 1.8-2.2 mm long; lower racemes usually shorter than the internodes of the panicle axis; blades loosely involute or convolute, 1.5 mm wide when expanded. Western plains. Common in places. Brigalow grass.  
*P.caespitosum* C.E. Hubbard
- 5.\* Lower glume of spikelet inflated at the base, the spikelets reflexed on the abaxial side and diverging from the raceme axis.
7. Spikelets 1.8-2.2 mm long. Coast and western plains, possibly adventive on northern tableland. Not common.  
*P.radiatum* J. Vickery
- 7.\* Spikelets 2.5-2.75 mm long. Coast, tablelands, western slopes and plains. Not common.  
*P.aversum* J. Vickery
- 3.\* Outline of spikelet distinctly constricted about  $\frac{1}{3}$  of its length from the base, due to constriction of the lemmas and upper glume, the lower glume being slightly inflated at the base; racemes with spikelets loosely and irregularly arranged, usually with one or more branches bearing a single spikelet.

8. Spikelets narrow, up to 1 mm broad, rather lanceolate in outline; culms slender to filiform, entirely glabrous and smooth. Coast, rarely on western plains. Not common.

*P.criniforme* S.T.Blake

- 8.\* Spikelets not particularly narrow; culms wiry to rigid, smooth to scabrous-pubescent.

9. Spikelets 2-2.75 mm long; lower glume glabrous and smooth; culms smooth to lightly scabrous or scabrous-pubescent. Central coast, tablelands, western slopes and plains. Common in places. Slender panic.

*P.gracile* (R.Br.) Hughes

- 9.\* Spikelets 2.25-3.5 mm long; lower glume usually finely pubescent; culms densely scabrous-pubescent or pubescent, and nodes often with a few long hairs. Western slopes, western to far western plains, possibly on northern tableland. Common in places.

*P.constrictum* (Domin)

C.E. Hubbard

#### 104 *Paractaenum*

Far western plains. Not common. Reflexed panic.

*P.novaehollandiae* Beauv.

#### 105 *Pseudoraphis*

1. Racemes 3-6 cm long, the uppermost racemes reduced to 2 or 3 spikelets. Central coast, western slopes and plains. Prostrate grass in damp places. Not common. Mud grass.

*P.spinescens* (R.Br.) J.Vickery

- 1.\* Racemes reduced to 1-3 spikelets, the panicle spike-like. Central coast. Prostrate grass in damp situations. Uncommon.

*P.paradoxa* (R.Br.) Pilger

#### 106 *Plagiosetum*

Far western plains. Not common.

*P.refractum* (F. Muell.) Benth.

## 107 Setaria

1. Panicle loose, with spreading branches; leaf-blades 4-6 cm wide; bristles few and inconspicuous. North and central coast. Not common. Palm grass. \**S.palmifolia* (Willd.) Stapf
- 1.\* Panicle cylindric and dense, sometimes lobed.
2. Spikelets several in each involucre of bristles; panicle spike-like, 7.5-30 cm long, the bristles golden brown. North coast. Not common. Golden Timothy. \**S.sphacelata* (Schum.) Stapf et C.E.Hubbard ex M.B.Moss
- 2.\* Spikelets solitary in each involucre of bristles.
3. Bristles retrorsely barbed. Widespread. Not common. Bristle pigeon grass. \**S.verticillata* (L.) Beauv.
- 3.\* Bristles antrorsely barbed.
4. Upper glume equalling the spikelet and concealing the fertile lemma, the spikelets obtuse.
5. Panicle 1-10 cm long, up to 1 cm wide; rachilla disarticulating below the glumes and not between the florets. Widespread. Not common. Green pigeon grass. \**S.viridis* (L.) Beauv.
- 5.\* Panicle very dense, 10 cm long or more, 2-3 cm wide and often lobed; rachilla disarticulating below the fertile floret. Widespread. Not common. Italian millet. \**S.italica* (L.) Beauv.
- 4.\* Upper glume up to  $\frac{3}{4}$  the length of the spikelet and revealing the top of the fertile lemma, or if upper glume subequal to the spikelet then spikelets acute.
6. Upper glume about  $\frac{1}{2}$  the length of the mature spikelet; bristles several together, fused near their bases into a bunch, each spikelet subtended by 2 bunches.
7. Plant annual; inflorescence 4-8 mm wide (excluding bristles), the bristles usually more than twice the length of the spikelet.

