LCAT pasture guide

Version 1.0

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About this guide

This guide supports field users of the Land Condition Assessment Tool (LCAT). LCAT is an app designed by Rob Hassett of the Queensland Department of Primary Industries for assessing grazing land condition. Grazing land condition is the capacity of grazing land to convert rainfall into useful forage for grazing animals, and land in better condition generally has more high value perennial grasses, less erosion, less invasive pest plants and less competition for pasture from woody overstorey.

A key step in assessing land condition with LCAT is identifying the dominant pasture species. There are over 800 grass species in Queensland so this isnt always easy. Many species are rare though and aren't the dominant grass at many locations. Many others can also be be more easily identified by genus rather than species because all members of the genus have equal grazing value in LCAT. This guide covers a range of species and genera that are more likely to dominate grazing land.

The guide is a specially formatted PDF. It is designed specifically for smart phones and tablets so users can have it on the same device as the LCAT app (though you don't need LCAT to use this guide). Identifying grasses takes practice, and formal identification takes a lot of expertise. But many times there are simple things you can look for that will get you closer to a correct identification, and that's what this guide provides for some of the more common and recognizable Queensland species. Please keep in mind that there are exceptions to every rule, but these are the signs that some experts use when they identify grasses in the field.

Identifying grasses

The easiest grasses to identify are those with full seed head, leaves, and stems. Unfortunately this isn't always possible; grasses can be heavily grazed or seasonally without seed heads. Here are a few tips for getting the best sample of your grass.

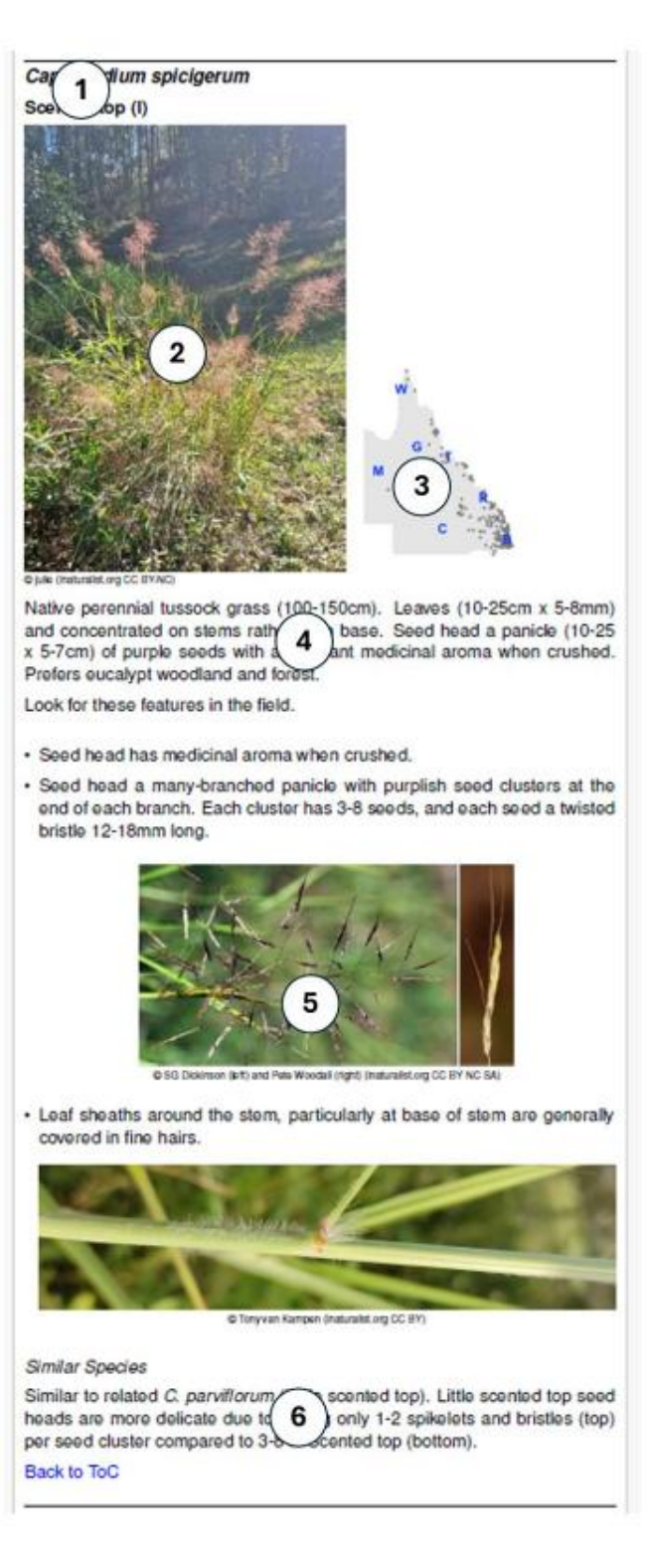
- If a grass is abundant but not seeding, get down to pasture height and look across the top of the pasture. Scarce seed heads are more visible looking across rather than down into the pasture.
- Grass tussocks are rarely solitary. Look around the site for others of the same species if your sample is incomplete. If the site is heavily grazed, pay particular attention where grazing is restricted (e.g. under shrubs, fences or log overhangs).
- Look under the tussock too. Sometimes seeds and seed heads accumulate there.
- If you don't recognise the grass, pay attention to more than the seed head; height and erectness, shape, colour and size of different parts, smell of crushed seeds and leaves, hairiness, presence of runners etc are all important clues.
- If you have identified your grass in a particular genus (e.g. *Eragrostis*) you may also need to decide if it is annual or perennial. Compared to annuals, perennial grasses are typically bulkier, more robust, leafier, and have thicker stems, larger bases (crowns), much more root mass, and show evidence of previous season's growth such as old runners and stems.
- We have mostly avoided grass features that require magnification but have included a few very important ones. A hand lens is your best field tool for magnification, but some smart phones have suitable zoom capacity.

Using the guide

The guide is a specially formatted PDF, built with very long pages that are not suitable for printing in hard copy. The format does make it easier to present on phone and tablet though. After you download the PDF, open it with a pdf reader like Adobe Acrobat. If the document displays as long, narrow and unreadable, zoom to page width. If the font is still too small, rotate the screen and use your device in landscape.

The table of contents currently lists 80 grasses and sedges. These are listed by scientific and common names and the scientific names are hyperlinked to the section on that grass to allow easier navigation. At the bottom of each grass section there is a corresponding link to return you to the table of contents. Remember too that you can use the pdf reader's search tool if you are scanning for a particular term.

Grass pages have 6 sections (shown and explained below).



1. Scientific name, common name and the bracketed LCAT rating (**P**referred, **I**ntermediate, **N**on preferred, **A**nnual).
2. General image of the grass.
3. Distribution map. Known locations extracted from the Atlas of Living Australia to August 2023. Mapped letters denote regional centres: (**B**risbane, **C**harleville, **G**eorgetown, **L**ongreach, **M**t Isa, **R**ockhampton, **T**ownsville and **W**eipa).
4. General description. Introduced or native, annual or perennial, tussock description, leaf description, seed head description and preferred habitat.
5. Field identification tips. These are the main features to look for in the field. If you are viewing a species page that has a corresponding genus page (e.g. *Bothriochloa pertusa* and *Bothriochloa*), remember that there are relevant identification tips on the genus page as well. Unless otherwise stated, the images in this section are always referred to by the dot point immediately above the image.
6. Similar species. This identifies the species most likely to be confused with your grass in the field, and how to tell them apart.

Glossary

We have avoided technical terms as much as possible to make the guide more accessible, but some technical terms are used, and sometimes at variance with the botanical definition of the word. Below is a list of those terms and how we have used them in the guide.

Digitate: the shape of a seed head where all branches emerge at one point on the top of the stem.

Panicle: a seed head with primary branches from the seed head axis *and* secondary branching off the primary branches.

Seed: A structure on the seed head that contains the seed(s). Typically these are called florets.

Seed head: branches, stem and seeds upward from the lowest branch or seed of the seed head.

Seed head axis: the grass stem at or above the lowest branch or seed of the seed head.

Spike: A seed head or seed head branch with seeds clustered closely along it and no obvious additional branching.

Subdigitate: the shape of a seed head where branches all emerge close to the top of the stem but not all from one point.

Whorl: Three or more seed head branches emerging from the same point on the stem. Can be at the top or any point on the seed head axis.

Acknowledgements

This work compiles information from experts, text books and various online resources. But the core of these results are collated from interviews and discussions with with twelve of the state's best grass experts (Brett Abbott (CSIRO), Chris Appleman (Qld Herbarium), Stuart Buck (DPI), Simon Danielson (Astrebla Ecological Services), Rob Hassett (DPI), Nanette Hooker (JCU), Paul Jones (DPI), Bruce Lord (Healthy Land and Water), Peter O'Reagain (DPI), Jen Silcock (Qld Herbarium), Richard Silcock (DPI) and Jian Wang (Qld Herbarium). Any errors in compiling their advice are ours. The visual materials were sourced through creative commons via a number of websites including inaturalist.org, flickr.com and the ala.org.au. These photos and maps are the work of numerous people who have generously made their work publicly available. Our sincere thanks to everyone above, without whom this guide would not be possible.

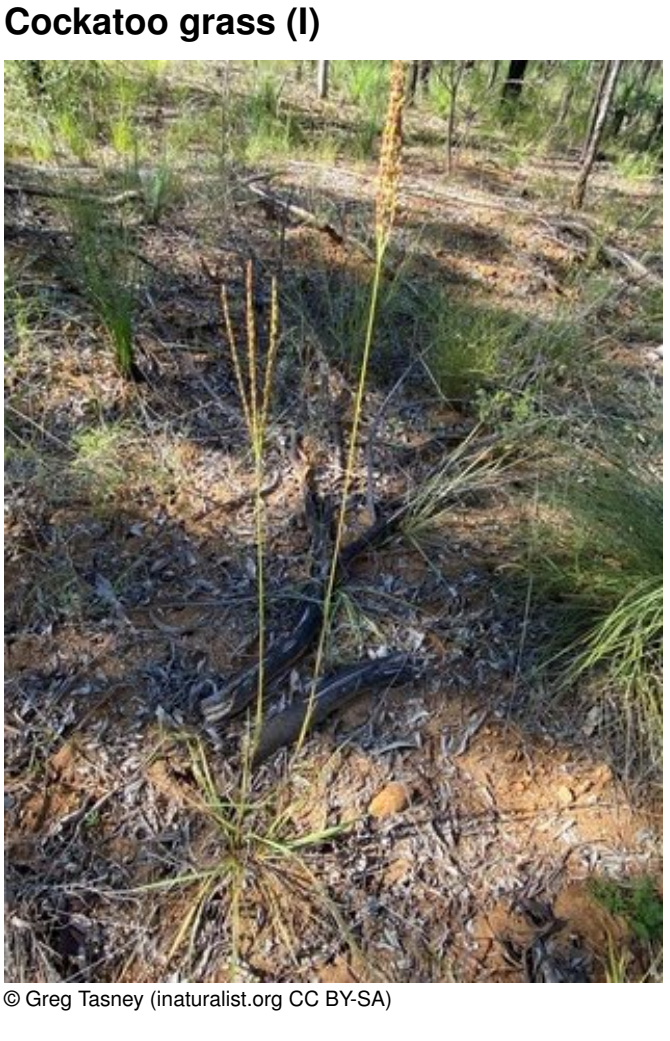
Funding for this guide was provided by the Queensland Reef Water Quality Science Program.

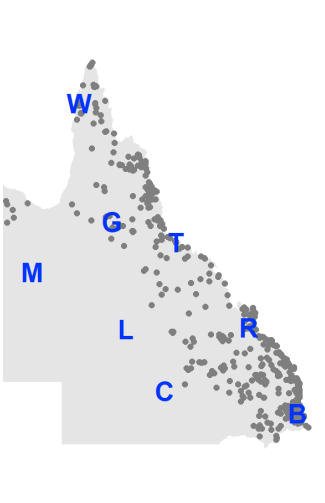
Species in this guide:

- Cockatoo grass (*Alloteropsis semialata*)
- Wire grasses (*Aristida*)
- Reed grass (*Arundinella nepalensis*)
- Mitchell grasses (*Astrebla*)
- Hoop mitchell (*Astrebla elymoides*)
- Curly mitchell (*Astrebla lappacea*)
- Barley mitchell (*Astrebla pectinata*)
- Bull mitchell (*Astrebla squarrosa*)
- Blue grasses (*Bothriochloa*)
- Forest blue grass (*Bothriochloa bladhii*)
- Pitted blue grass (*Bothriochloa decipiens*)
- Satintop (*Bothriochloa erianthoides*)
- Desert blue grass (*Bothriochloa ewartiana*)
- Creeping blue grass (*Bothriochloa insculpta*)
- Indian couch (*Bothriochloa pertusa*)
- Native couch (*Brachyachne convergens*)
- Scented top (*Capillipedium spicigerum*)
- Buffel grass (*Cenchrus ciliaris*)
- Chloris (*Chloris*)
- Slender Chloris (*Chloris divaricata*)
- Rhodes grass (*Chloris gayana*)
- Windmill grass (*Chloris truncata*)
- Tall Chloris (*Chloris ventricosa*)
- Golden beard grass (*Chrysopogon fallax*)
- Silky oil grass (*Cymbopogon bombycinus*)
- Barb wire grass (*Cymbopogon refractus*)
- Green couch (*Cynodon dactylon*)
- Sedges (*Cyperaceae*)
- Nut grasses (*Cyperus*)
- Button grass (*Dactyloctenium radulans*)
- Blue grasses (*Dichanthium*)
- Sheda grass (*Dichanthium annulatum*)
- Angleton grass (*Dichanthium aristatum*)
- Queensland bluegrass (*Dichanthium sericeum*)
- Finger grasses (*Digitaria*)
- Silky umbrella grass (*Digitaria ammophila*)
- Cotton panic (*Digitaria brownii*)
- Umbrella grass (*Digitaria divaricatissima*)
- Pangola (*Digitaria eriantha*)
- Barnyard grasses and millets (*Echinochloa*)
- Bottle washers (*Enneapogon*)
- Windmill grasses (*Enteropogon*)
- Love grasses (*Eragrostis*)
- African love grass (*Eragrostis curvula*)
- Hairyflower love grass (*Eragrostis trichophora*)
- Wanderrie (*Eriachne*)
- Cup grasses (*Eriochloa*)
- Silky browntop (*Eulalia aurea*)
- Fringe rushes (*Fimbristylis*)
- Black spear grass (*Heteropogon contortus*)
- Giant spear grass (*Heteropogon triticeus*)
- Thatch grass (*Hyparrhenia rufa*)
- Blady grass (*Imperata cylindrica*)
- Flinders grass (*Iseilema*)
- Green panic, Guinea grass (*Megathyrsus maximus*)
- Molasses grass (*Melinis minutiflora*)
- Red natal grass (*Melinis repens*)
- Mulga oats (*Monachather paradoxa*)
- Panics (*Panicum*)
- Native millet (*Panicum decompositum*)
- Hairy panic (*Panicum effusum*)
- Yabila grass (*Panicum queenslandicum*)
- Summer grass (*Paspalidium*)
- Paspalum (*Paspalum dilatum*)
- Water couch (*Paspalum distichum*)
- Bahia grass (*Paspalum notatum*)
- Sporobolus, Dropseeds and Rat's tails. (*Sporobolus*)
- Katoora, Ray grass (*Sporobolus actinocladus*)
- Australian dropseed (*Sporobolus australasicus*)
- Fairy grass (*Sporobolus caroli*)
- Western rat's tail grass (*Sporobolus creber*)
- American rat's tail grass (*Sporobolus jacquemontii*)
- Rat's tails. (*Sporobolus pyramidalis*)
- Coolibah grass (*Thellungia advena*)
- Grader grass (*Themeda quadrivalvis*)
- Kangaroo grass (*Themeda triandra*)
- Mulga mitchell (*Thyridolepis mitchelliana*)
- Small burr grass (*Tragus australianus*)
- Spinifex (hard and soft) (*Triodia*)
- Five minute grass (*Tripogon loliiformis*)
- Signal grass (*Urochloa decumbens*)
- Sabi grass (*Urochloa mosambicensis*)
- Para grass (*Urochloa mutica*)

Alloteropsis semialata

Cockatoo grass (I)





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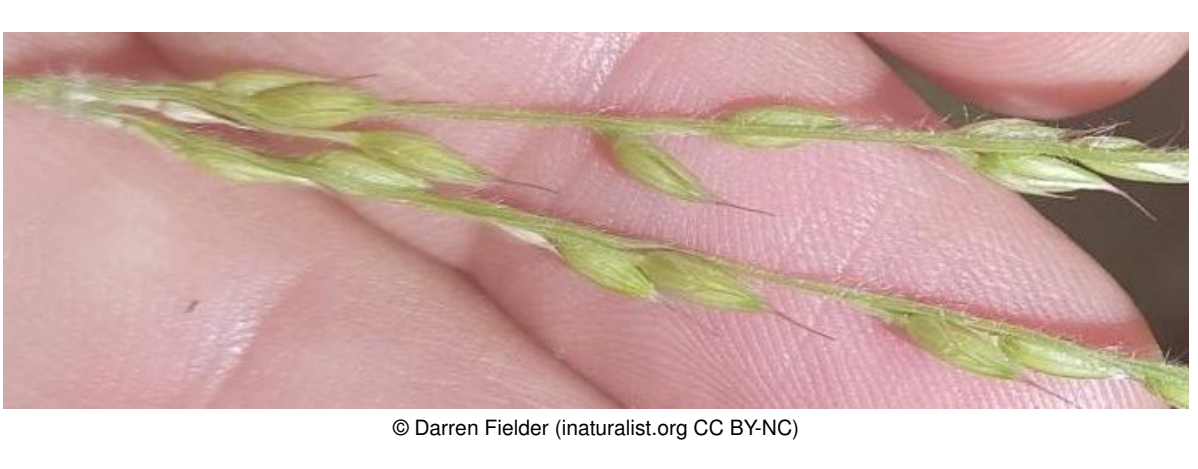
Native perennial. Tussock grass (20-150cm), the root point is several cm below ground. It has thick silky leaf sheaths (leaf part wrapped around the stem) that extend down to the root point. Leaves (10-50cm x 1-10mm) at base with obvious midrib on underside. Seed head of 2-4 branches (8-15cm) with large bristled seeds. Prefers light textured soils.

Look for these features in the field.

- Distinctive seed head with 2-4 branches (8-15cm) all emerging at the top of the long stem (above).
- Seeds are large (6mm) and with a short bristle.



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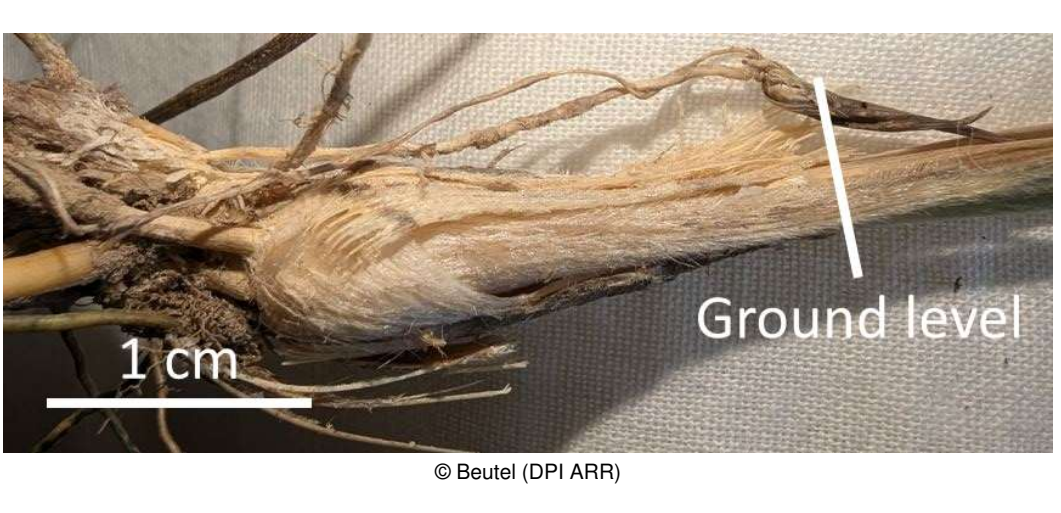
- Root point of grass several cm below ground, making plant difficult to uproot intact. Silky leaf sheaths extend down to rooting point.



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Similar Species

The related annual Bug grass (*A. cimicina*) is quite similar. Bug grass differs in lacking thick silky leaf sheaths, has distinct hairs on lower edge of leaves and is rarely found south of the Rockhampton-Longreach line.

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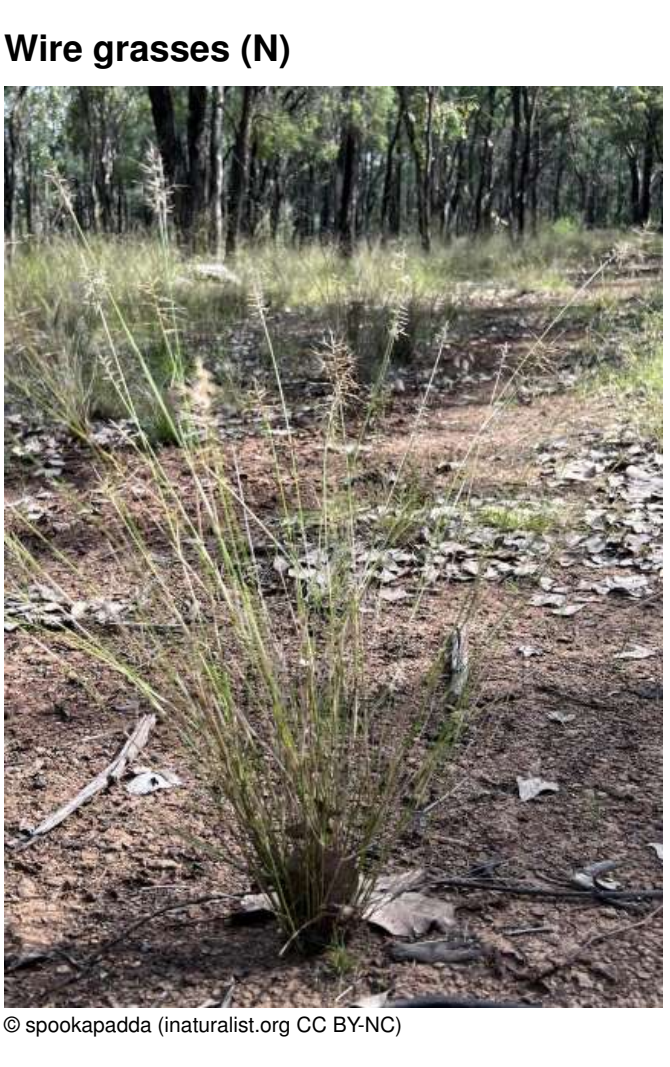
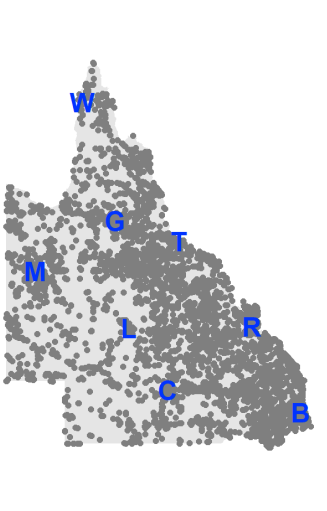
Aristida

Wire grasses (N)





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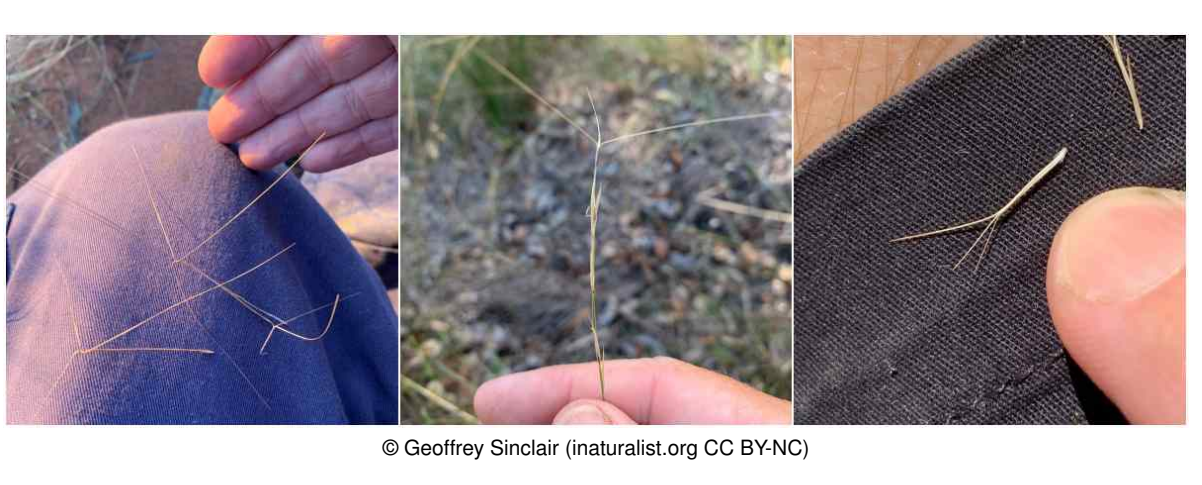
Native, mostly perennial genus of about 50 species in Queensland. Size varies (10-150cm) but general form is thin woody stems and limited leaf on plants. Seed heads vary, but seeds are easy to recognise and characteristic (below). Widespread and where dominant indicate past overgrazing and degradation.

Look for these features in the field.

- All but two species have three awns (bristles) at the top of the sharply pointed seed. Awn length varies between species, but this configuration is a reliable identifier.



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- A lack of leaf gives most *Aristida* a stemmy appearance. Where grazed (rarely) the thin stems and lack of leaf give the residual tussock a pin cushion appearance.