8. Spikelets about 3 mm long; fertile floret pale or light green at maturity in the lower part (protected by upper glume), sometimes becoming brown or dark near the tip; bristles usually remaining pale at the base. Widespread. Common. Pale pigeon grass.  
\**S.glauca* (L.) Beauv.
- 8.\* Spikelets 2-3 mm long; fertile floret brown all over the back at maturity; bristles becoming brown at their bases. Widespread. Uncommon. Queensland pigeon grass.  
\**S.pallide-fusca* (Schum.) Stapf  
et C.E. Hubbard
- 7.\* Plant perennial, producing short knotty rhizomes up to 4 cm long; inflorescence narrow, 3-4 mm wide (excluding bristles), the bristles short, generally inconspicuous and usually not exceeding the spikelet by more than half its length. Widespread. Not common. Slender pigeon grass. \**S.geniculata* (Lam.) Beauv.  
var. *pauciseta* Desv.
- 6.\* Upper glume  $\frac{4}{5}$  the length of the mature spikelet; bristles solitary on the pedicel. North coast, also on northern tableland circa 1900. Rare. *S.australiensis* (Scribn. et Merrill) J. Vickery

108 *Cenchrus*

1. Spines or bristles retrorsely barbed.
2. Spines fused only at their bases, forming a small disc or shallow cup subtending the spikelet(s). Coast, tablelands and western slopes. Not common. Hillside bur grass.  
*C.australis* R.Br.
- 2.\* Spines fused for at least  $\frac{1}{3}$  of their length, the fused bases enclosing the spikelets.
3. Bur consisting of one whorl of united flattened spines subtended by one or more whorls of smaller and finer bristles. North coast. Uncommon. Mossman River grass.  
\**C.echinatus* L.
- 3.\* Bur consisting of several whorls of flattened spines, the spines emerging at irregular intervals from the body of the bur, often with a number of bristles subtending the fused spines. Widespread. Not common. Spiny bur grass.  
\**C.pauciflorus* Benth.

1.\* Spines antorsely barbed.

4. Spines more than 4 mm long, united only at their bases, densely ciliate-plumose on the inner margins. Coast, tablelands and western slopes. Common in places on the coast. Buffel grass.  
\*C.ciliaris L.

4.\* Spines 2-4 mm long, fused for  $\frac{1}{3}$  to  $\frac{1}{2}$  their length, glabrous on the inner margins. North coast and north-western slopes. Not common. Birdwood grass.  
\*C.setigerus Vahl

## 109 Pennisetum

1. Inflorescence reduced to a cluster of 2-4 spikelets enclosed in the leaf-sheaths; a prostrate creeping grass with short culms and internodes. Coast, northern tableland, western slopes. Common on the coast. Kikuyu grass.

\*P.clandestinum Hochst. ex  
Chiov.

1.\* Inflorescence spike-like and well-developed with many spikelets.

2. Bristles plumose near the base.

3. Bristles of inner whorl flattened and dilated near the base.  
Cenchrus

3.\* Bristles slender, not flattened near the base. Widespread. Not common, except in some townships. Feathertop.  
\*P.villosum R.Br.

2.\* Bristles not plumose, or rarely a few of the innermost bristles loosely hairy near the base.

4. Spikelets falling with a stalk 1-2 mm long, the spikelets usually ascending or erect. Coast, tablelands, western slopes and plains. Common on northern tableland. Swamp foxtail.  
P.alopecuroides (L.) Spreng.

4.\* Spikelets sessile, spreading at right angles to the rachis.

5. Culms hairy below the panicle; spikelets frequently in clusters of 2-5 within each involucre, especially near base of panicle. Coast. Common in places on north coast. Elephant grass.  
\*P.purpureum Schumach.

5.\* Culms glabrous below the panicle; spikelets solitary within each involucre. Coast. Not common. African feather grass.  
\*P.macrourum Trin.

110 *Isachne* [*Isachneae*]

Coast and tablelands, rarely on western slopes. Common aquatic  
grass. Swamp millet. *I.globosa* (Thunb.) O.Ktze.

111 *Ottochloa*

North and central coast. Rare. *O.gracillima* C.E. Hubbard

112 *Melinis*

North and central coast, becoming common on north coast. Molasses  
grass. *\*M.minutiflora* Beauv.

113 *Rhynchelytrum*

Coast and western slopes. Common on north coast. Red natal grass.  
*\*R.repens* (Willd.)C.E. Hubbard

114 *Uranthoecium*

Far western plains. Uncommon. *U.truncatum* (Maiden et Betche)  
Stapf

115 *Stenotaphrum*

Chiefly coast, rarely on tablelands or western slopes. Common  
lawn grass on coast. Buffalo grass. *\*S.secundatum* (Walt.)Kuntze

116 *Spinifex*

Common on coastal sand dunes. Hairy spinifex.  
*S.hirsutus* Labill.