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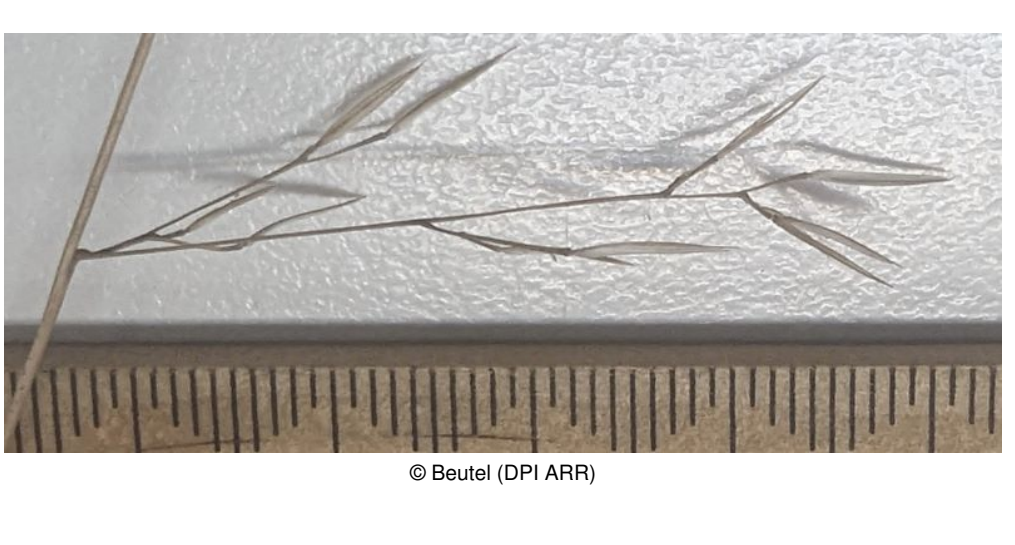
- The papery glumes (outer seed husks) remain attached to stems after seedfall like small flags.



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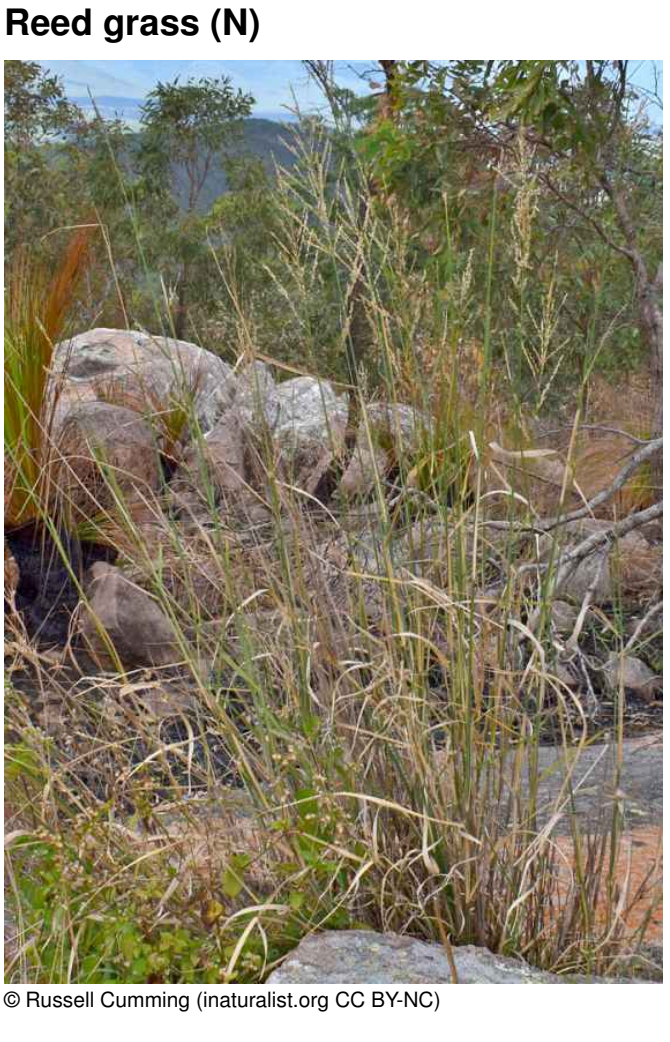
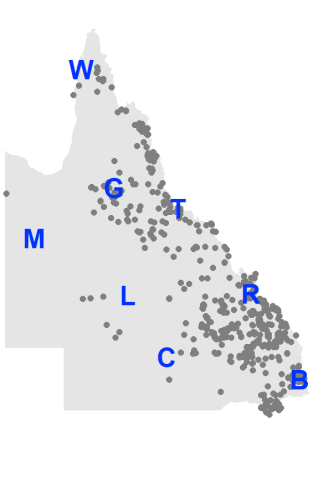
Arundinella nepalensis

Reed grass (N)





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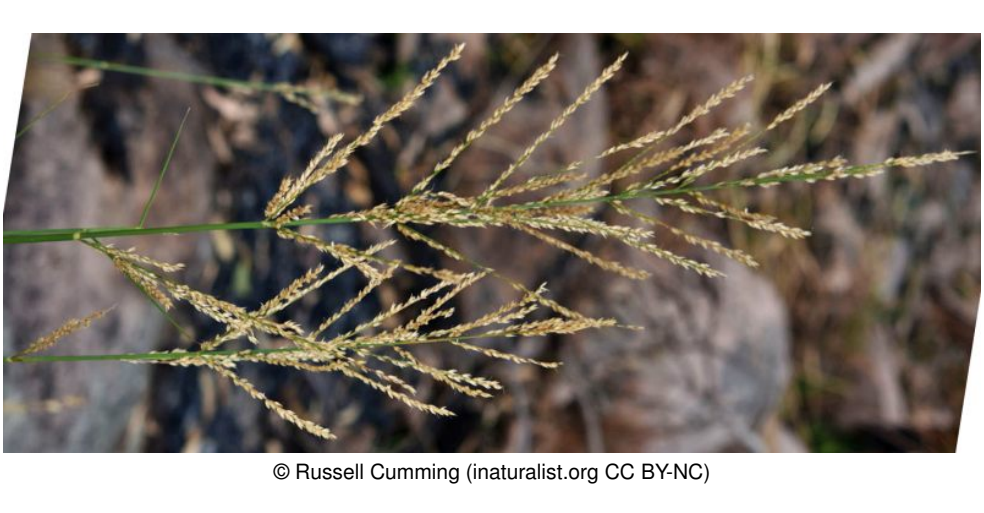
Native perennial. Tall tussocks (100-180cm) with much wider top than base, and distinctive underground runners (rhizomes). Leaves (8-40cm x 3-10mm). Seed head a large (10-40cm) relatively narrow diamond shaped with rigid branches that lay relatively close to the main axis, bristled seeds in boat shaped husks that persist after seedfall. More prominent on alluvial drainage lines and rocky woodland hill slopes.

Look for these features in the field.

- A tall reedy grass, often in clumps and associated with poorly drained alluvial soils or rocky hill slopes.
- The large diamond shaped seed heads are easily recognisable



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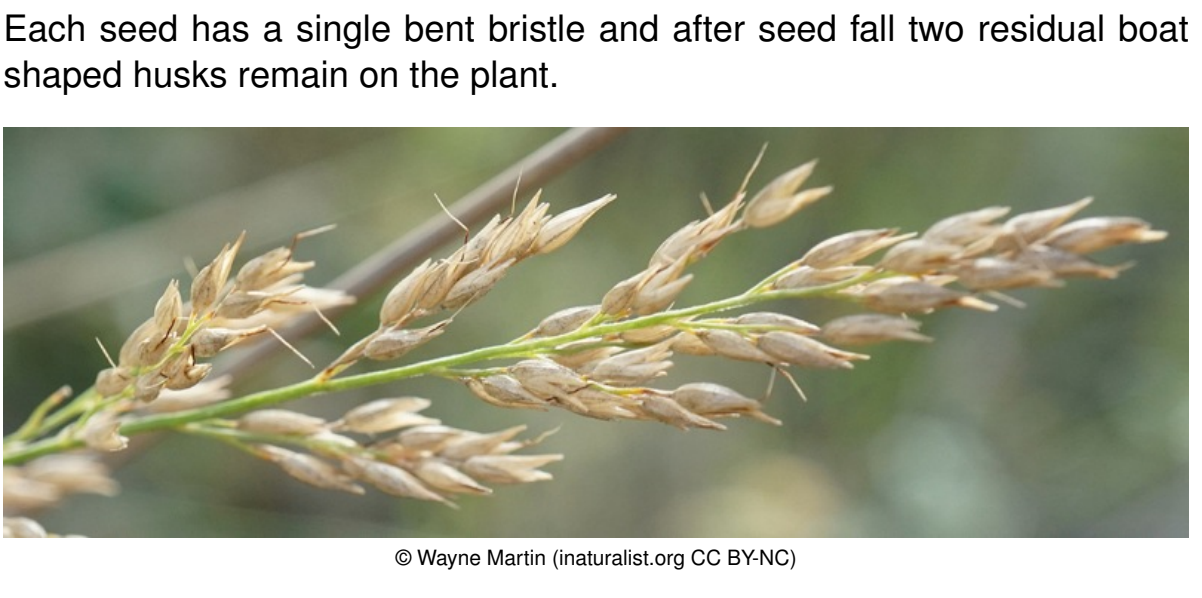
- Each seed has a single bent bristle and after seed fall two residual boat shaped husks remain on the plant.



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- Uprooting the tussock often reveals hard, pointy underground runners (rhizomes).

Similar Species

The related *A. setosa* (also called Reed grass) is very similar and both are non preferred LCAT species. *A. setosa* seeds have one long central and two short side bristles where *A. nepalensis* seeds have a single bristle per seed. *A. setosa* is also restricted north of the Mt Isa-Townsville line.

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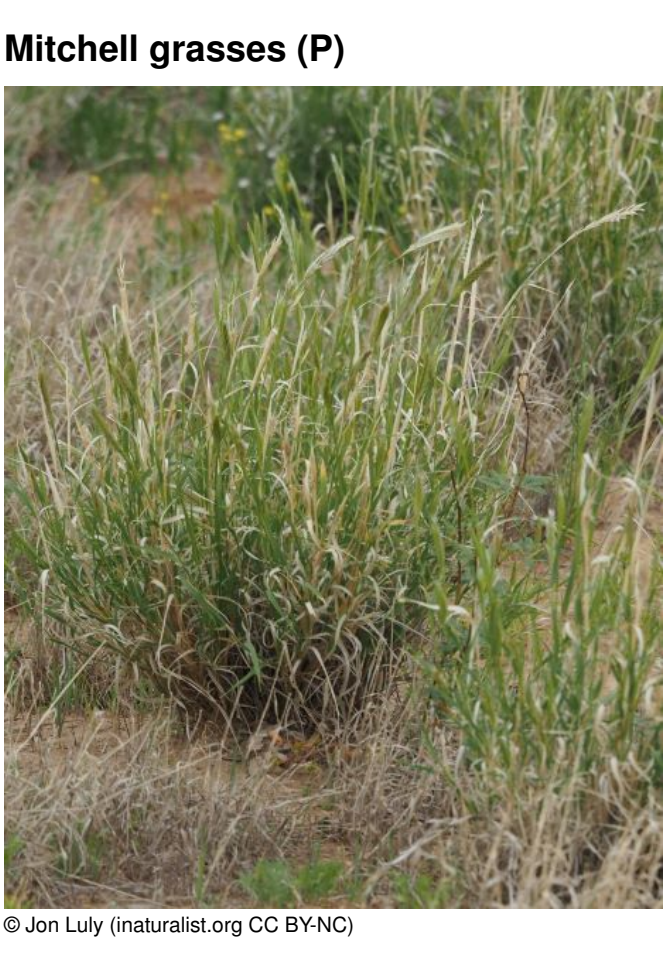
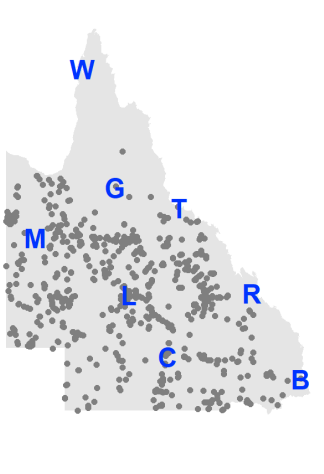
Astrebla

Mitchell grasses (P)





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Perennial natives. These four species prefer an annual rainfall range of 250-550mm, and generally dominate on thinly timbered rolling downs with moderately fertile cracking clays and alluvial plains of western Queensland. See individual species pages below for more details.

Look for these features in the field.

- Tussocks are large, robust and deeply rooted. The vegetative top of the plant is much wider than the base and the green-blue leaves yellow as they age.
- Almost exclusively on clay soils, and in monocultures or with Flinders grasses.