117 *Zygochloa*

Far western plains. Not common. Sandhill cane grass.

*Z. paradoxa* (R.Br.) S.T. Blake

## Tribe ANDROPOGONEAE

118 *Hemarthria*

Coast and tablelands. Not common. Mat grass.

*H. uncinata* R.Br.

119 *Ischaemum*

1. Sessile spikelets about 3 mm broad, obtuse, with 1 mm broad wings on the keels of lower glume in the upper part; nodes more or less glabrous, the leaf-blades 6-12 mm wide. North coast (sandy foreshores). Not common.

*I. triticeum* R.Br.

1.\* Sessile spikelets about 2 mm broad, acute, the lower glume very narrowly winged on the keels; nodes bearded, the leaf-blades 3-5 mm wide. North coast. Not common.

*I. australe* R.Br.

120 *Sehima*

North-west slopes. Rare.

*S. nervosum* (Rottl.) Stapf

121 *Eremochloa*

North coast, northern tableland and north-west slopes. Uncommon.  
Poverty grass.

*E. bimaculata* Hack.

## 122 Imperata

Coast and tablelands to western slopes. Common. Blady grass.

*I.cylindrica* (L.) Beauv. var.  
major (Nees) C.E.Hubbard

## 123 Miscanthus

Central coast and tableland. Rare. *Eulalia*.

\**M.sinensis* Anderss.

## 124 Eulalia

Northern tableland, western slopes and plains. Relatively common in northern districts. Silky browntop.

*E.fulva* (R.Br.) O.Kuntze

## 125 Microstegium

North-east slopes (near rainforest). Rare.

\**M.nudum* (Trin.) A. Camus

## 126 Arthraxon

North coast and northern tableland. Rare.

*A.hispidus* (Thunb.) Makino

## 127 Sorghum

1. Nodes bearded with long hairs. Coast, tablelands, north-west slopes. Common on northern tableland. Wild sorghum.

*S.leiocladum* (Hack.)

C.E. Hubbard

1.\* Nodes glabrous or finely pubescent.

2. Perennial with long creeping rhizomes; sessile spikelets articulate with the rachis. Coast and tablelands to western plains. Not common. Johnson grass. \**S.halepense* (L.) Pers.
- 2.\* Annuals, or perennial without creeping rhizomes.
3. Racemes breaking up at the joints at maturity.
4. Sessile spikelets articulate with the rachis. North coast, rarely on central tableland. Uncommon. Rhodesian sudan. grass. \**S.verticilliflorum* (Steud.) Stapf
- 4.\* Sessile spikelets falling with a fragment of the rachis remaining attached to the base of each spikelet. North coast, cultivated. Not common outside cultivations. Sudan grass. \**S.sudanense* (Piper) Stapf
- 3.\* Racemes not breaking up, the spikelets persisting at maturity. Widespread, cultivated for grain and fodder. Grain and sweet sorghums. \**S.vulgare* Pers.

128 *Chrysopogon*

1. Sessile spikelets with an awn 3.5-5 mm long, pedicellate spikelets usually awnless; leaf-sheaths keeled, fan-shaped, persistent; racemes usually 2-jointed. North coast. Not common. *C.sylvaticus* C.E. Hubbard
- 1.\* Sessile spikelets with an awn 5-10 mm long, pedicellate spikelets usually awned; leaf-sheaths not keeled, the basal sheaths at length disintegrating into fibres; racemes usually 1-jointed. Northern tableland, north-west slopes, western and far western plains. Not common. Golden-beard grass. *C.fallax* S.T. Blake

129 *Vetiveria*

- North coast, rarely on western plains. Uncommon. *V.filipes* (Benth.) C.E. Hubbard

130 *Capillipedium*

1. Racemes usually 1-2-jointed; lower glume of sessile spikelets with 2 nerves between the keels. North and central coast, northern tableland, north-west slopes and western plains. Not common, more frequent in north-east districts. Scented-top grass. *C.parviflorum* (R.Br.) Stapf
- 1.\* Racemes usually 3-8-jointed; lower glume of sessile spikelets with 4-5 nerves between the keels. North and central coast, rarely on northern tableland and north-west slopes. Common on coast. Scented-top grass. *C.spicigerum* S.T. Blake