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Species in this guide:

- Hoop mitchell (*Astrebla elymoides*)
- Curly mitchell (*Astrebla lappacea*)
- Barley mitchell (*Astrebla pectinata*)
- Bull mitchell (*Astrebla squarrosa*)

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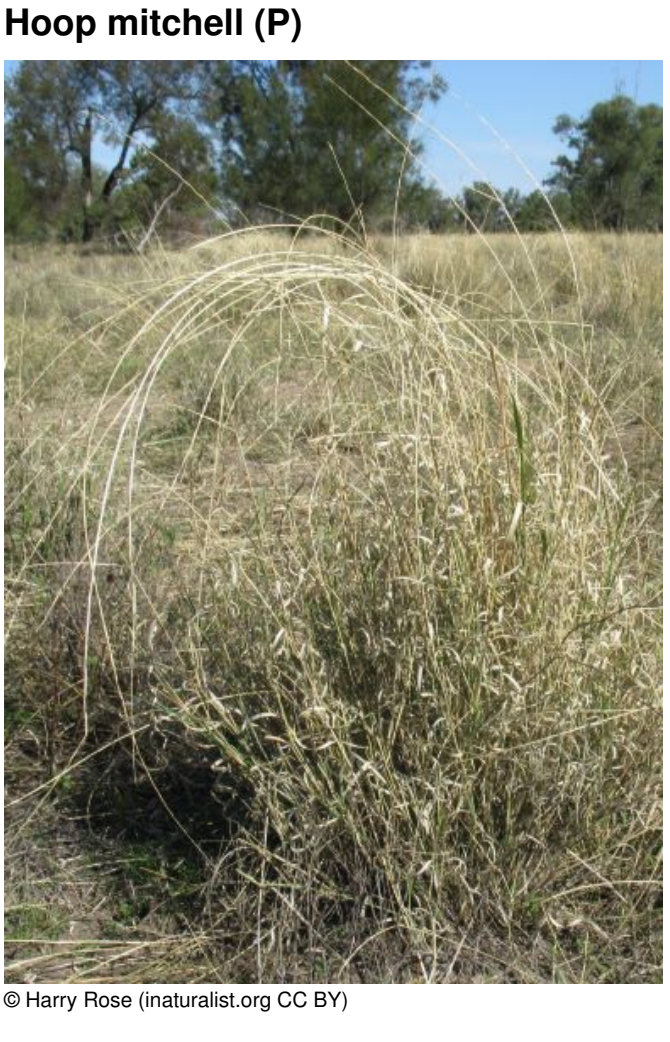
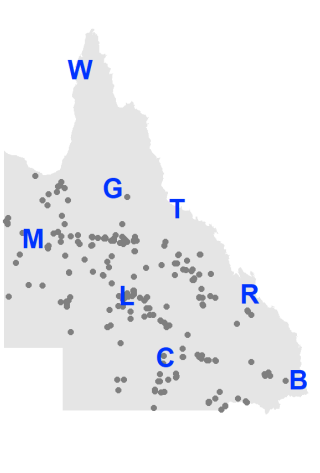
Astrebla elymoides

Hoop mitchell (P)





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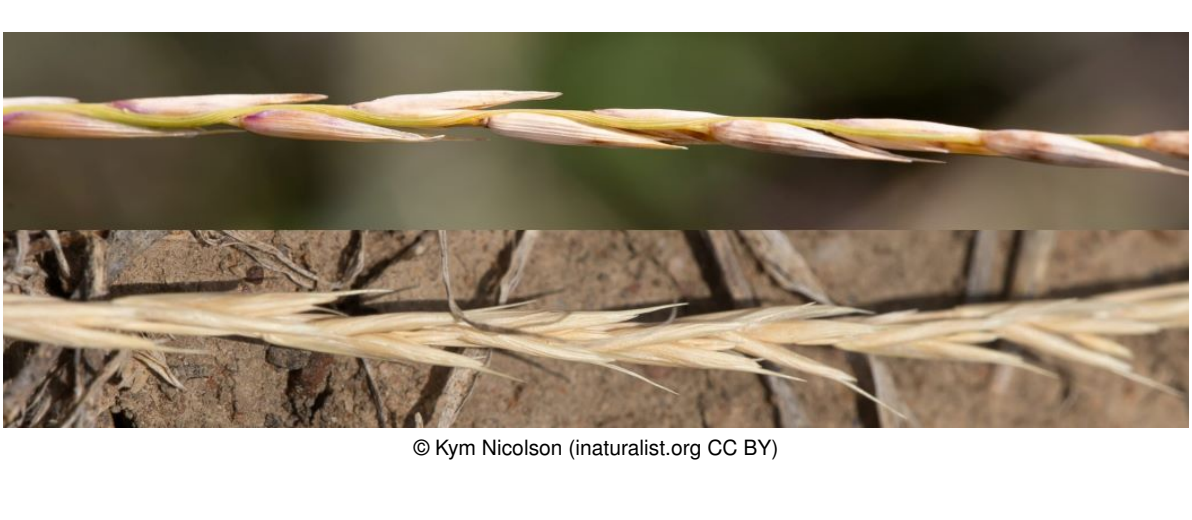
Native perennial. Tussock to 60cm high with distinctively weeping stems when seeding. Leaves 12-35cm x 3-5mm and hairless. Narrowest seed head of the Mitchell grasses with very thin pointed seeds held close to the central stem. Usually occurs with other Mitchell grasses, and prefers wetter or heavily grazed areas.

Look for these features in the field.

- Seed heads are 15-30cm on long stems that bow (hoop) over, often in one direction to touch the ground (above).
- Seeds are long and thin like wild rice, lay tightly along stalk and are hard to remove (top). They become more spiny as the mature (below).



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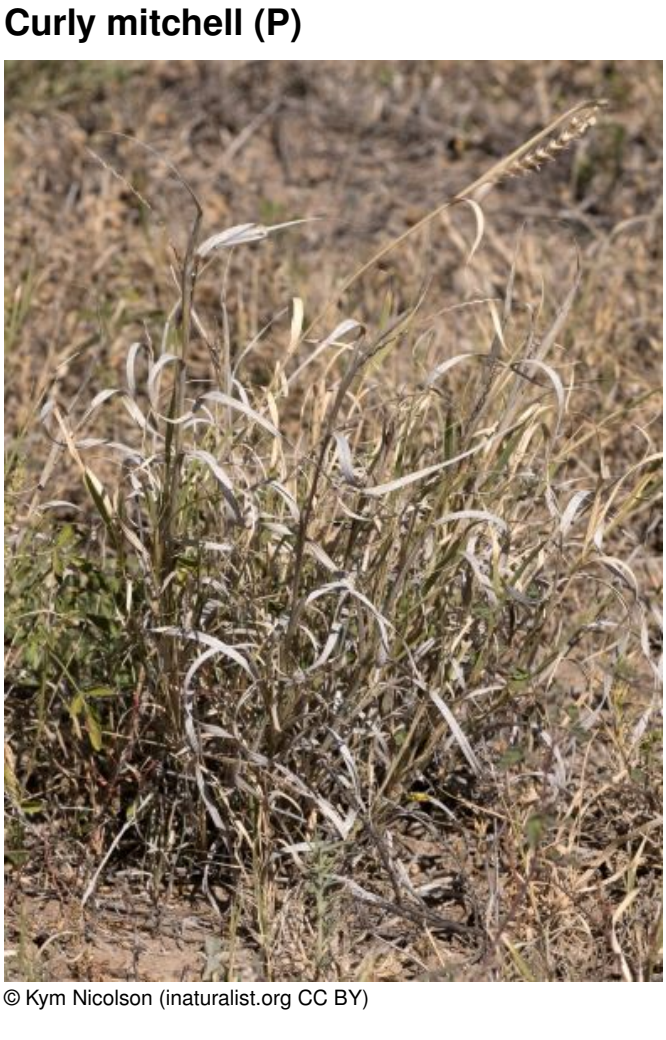
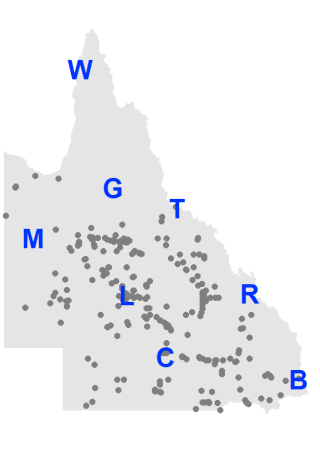
Astrebla lappacea

Curly mitchell (P)





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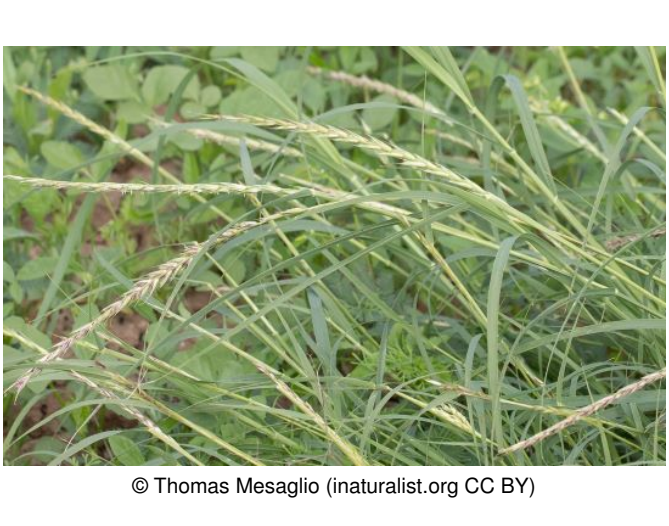
Native perennial. 30-90cm high. Leaves 8-30cm x 4-5mm. Seed head (5-30cm) not held distinctly above foliage, and often semi enclosed in surrounding flag leaf with V-shaped seeds. The most widespread Mitchell grass, it dominates large areas in central and north-central Queensland mixing with other species further south.

Look for these features in the field.

- Seed head 5-30cm long, not held distinctly above foliage, and often semi enclosed in surrounding flag leaf.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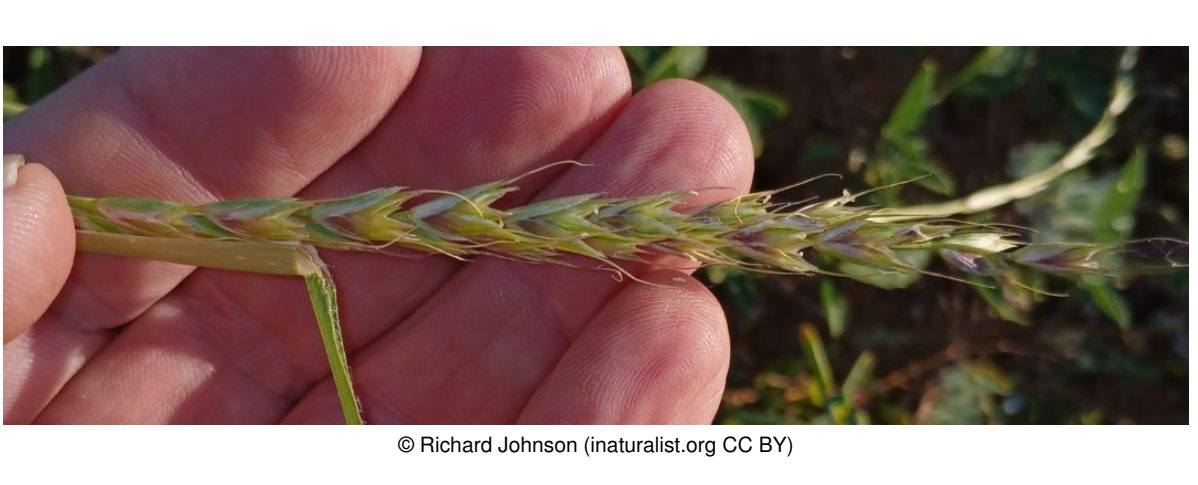
- Seeds are in two rows forming V-shaped triangle with 1cm spines on each upper corner.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- Leaves curl noticeably when hayed off (above).

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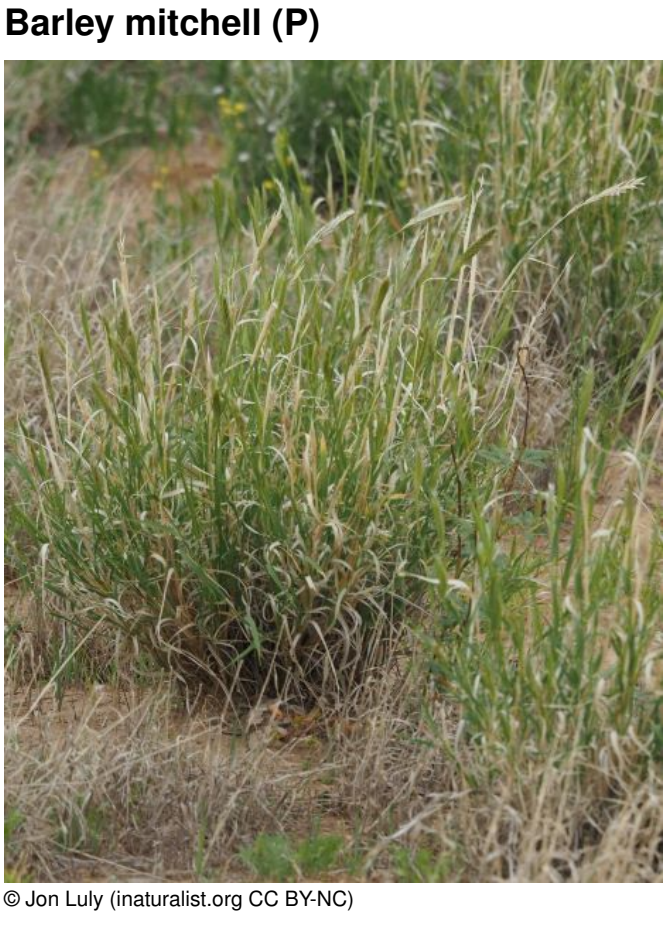
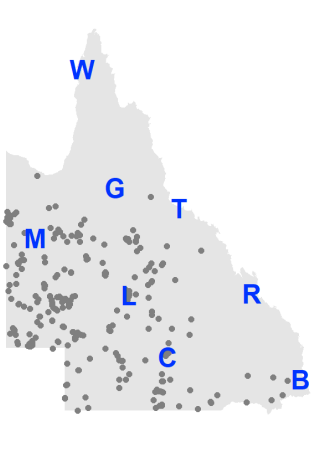
Astrebla pectinata

Barley mitchell (P)

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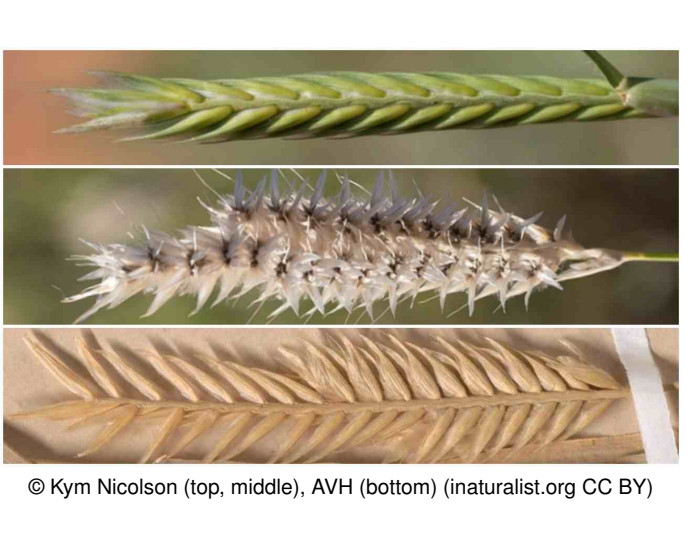
Native perennial. Tussocks to 25-120cm tall. Leaves (7-25cm x 2-8mm) with a sparsely hairy leaves. Seed head (3 -13cm) held above foliage with two tightly packed rows of seeds that fall to leave two rows of husks. More common in drier south west of state and prefers less severely cracking clays.

Look for these features in the field.

- Seed head 3-13cm long, held distinctly above foliage (above). Seeds in two distinct rows, separated by a sturdy wavy axis. After seedfall two rows of papery husks (glumes) remain along this axis.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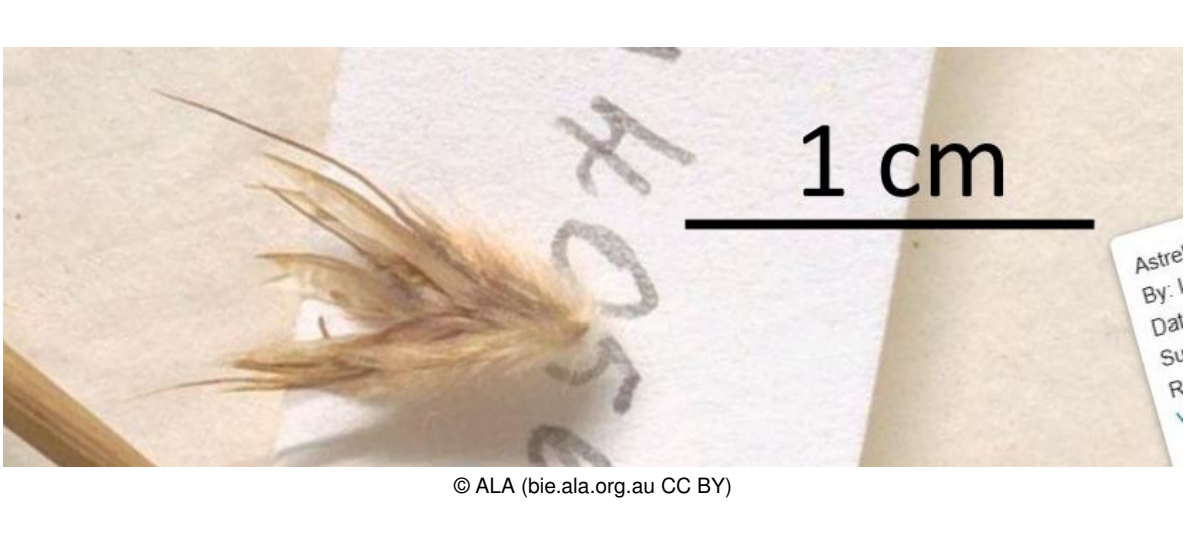
- Seeds (4-7 x 3-5mm) are hairy at the base with several papery awns around them.



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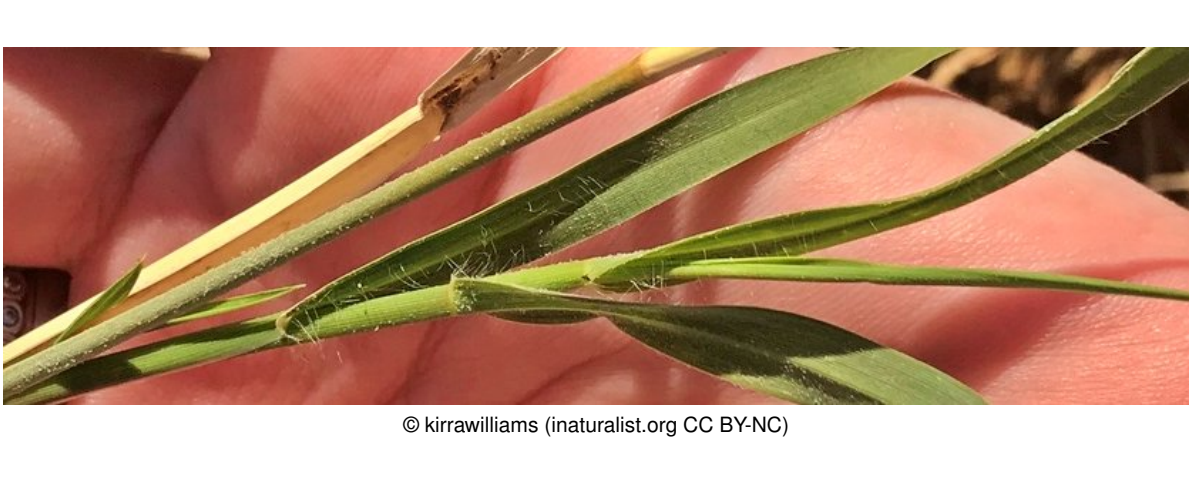
- Hairs 3-4mm long on upper surface of leaf, especially near base of leaf is distinctive to this Mitchell grass species.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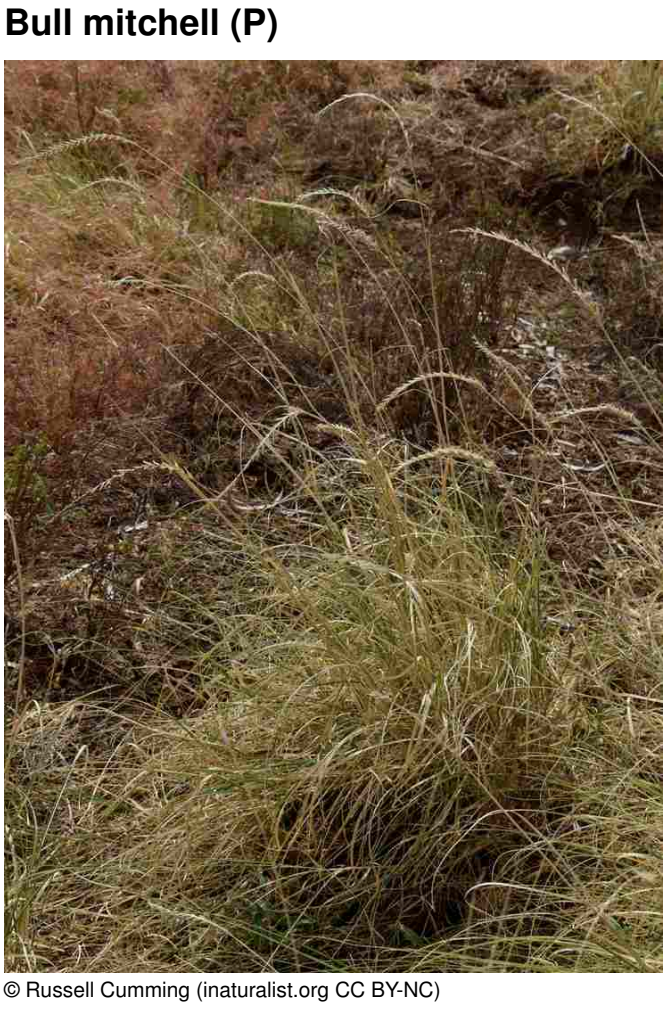
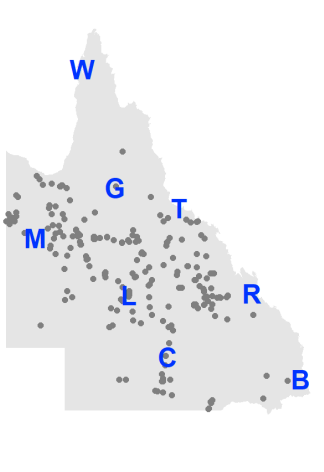
Astrebla squarrosa

Bull mitchell (P)

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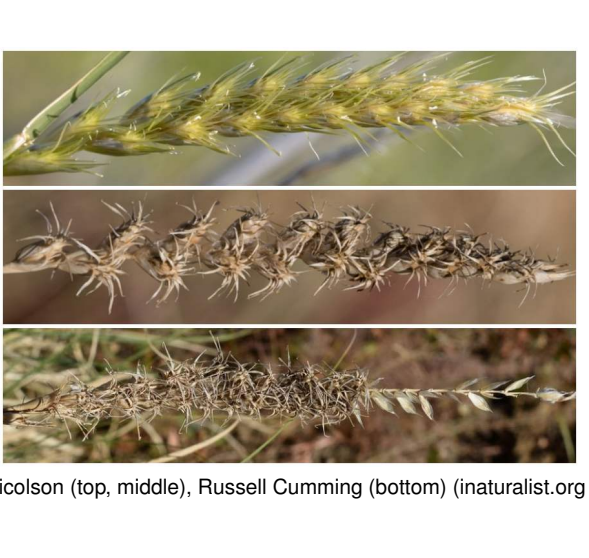
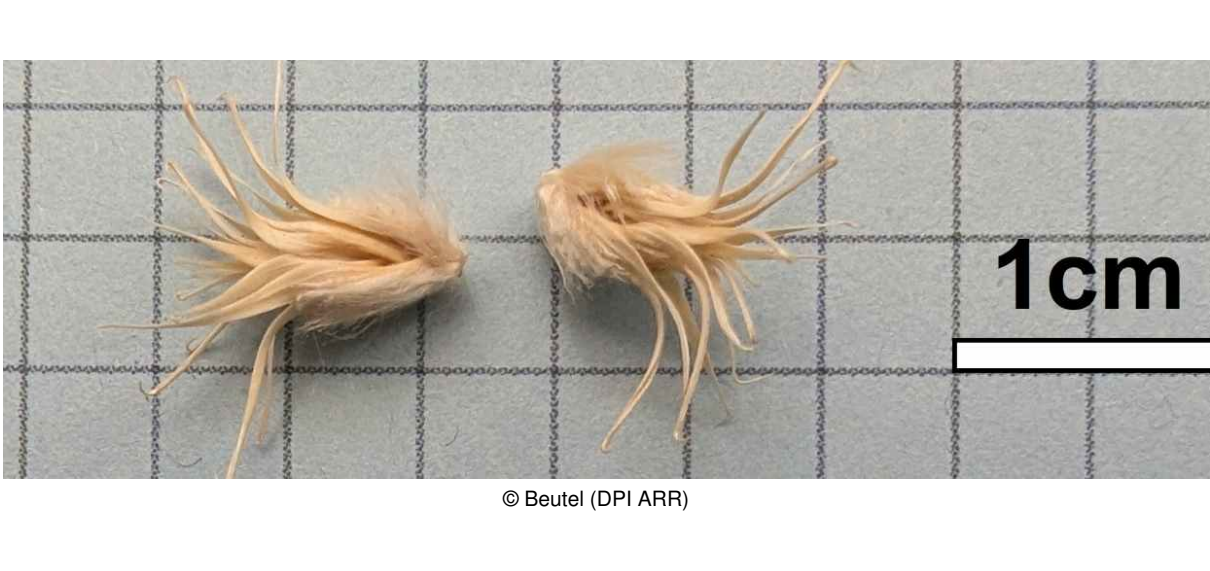
Native perennial. Robust tussocks (50-150cm). Leaves (7-40cm x 3-6mm) with distinct pale midvein. Seed head (7-18 x 1.5-3cm) held above foliage, breaking into the fat distinctive seeds on maturity. Prefers heavy clays and poorly drained areas.

Look for these features in the field.

- The seed head (7-18 x 1.5-3cm) held well above foliage is composed of large seeds with rigid hooked spines that give it a prickly feel.


© Kym Nicolson (top, middle), Russell Cumming (bottom) (inaturalist.org CC BY)

- Seed head breaks into fat seeds (1-1.3cm long) with silky bases and 5-8mm rigid bristles that are distinctly hooked at their ends.



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- Leaves longer than in other *Astrebla*, a distinct pale, grooved mid-vein on the upper leaf and corresponding raised keel on the underside of the leaf. No hairs on the upper side of the leaf.