131 *Bothriochloa*

1. Fertile lemma with awn arising between 2 short linear or filiform hyaline lobes.
  2. Awn geniculate and twisted; spikelets not concealed by hairs on the racemes, whose joints and pedicels are glabrous on the back. North-west slopes, western plains, rarely on central western slopes. Not common. *B.biloba* S.T. Blake
  - 2.\* Awn a flexuose bristle, not geniculate or twisted; spikelets almost concealed by long hairs on the racemes, whose joints and pedicels are villous on the back. North-west slopes and western plains. Uncommon. Satin-top grass. *B.erianthoides* (F. Muell.) C.E. Hubbard.
- 1.\* Fertile lemma without lobes on either side of the base of the awn.
  3. Sessile spikelets 4.75 - 7 mm long; pedicellate spikelets reduced to a narrow involute lower glume, with or without a rudimentary upper glume.
  4. Sessile spikelets up to 5.25 mm long, pedicellate spikelets reduced to 1 glume. North coast, northern tableland, western slopes and plains. Not common. Pitted blue grass. *B.decipiens* (Hack.)C.E.Hubbard
  - 4.\* Sessile spikelets up to 7 mm long, pedicellate spikelets reduced to 2 glumes, the upper membranous and often quite short. Widespread. Common on coast and tablelands. Red-leg grass, Red grass. *B.macera* (Steud.)S.T. Blake

- 3.\* Sessile spikelets 3-4.5 mm long; pedicellate spikelets similar to the sessile in size and shape, or rarely reduced to flat glumes.
5. Panicle axis 3-6-noded, less than 4 cm long; racemes naked at the base for 2-7 mm. North-west slopes and plains. Rare. Desert blue grass. *B.ewartiana* (Domin) C.E.Hubbard
- 5.\* Panicle axis 5-15-noded, 4-14 cm long; racemes naked at the base for 10-15 mm. North and central coast, northern tableland, north- and central western slopes, western plains. Uncommon. Forest blue grass. *B.bladhii* (Retz.) S.T. Blake

132 *Dichanthium*

1. Lower glume of sessile spikelets with long cilia on keels and subapical arch.
2. Sessile spikelets 5-6 mm long, purplish; pedicellate spikelets male. Northern tableland, rarely on north- and central western slopes and western plains. Not common. *D.setosum* S.T. Blake
- 2.\* Sessile spikelets 3-4.5 mm long; pedicellate spikelets neuter.
3. Lower glume of sessile spikelet with 6-8 nerves; racemes 4-7 cm long. Widespread. Common on northern tableland, north-west slopes and plains. Queensland blue grass. *D.sericeum* (R.Br.) A. Camus
- 3.\* Lower glume of sessile spikelets with 5 nerves; racemes 1.5-4 cm long. Northern tableland, north-west slopes and planes. Not common. *D.affine* (R.Br.) A. Camus
- 1.\* Lower glume of sessile spikelets minutely ciliolate on the keels towards the apex. North coast and tableland. Not common. Small blue grass. *D.tenue* (R.Br.) A. Camus

133 *Schizachyrium*

- Western plains (near Narrabri). Rare. *S.fragile* (R. Br.) A. Camus

134 *Andropogon*

North coast, rarely on central coast. Common in places.  
Broomsedge. *\*A.virginicus* L.

135 *Cymbopogon*

1. Racemes apparently glabrous, sharply reflexed; lemma rarely awned. North and central coast, tablelands, rarely on north- and central western slopes and plains. Common. Barbed-wire grass. *C.refractus* (R.Br.) A. Camus

1.\* Racemes conspicuously hairy; lemmas awned.

2. Awn 6-8 mm long; racemes deflexed, densely villous. Western and far western plains, less common on northern tableland, north- and central western slopes. Common in mid-west. Silky-heads. *C.obtectus* S.T. Blake

2.\* Awn 12-15 mm long; racemes erect or slightly diverging, often less villous. Far western plains. Not common. Scent grass. *C.ambiguus* A. Camus

136 *Hyparrhenia*

1. Awned spikelets 5-7 on each raceme, the awns 1.5-2.5 cm long. North coast, northern tableland and north-west slopes. Common on some roadsides. *\*H.hirta* (L.) Stapf

1.\* Awned spikelets 1-2 on each raceme, the awns 4-5 cm long. North coast, rarely on northern tableland. Not common. Tambookie grass. *H.filipendula* (Hochst.) Stapf

137 *Heteropogon*

North coast, rarely on northern tableland and north-west slopes. Not common. Bunch spear grass, Black spear grass.