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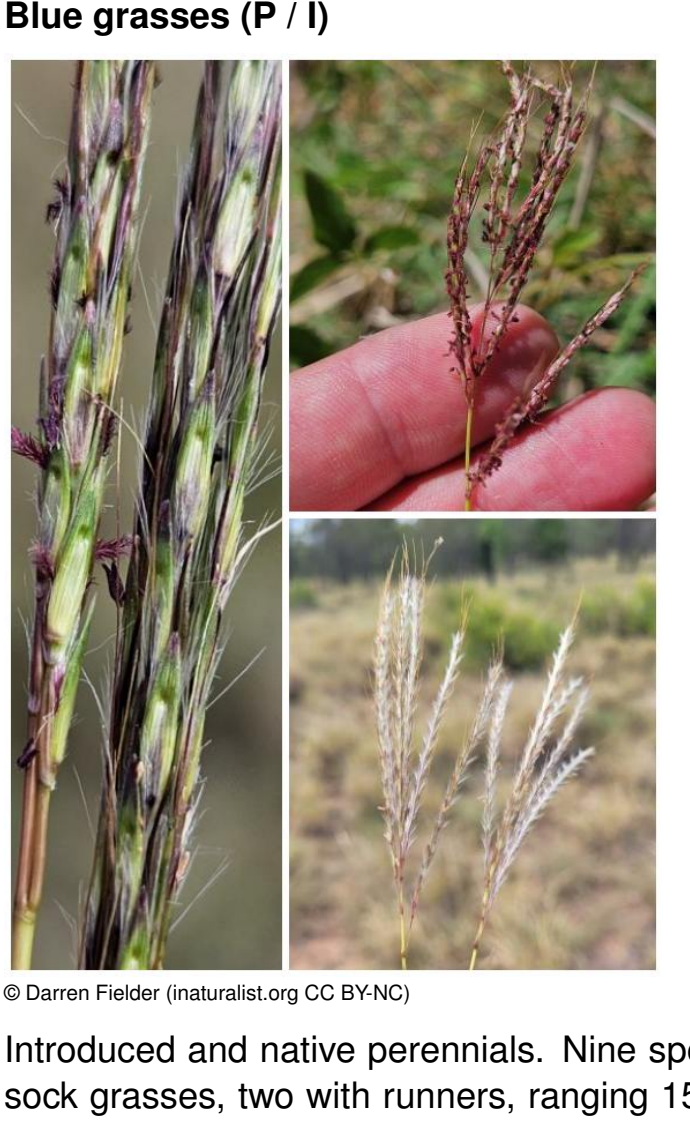
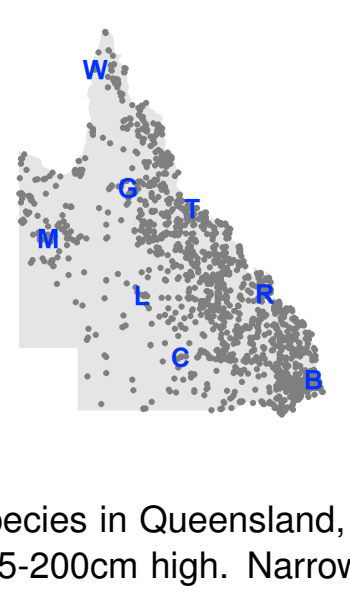
Back to ToC

Bothriochloa

Blue grasses (P / I)

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Introduced and native perennials. Nine species in Queensland, mostly tussock grasses, two with runners, ranging 15-200cm high. Narrow leaves (5-50cm x 2-8mm) and in most species at least slightly aromatic when crushed. Seed heads with 3-30 often upturned branches <10cm long. In all but one species these emerge within 3cm of the top of the stem and have seeds with varying levels of hairiness and with or without one or more pits in the seed. Common across a wide range of habitats in Queensland's grazing land.

Look for these features in the field.

- Most but not all species have one or more pits in the seed (above).
- The seed head in all but one species is digitate or subdigitate. This means seed head branches all emerge at the top of the stem or within a short distance of the top of the stem (above).
- Leaves can have a gingery aroma when crushed, though the strength of the aroma varies between species and localities.

Similar Species

Bothriochloa and *Dichanthium* can be difficult to discriminate. But *Dichanthium* never has a gingery aroma or pitted seeds both of which are common (but not ubiquitous) to *Bothriochloa*.

Species in this guide:

- Forest blue grass (*Bothriochloa bladhii*)
- Pitted blue grass (*Bothriochloa decipiens*)
- Satintop (*Bothriochloa erianthoides*)
- Desert blue grass (*Bothriochloa ewartiana*)
- Creeping blue grass (*Bothriochloa insculpta*)
- Indian couch (*Bothriochloa pertusa*)

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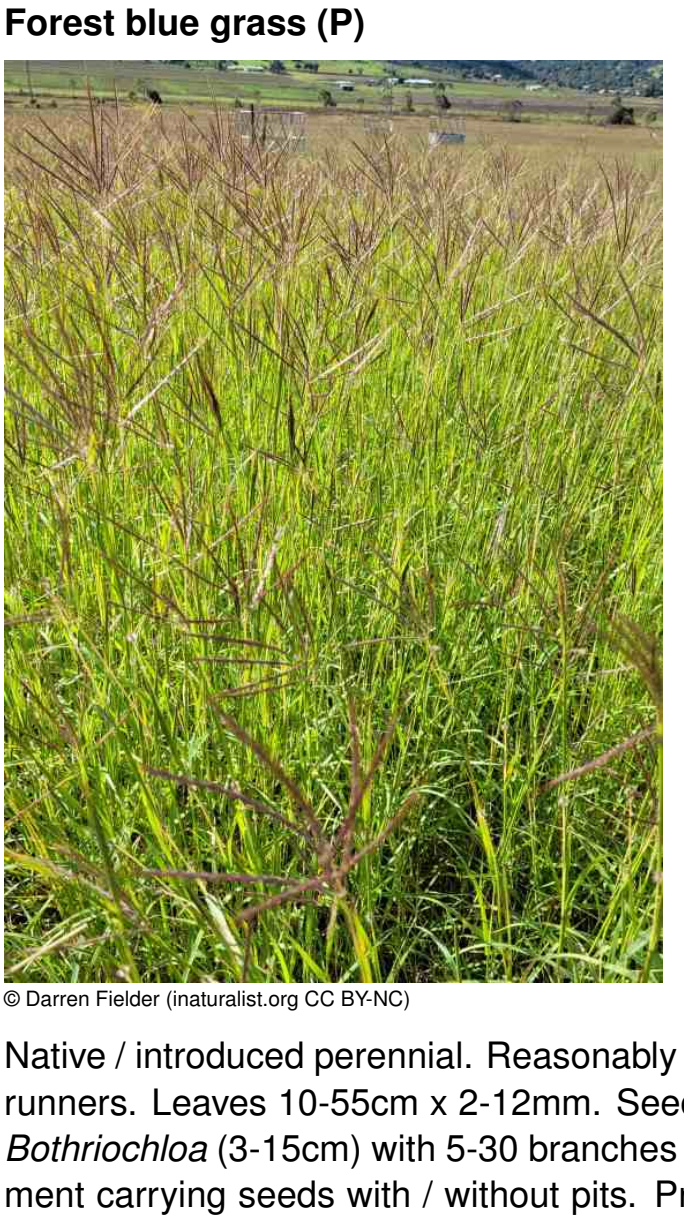
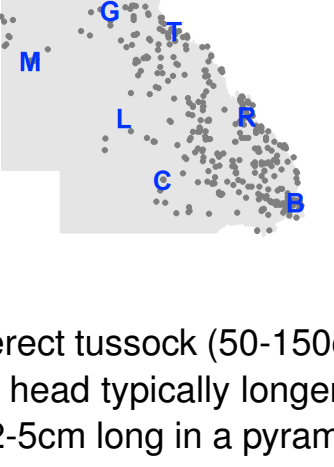
Bothriochloa bladhii

Forest blue grass (P)

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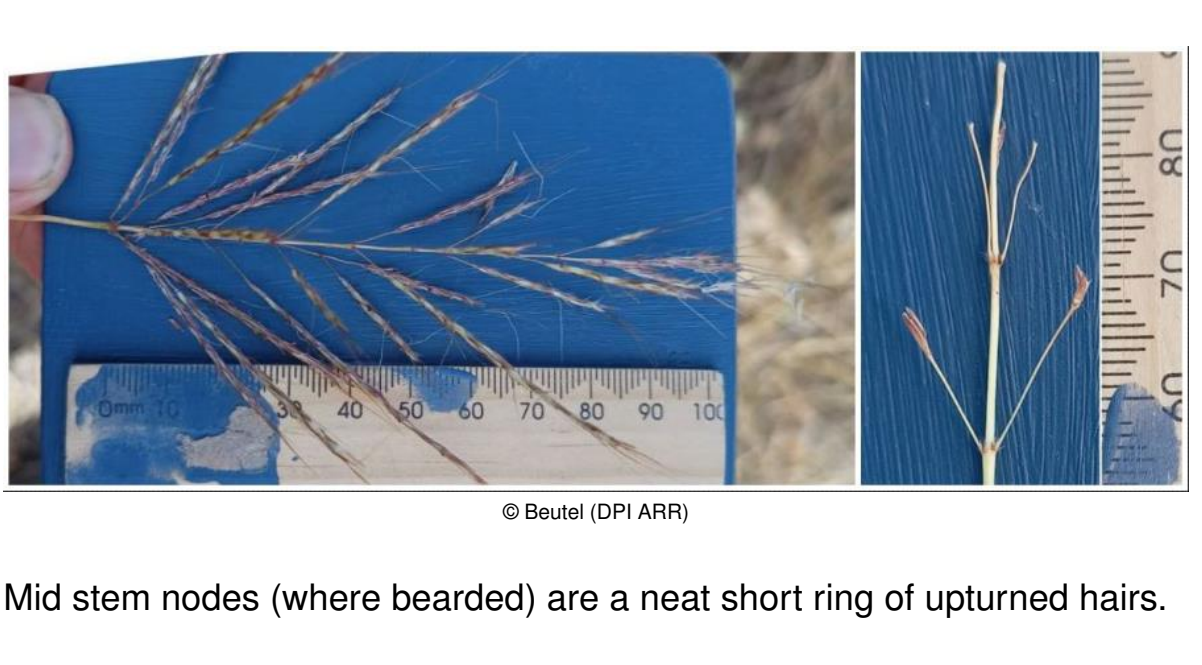
Native / introduced perennial. Reasonably erect tussock (50-150cm) without runners. Leaves 10-55cm x 2-12mm. Seed head typically longer than other *Bothriochloa* (3-15cm) with 5-30 branches 2-5cm long in a pyramid arrangement carrying seeds with / without pits. Prefers eucalypt forests and woodlands across a range of soils.

Look for these features in the field.

- Seed head central axis much longer (3-15cm) than other *Bothriochloa*. After seed fall the stem can retain several cm of broken axis and branches.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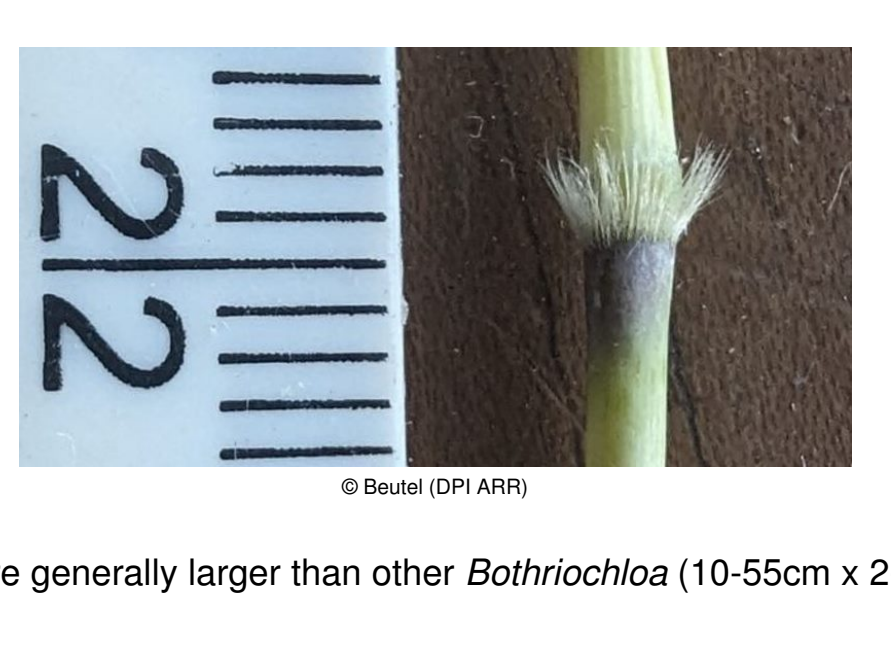
- Mid stem nodes (where bearded) are a neat short ring of upturned hairs.


© Beutel (DPI ARR)

- Leaves are generally larger than other *Bothriochloa* (10-55cm x 2-12mm)

Similar Species

The long axis of the seed head and presence of leaves longer than 40cm distinguishes this from other *Bothriochloa* species. There are two subspecies of *B. bladhii*; the seeds of native subspecies *B. bladhii bladhii* are rarely pitted while the introduced subspecies *B. bladhii glabra* seeds are always pitted.