*H.contortus* (L.) Beauv. ex  
Roem. et Schult.

## 138 Themeda

1. Fertile spikelets glabrous and shiny for the most part, 8 mm long (including callus). Widespread. Common on coast and tablelands. Kangaroo grass. *T.australis* (R.Br.) Stapf
- 1.\* Fertile spikelets densely hairy, 13-17 mm long (including callus). North-west slopes, western plains, rarely on far western plains and central western slopes. Not common. Native oat grass. *T.avenacea* (F.Muell.) Durand et Jackson

## 139 Iseilema

1. Inflorescence breaking up at the nodes at maturity; spathes rounded on the back downwards. Far western plains. Not common. Red Flinders grass. *I.vaginiflorum* Domin
- 1.\* Inflorescence not breaking up at the nodes, but the racemes disarticulating from their peduncles; spathes keeled. North-west slopes, western slopes and plains, rarely on central western slopes. Common in places. Small Flinders grass. *I.membranaceum* (Lindl.) Domin

## Tribe MAYDEAE

## 140 Zea

Cereal crop. Corn, Maize.

\**Z.mays* L.

## APPENDIX II

HERBARIUM RECORDS OF ADDITIONS TO  
THE NEW ENGLAND GRASS FLORA

[Located in N.S.W. National Herbarium,  
unless otherwise stated.]

- Amphibromus whitei*: Inverell, E.O. Thomas; 12/1912  
*Amphibromus* sp. nov.: Armidale district, C.K. Ingram; 12/1938  
*Aristida acuta*: Tenterfield district, J. A. Loveridge; 30/1951  
*Aristida ingrata*: 15m west of Guyra, E.N. McKie; 1/1/1930  
*Aristida jerichoensis*: 7m west of Guyra, E.N. McKie; 6/4/1931  
*Aristida muelleri*: Inverell district, V. Gidley; 24/1/1961  
*Arrhenatherum elatius* var. *bulbosum*: Glen Innes, Mr. McCausland,  
 6/1912  
*Avena sterilis*: Armidale, N. C. W. Beadle; 30/10/1958  
*Bromus inermis*: Glen Innes district, H. A. Grantham; 27/12/1943  
*Bromus macrostachys*: Armidale, P. Core; 20/9/1965  
*Bromus molliformis*: Near Bendemeer, R. H. Goode; 13/11/1954  
*Bromus racemosus*: Armidale, J. H. Moffatt; 21/11/1936  
*Bromus rubens*: 3m west of Armidale, B. Bindon; 30/10/1959  
*Bromus secalinus*: Guyra, J. Vickery; 11/1/1936  
*Cenchrus ciliaris*: West of Glen Innes, I. MacDonald; 2/1964  
*Cenchrus pauciflorus*: Woolbrook, J. W. Boyle; 24/3/1950  
*Chloris acicularis*: 12m east of Ashford, B. E. Norton; 5/12/1969  
*Chloris virgata*: Armidale, M. Gray; 24/1/1954  
*Chrysopogon fallax*: Glen Innes, H. Rupp; 1/1941 (Nat.Herb.12438)  
*Cynodon hirsutus*: Ben Lomond district, F. J. Simes per J. J. Millen;  
 27/1/1965  
*Cynodon incompletus*: Glen Innes, J. B. Noonan; 6/3/1950  
*Cynosurus cristatus*: Guyra district, E. C. Connor; 13/6/1951  
*Dichanthium affine*: Armidale, Distr. Vet. Officer; 4/1959  
 (Nat.Herb. 47048)  
*Dichanthium tenue*: Guyra district, E. McKie; 4/1937 (Nat.Herb.12780)  
*Digitaria ternata*: Glen Innes district, J. Noonan; 1/1950  
 (Nat.Herb. 25793)  
*Digitaria violascens*: Tingha, Secret. Agric. Bur; 4/1919  
 (Nat.Herb. 25801)  
*Ehrharta calycina*: 10m south of Guyra, M. Curll; 2/4/1966  
 (U.N.E. Bot. Dept - one specimen)  
*Ehrharta erecta*: Armidale, G. Wray; 3/1959  
*Eleusine indica*: Glen Innes district, E. C. Powell; 8/5/1950  
*Festuca rubra*: Armidale University, N.C.W. Beadle; 11/1958  
*Heteropogon contortus*: Moona Plains, A. R. Crawford; 5/1899  
 (Nat.Herb. 12800)

- Hordeum vulgare*: not collected  
*Leptochloa digitata*: Inverell, E. O. Thomas; 11/1912  
*Nassella trichotoma*: Rockvale via Armidale, K. Green; 31/10/1955  
*Oplismenus aemulus*: Northern tableland, J. L. Boorman; 1/1907  
*Oplismenus imbecillis*: Bolivia, H. Rupp; 1/1913  
*Panicum antidotale*: Glen Innes district, J. B. Noonan; 13/4/1949  
*Panicum capillare*: Armidale, G. Davis; 4/1939  
*Panicum laevifolium* var. *contractum*: Chiswick, 10m south of Armidale, J. Wheeler; 9/1968  
*Panicum maximum*: Glen Innes to Inverell, J. Plante; 3/2/1951  
*Panicum miliaceum*: Inverell, V. Gidley; 23/3/1963 (Nat. Herb. 112683)  
*Paspalidium globoideum*: Inverell, H. C. Wentworth; 25/3/1950  
*Paspalum urvillei*: 25m east of Armidale, B. E. Norton; 11/1970  
*Pennisetum clandestinum*: Armidale, N. Brown; 3/1970  
*Phalaris arundinacea*: Watsons Creek, J. W. Boyle; 8/12/1947  
*Phalaris coerulescens*: Armidale University, H. Wissman; 11/1970  
*Phalaris paradoxa*: Armidale district, R. Roe; 3/11/1947  
 (U.N.E. Bot. Dept. - one specimen)  
*Poa bulbosa*: Glen Innes Expt. Farm; 30/11/1950 (Nat. Herb. 45350)  
*Poa costiniana*: Between Glen Innes and Dundee, J. Vickery; 22/1/1961  
 (Nat. Herb. 85543)  
*Poa fordeana*: Guyra, J. Vickery; 30/12/1934 (Nat. Herb. 57765)  
*Poa labillardieri*: 5m south of Guyra, J. Vickery; 9/1/1958  
 (Nat. Herb. 50923)  
*Poa queenslandica*: Styx River State Forest, G. Battarbee;  
 11/10/1954 (Nat. Herb. 43209)  
*Poa sieberana* var. *hirtella*: Guyra, J. Vickery; 30/12/1934  
 (Nat. Herb. 57765)  
*Polypogon littoralis*: Armidale, D. Clark and R. Williams; 1/1964  
 (U.N.E. Bot. Dept. - one specimen)  
*Potamophila parviflora*: Dangarsleigh Falls, B. E. Norton; 1/1970  
*Sacciolepis indica*: 5m west of Guyra, G. Davis; 23/3/1941  
*Setaria italica*: Guyra district, W. R. Drabsch; 29/4/1958  
*Setaria pallide-fusca*: Inverell, V. Gidley; 15/2/1962  
*Sorghum vulgare*: not collected  
*Sporobolus africanus*: Walcha, A. R. Crawford: 1900  
*Stipa densiflora*: Inverell, E. O. Thomas; 11/1912  
*Stipa hyalina*: Glen Innes to Inverell, J. Plante; 3/2/1951  
*Stipa neesiana*: Glen Innes district, K. J. Mead; 9/1/1964  
*Stipa ramosissima*: Armidale district, C. K. Ingram; 7/12/1939  
*Trisetum flavescens*: Armidale district, C. K. Ingram; 12/1938  
*Triticum aestivum*: Armidale University, N. C. W. Beadle; 11/1958  
*Urochloa panicoides*: Tenterfield district, Loveridge; 2/1951  
 (Nat. Herb. 27954)  
*Zea mays*: not collected.

## APPENDIX III

## RESULTS OF POINT QUADRAT SAMPLING

In the following ten tables,  
the symbols used are:

- B: basal cover
- C: canopy cover (point contacts)
- S: canopy spread (pin descending within  
perimeter of canopy without contact)

Two hundred points were sampled at  
each site, the total record per  
hundred points for each species  
being the figure for Total Canopy  
Spread.