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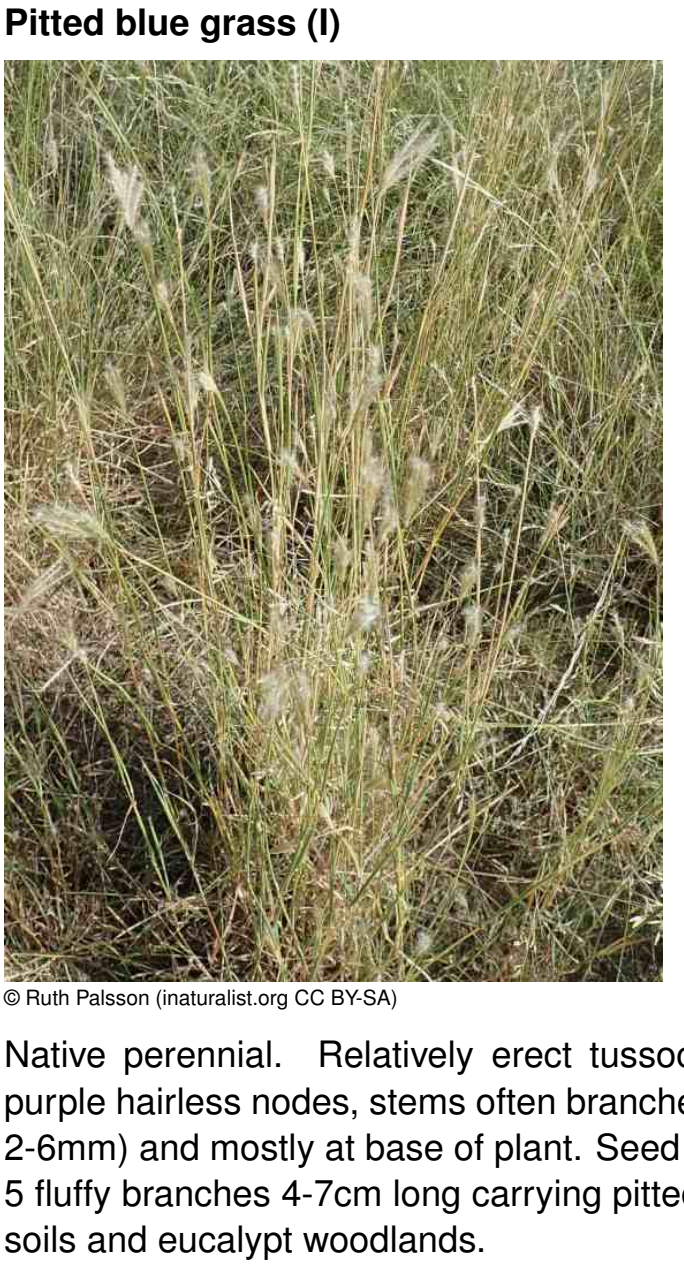
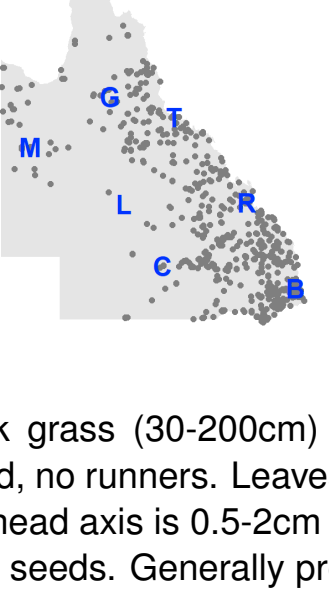
Bothriochloa decipiens

Pitted blue grass (I)

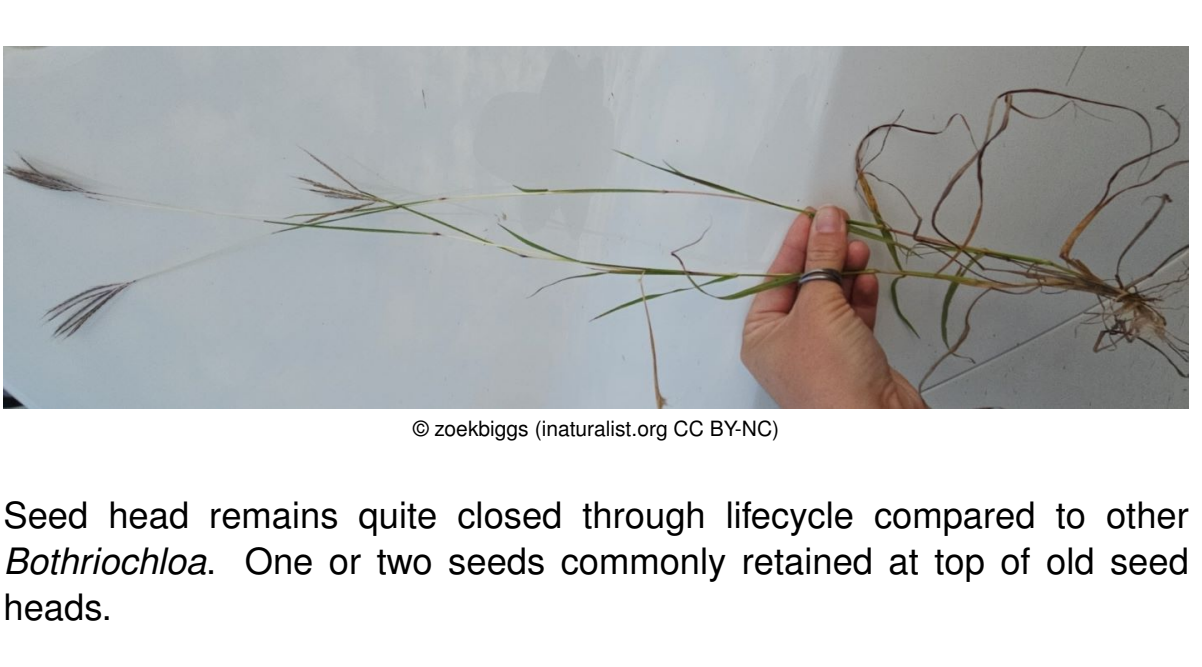



© Ruth Palsson (inaturalist.org CC BY-SA)

Native perennial. Relatively erect tussock grass (30-200cm) with dark / purple hairless nodes, stems often branched, no runners. Leaves (6-20cm x 2-6mm) and mostly at base of plant. Seed head axis is 0.5-2cm long with 3-5 fluffy branches 4-7cm long carrying pitted seeds. Generally prefers lighter soils and eucalypt woodlands.

Look for these features in the field.

- Tussock is very upright, often branched and commonly ungrazed. Leaves mostly attached near base of the plant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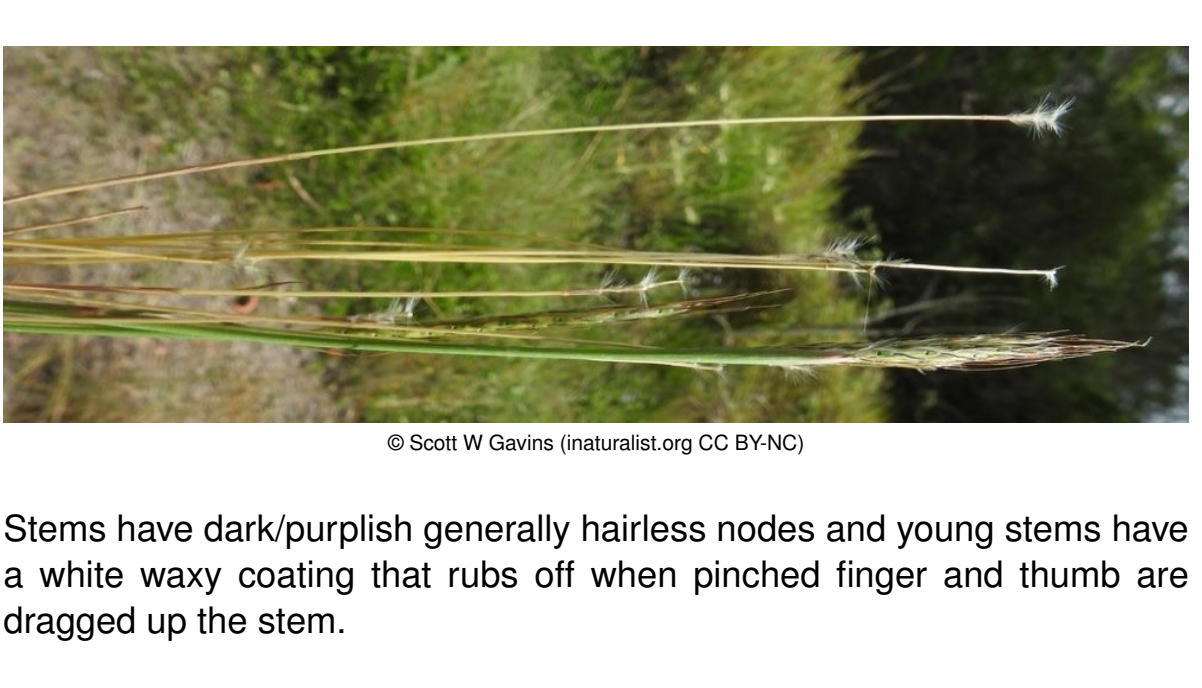
- Seed head remains quite closed through lifecycle compared to other *Bothriochloa*. One or two seeds commonly retained at top of old seed heads.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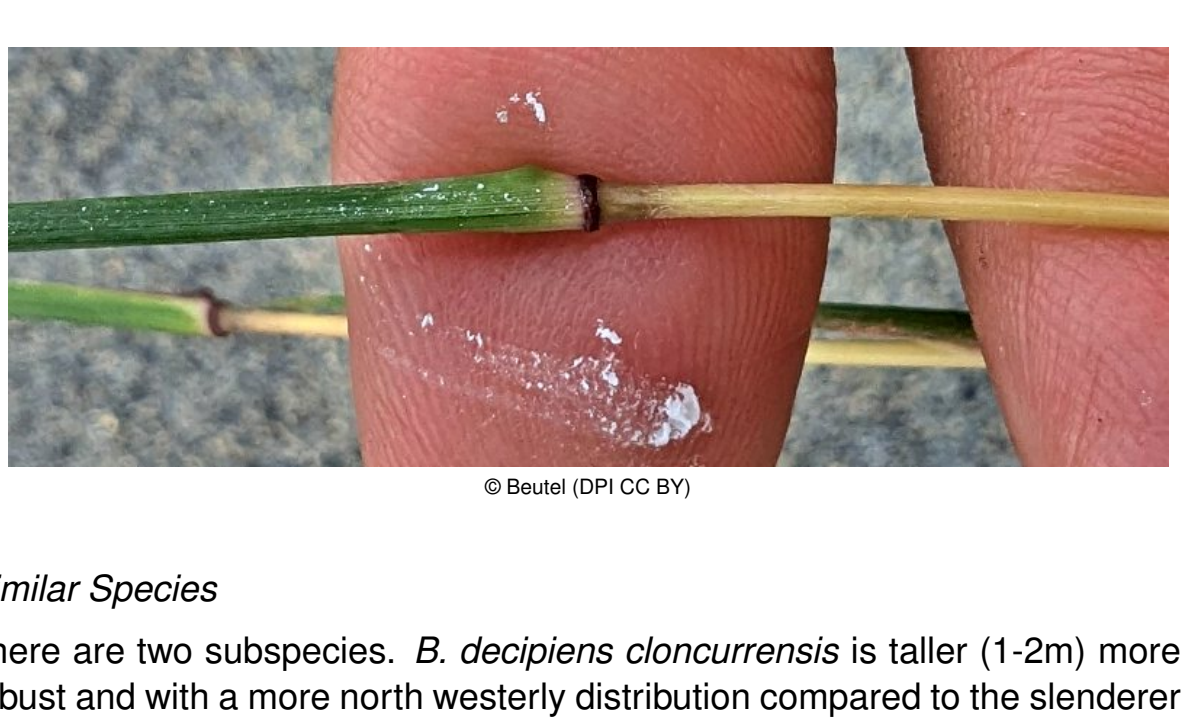
- Stems have dark/purplish generally hairless nodes and young stems have a white waxy coating that rubs off when pinched finger and thumb are dragged up the stem.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Similar Species

There are two subspecies. *B. decipiens cloncurrensis* is taller (1-2m) more robust and with a more north westerly distribution compared to the slenderer / shorter (<1 m) *B. decipiens decipiens* which is more common in the south east of the state. The latter can be distinguished from Indian couch (*B. pertusa*) by the dark hairless nodes, the tendency to hold a tuft of residual seed and the wax coating on the stem in young plants.

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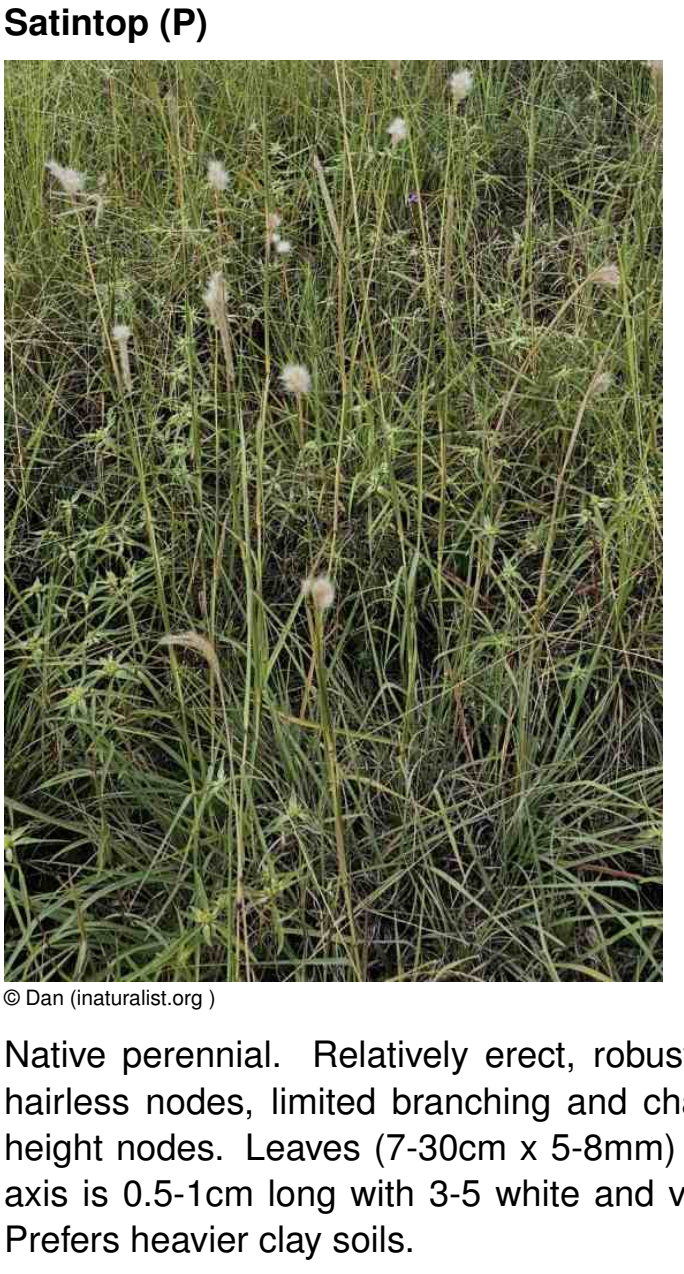
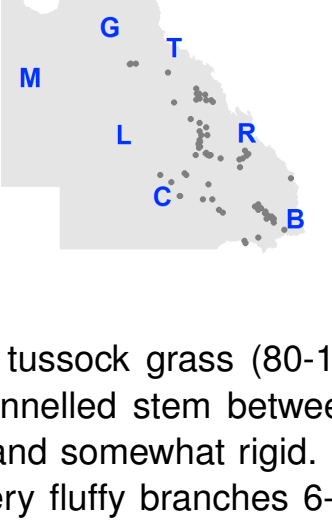
Bothriochloa erianthoides