TABLE X

Site 1 - Point Lookout

	B	C	S	Total per hundred
<i>Poa sieberana</i>	9	19	146	92
<i>Themeda australis</i>	1	8	55	32
<i>Danthonia racemosa</i>	1	4	16	10.5
<i>Dichelachne sciurea</i>	-	1	18	9.5
<i>Danthonia pilosa</i>	-	-	8	4
<i>Eragrostis leptostachya</i>	-	-	3	1.5
Herbs	1	18	35	27
Bare ground				6.5

TABLE XI

Site 2 - north of Guyra

	B	C	S	Total per hundred
<i>Poa sieberana</i>	9	21	121	75.5
<i>Themeda australis</i>	10	32	87	64.5
<i>Danthonia laevis</i>	2	3	17	11
<i>Dichelachne sciurea</i>	-	2	19	10.5
<i>Agropyron scabrum</i>	-	4	13	8.5
<i>Danthonia purpurascens</i>	1	4	7	6
<i>Agrostis aemula</i>	-	1	9	5
<i>Sorghum leiocladum</i>	2	-	6	4
<i>Microlaena stipoides</i>	-	-	4	2
<i>Sporobolus elongatus</i>	-	-	1	0.5
<i>Bothriochloa macera</i>	-	1	-	0.5
Herbs	1	39	27	33.5
Bare ground				4

TABLE XII

Site 3 - Ashford-Emmaville

	B	C	S	Total per hundred
<i>Dichanthium sericeum</i>	7	6	61	37
<i>Bothriochloa biloba</i>	3	8	23	17
<i>Aristida ramosa</i>	-	3	24	13.5
<i>Poa sieberana</i> var. <i>hirtella</i>	-	2	16	9
<i>Danthonia racemosa</i> var. <i>obtusata</i>	1	1	13	7.5
<i>Danthonia linkii</i>	-	2	9	5.5
<i>Bothriochloa macera</i>	-	-	9	4.5
<i>Cymbopogon refractus</i>	-	3	3	3
<i>Dichelachne sciurea</i>	-	-	5	2.5
<i>Themeda australis</i>	-	-	4	2
<i>Agropyron scabrum</i>	-	-	3	1.5
<i>Danthonia racemosa</i>	-	-	3	1.5
<i>Chloris acicularis</i>	-	-	2	1
<i>Chloris truncata</i>	-	-	1	0.5
<i>Sorghum leiocladum</i>	-	1	-	0.5
<i>Eragrostis brownii</i>	-	-	1	0.5
Herbs	-	17	22	19.5
Bare ground				12.5

TABLE XIII

Site 4 - Glen Innes

	B	C	S	Total per hundred
<i>Themeda australis</i>	17	26	135	89
<i>Sorghum leiocladum</i>	4	14	38	28
<i>Poa sieberana</i>	2	-	13	7.5
<i>Bothriochloa macera</i>	1	4	9	7
<i>Danthonia pilosa</i>	-	1	11	6
<i>Dichelachne sciurea</i>	-	1	8	4.5
<i>Aristida ramosa</i>	-	-	4	2
<i>Sporobolus elongatus</i>	-	-	4	2
<i>Agropyron scabrum</i>	-	-	4	2
<i>Microlaena stipoides</i>	-	-	3	1.5
<i>Eragrostis leptostachya</i>	-	-	2	1
<i>Panicum effusum</i>	-	-	1	0.5
<i>Vulpia bromoides</i>	-	-	1	0.5
Herbs	1	18	55	37
Bare ground				6.5

TABLE XIV

Site 5 - Boonoo Boonoo (north of Tenterfield)

	B	C	S	Total per hundred
<i>Themeda australis</i>	9	39	161	104.5
<i>Microlaena stipoides</i>	-	2	16	9
<i>Sorghum leiocladum</i>	-	2	9	5.5
<i>Danthonia racemosa</i>	-	-	10	5
<i>Imperata cylindrica</i> var. <i>major</i>	-	2	5	3.5
<i>Poa labillardieri</i>	-	-	6	3
<i>Poa sieberana</i>	-	-	5	2.5
<i>Dichelachne sciurea</i>	-	2	3	2.5
<i>Echinopogon caespitosus</i>	-	1	2	1.5
<i>Deyeuxia mckiei</i>	-	1	1	1
Herba	-	13	28	20.5
Bare ground				6.5

TABLE XV

Site 6 - Bolivia

	B	C	S	Total per hundred
<i>Sorghum leiocladum</i>	14	39	117	85
<i>Themeda australis</i>	1	11	31	21.5
<i>Bothriochloa macera</i>	1	7	9	8.5
<i>Sporobolus elongatus</i>	1	1	7	4.5
<i>Dichelachne sciurea</i>	-	-	7	3.5
<i>Microlaena stipoides</i>	-	-	6	3
<i>Aristida vagans</i>	-	-	3	1.5
<i>Eragrostis leptostachya</i>	1	-	1	1
<i>Panicum effusum</i>	-	1	1	1
<i>Aristida ramosa</i>	-	-	1	0.5
<i>Eragrostis brownii</i>	-	-	1	0.5
<i>Danthonia pilosa</i>	-	-	1	0.5
<i>Danthonia racemosa</i>	-	-	1	0.5
Herbs	1	24	42	33.5
Bare ground				5

TABLE XVI

Site 7 - east of Armidale

	B	C	S	Total per hundred
<i>Themeda australis</i>	9	29	197	117.5
<i>Poa sieberana</i>	-	1	16	8.5
<i>Aristida ramosa</i>	-	-	7	3.5
<i>Sporobolus elongatus</i>	-	1	6	3.5
<i>Sorghum leiocladum</i>	-	4	3	3.5
<i>Microlaena stipoides</i>	-	2	4	3
<i>Imperata cylindrica</i> var. <i>major</i>	-	1	2	1.5
<i>Danthonia pilosa</i>	-	-	1	0.5
<i>Digitaria brownii</i>	-	-	1	0.5
<i>Dichelachne sciurea</i>	-	-	1	0.5
<i>Aira cupaniana</i>	-	-	1	0.5
<i>Eragrostis brownii</i>	-	-	1	0.5
<i>Echinopogon caespitosus</i>	-	-	1	0.5
Herbs	-	7	27	17
Bare ground				4.5

TABLE XVII

Site 8 - Bendemeer

	B	C	S	Total per hundred
<i>Aristida ramosa</i>	11	11	94	58
<i>Danthonia pilosa</i>	-	3	20	11.5
<i>Danthonia eriantha</i>	-	3	14	8.5
<i>Tripogon loliiformis</i>	-	1	11	6
<i>Poa sieberana</i>	1	2	8	5.5
<i>Aristida vagans</i>	-	1	9	5
<i>Themeda australis</i>	-	2	7	4.5
<i>Microlaena stipoides</i>	-	1	8	4.5
<i>Eragrostis brownii</i>	-	-	9	4.5
<i>Aira cupaniana</i>	-	-	8	4
<i>Agropyron scabrum</i>	-	-	7	3.5
<i>Sporobolus elongatus</i>	-	1	6	3.5
<i>Bothriochloa macera</i>	-	-	6	3
<i>Danthonia racemosa</i>	-	1	4	2.5
<i>Vulpia myuros</i>	-	-	3	1.5
<i>Poa sieberana</i> var. <i>hirtella</i>	-	-	2	1
<i>Panicum effusum</i>	-	-	2	1
<i>Eulalia fulva</i>	-	-	1	0.5
<i>Danthonia laevis</i>	-	-	1	0.5
Herbs	-	12	21	16.5
Bare ground				4.5

TABLE XVIII

Site 9 - Yarrowyck

	B	C	S	Total per hundred
<i>Themeda australis</i>	7	24	94	62.5
<i>Aristida ramosa</i>	4	10	99	56.5
<i>Poa labillardieri</i>	1	7	27	17.5
<i>Poa sieberana</i>	-	1	17	9
<i>Sorghum leiocladum</i>	-	2	9	5.5
<i>Danthonia racemosa</i>	-	1	9	5
<i>Sporobolus elongatus</i>	-	-	8	4
<i>Cymbopogon refractus</i>	-	1	5	3
<i>Dichelachne sciurea</i>	-	1	3	2
<i>Eulalia fulva</i>	-	-	2	1
<i>Eragrostis brownii</i>	-	1	1	1
<i>Tripogon loliiformis</i>	-	-	1	0.5
<i>Aristida vagans</i>	-	-	1	0.5
<i>Echinopogon intermedius</i>	-	-	1	0.5
<i>Aira cupaniana</i>	-	-	1	0.5
Herbs	-	18	24	21
Bare ground				4

TABLE XIX

Site 10 - Tingha

	B	C	S	Total per hundred
<i>Arundinella nepalensis</i>	3	7	77	43.5
<i>Themeda australis</i>	3	13	58	37
<i>Aristida ramosa</i>	2	5	49	28
<i>Eremochloa bimaçulata</i>	1	11	39	25.5
<i>Eulalia fulva</i>	-	4	23	13.5
<i>Danthonia purpurascens</i>	-	-	11	5.5
<i>Aristida warburgii</i>	-	1	9	5
<i>Dichelachne sciurea</i>	-	-	7	3.5
<i>Sorghum leiocladum</i>	-	1	5	3
<i>Echinopogon caespitosus</i>	-	-	4	2
<i>Microlaena stipoides</i>	-	-	3	1.5
<i>Eragrostis brownii</i>	-	-	1	0.5
Herba	1	21	54	38
Bare Ground				5