Satintop (P)

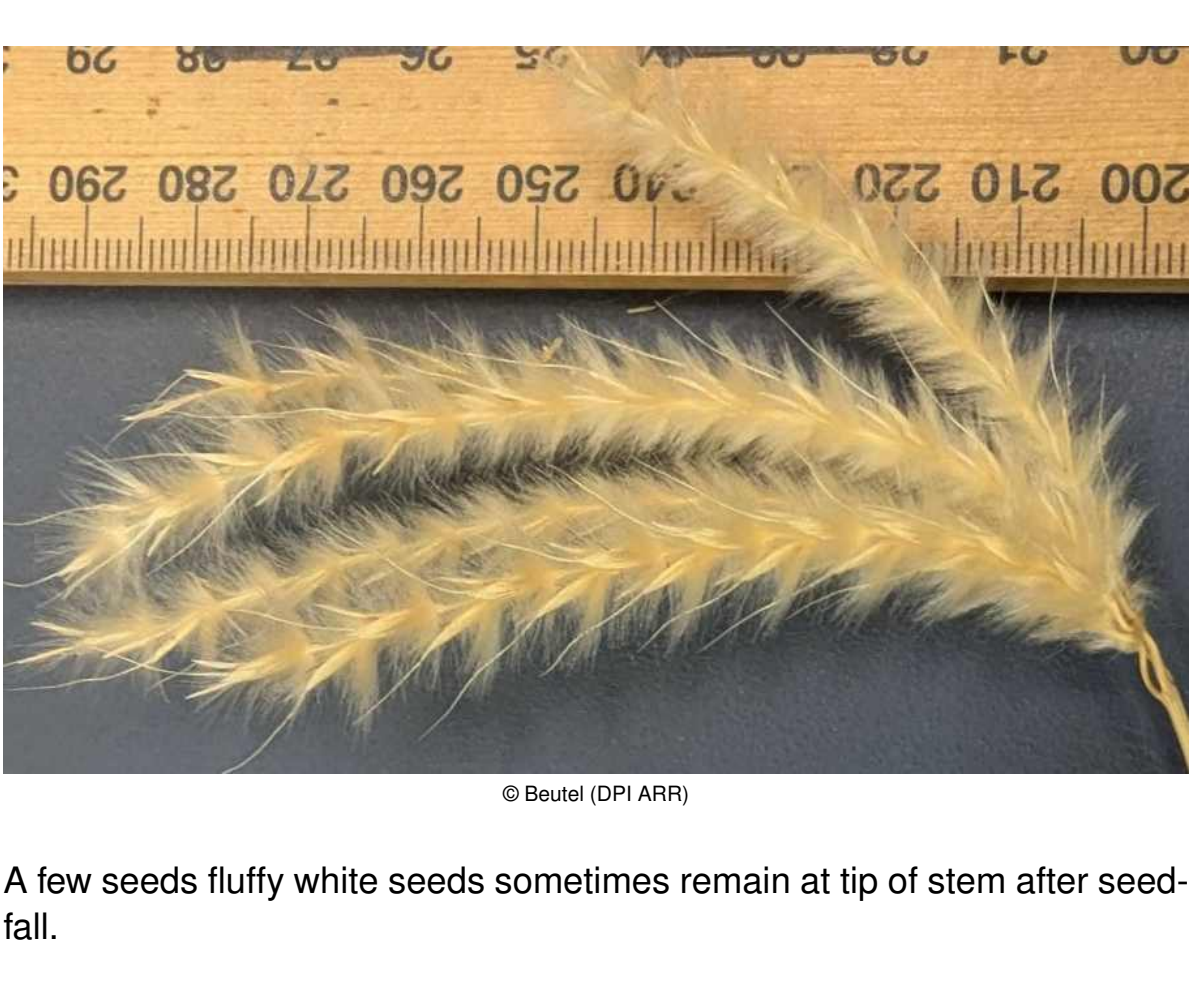



© Dan (inaturalist.org)

Native perennial. Relatively erect, robust tussock grass (80-150cm) with hairless nodes, limited branching and channelled stem between the mid-height nodes. Leaves (7-30cm x 5-8mm) and somewhat rigid. Seed head axis is 0.5-1cm long with 3-5 white and very fluffy branches 6-10cm long. Prefers heavier clay soils.

Look for these features in the field.

- Conspicuous silky white seed head with 3-5 branches, sometimes partially enclosed in a leaf sheath.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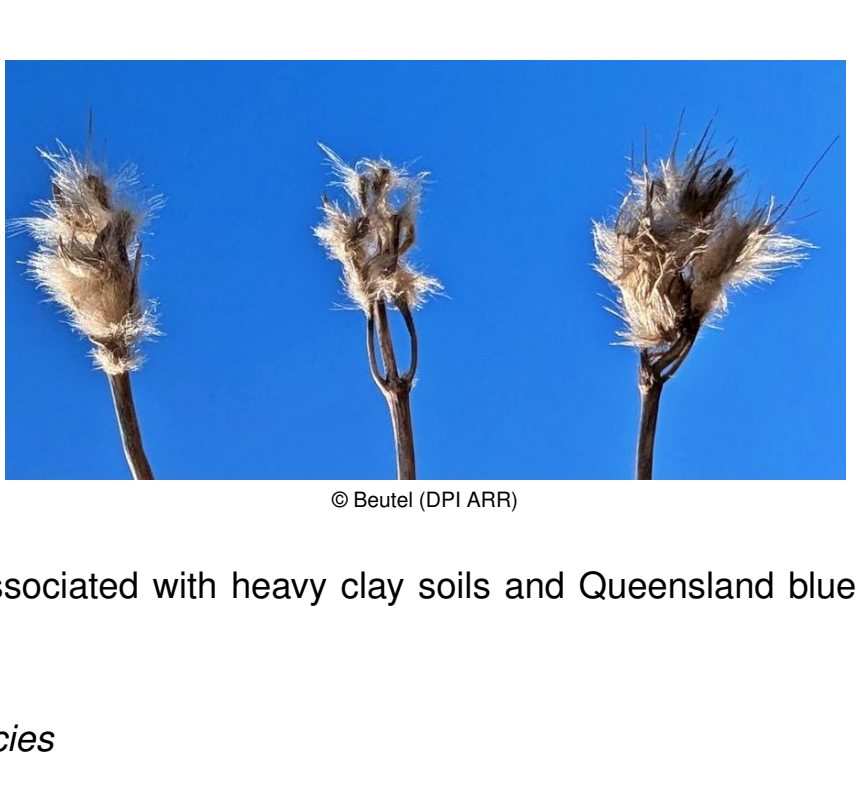
- A few seeds fluffy white seeds sometimes remain at tip of stem after seedfall.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- Closely associated with heavy clay soils and Queensland blue grass (*D. sericeum*)

Similar Species

Often occurs with superficially similar Queensland blue grass (Dichanthium sericeum), but lacks the conspicuously fluffy nodes of *D. sericeum*.

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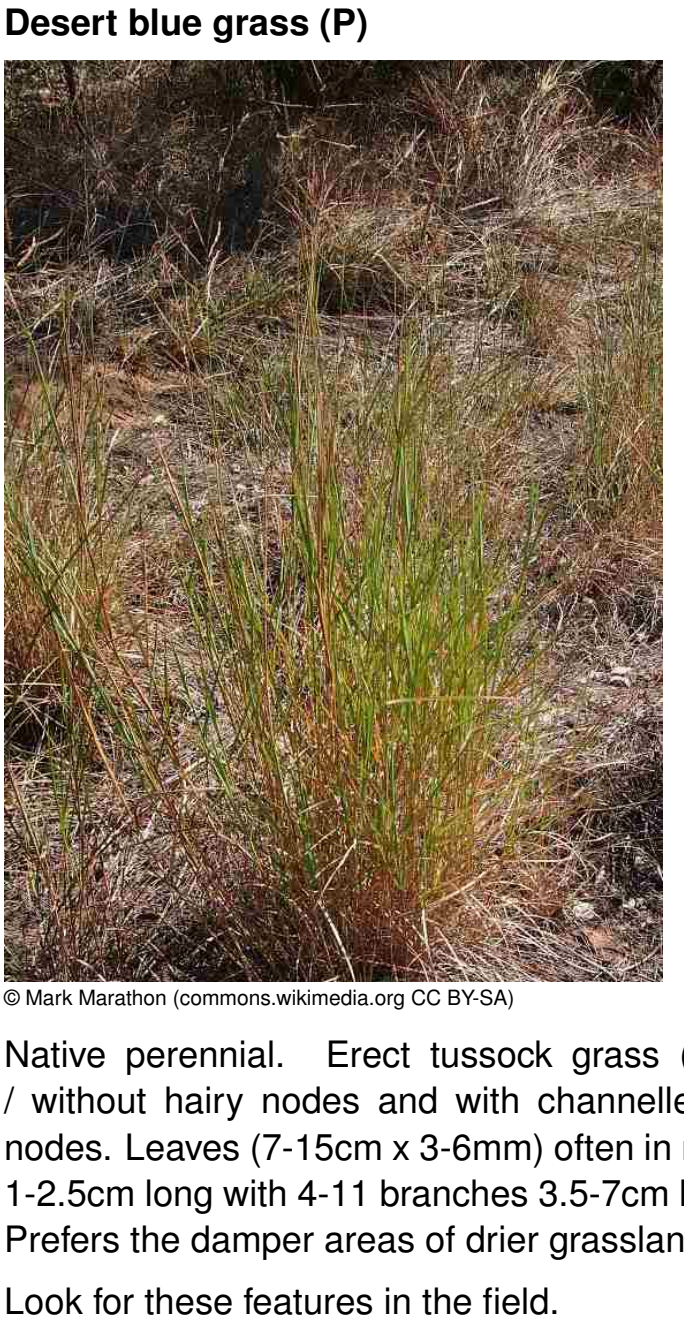
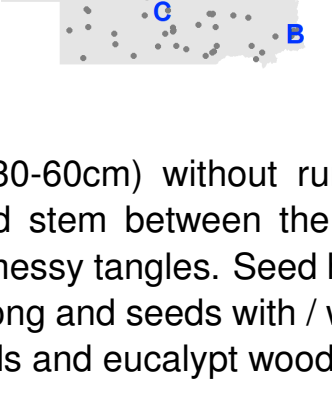
Bothriochloa ewartiana

Desert blue grass (P)

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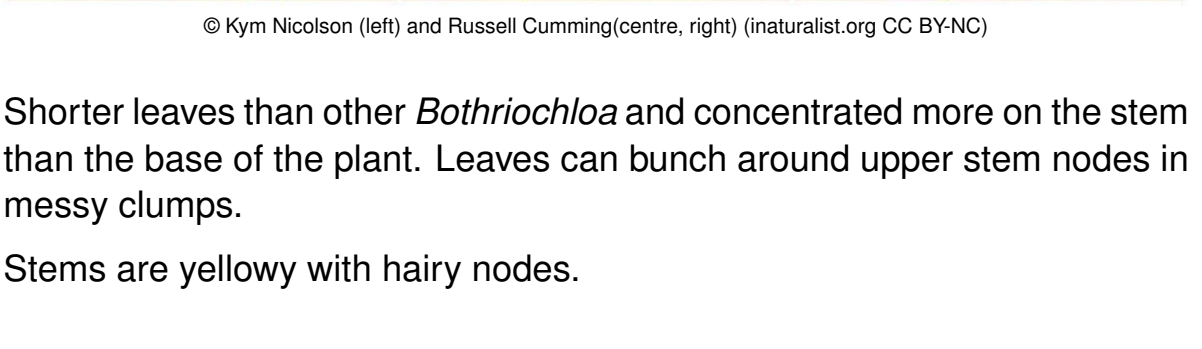
Native perennial. Erect tussock grass (30-60cm) without runners, with / without hairy nodes and with channelled stem between the mid-height nodes. Leaves (7-15cm x 3-6mm) often in messy tangles. Seed head axis is 1-2.5cm long with 4-11 branches 3.5-7cm long and seeds with / without pits. Prefers the damper areas of drier grasslands and eucalypt woodlands.

Look for these features in the field.

- Seed head is initially pinkish with brown bristles on each seed. As it matures it takes on a paler, fluffier, droopier appearance (left to right).


© Kym Nicolson (left) and Russell Cumming(centre, right) (inaturalist.org CC BY-NC)

- Shorter leaves than other *Bothriochloa* and concentrated more on the stem than the base of the plant. Leaves can bunch around upper stem nodes in messy clumps.
- Stems are yellowy with hairy nodes.

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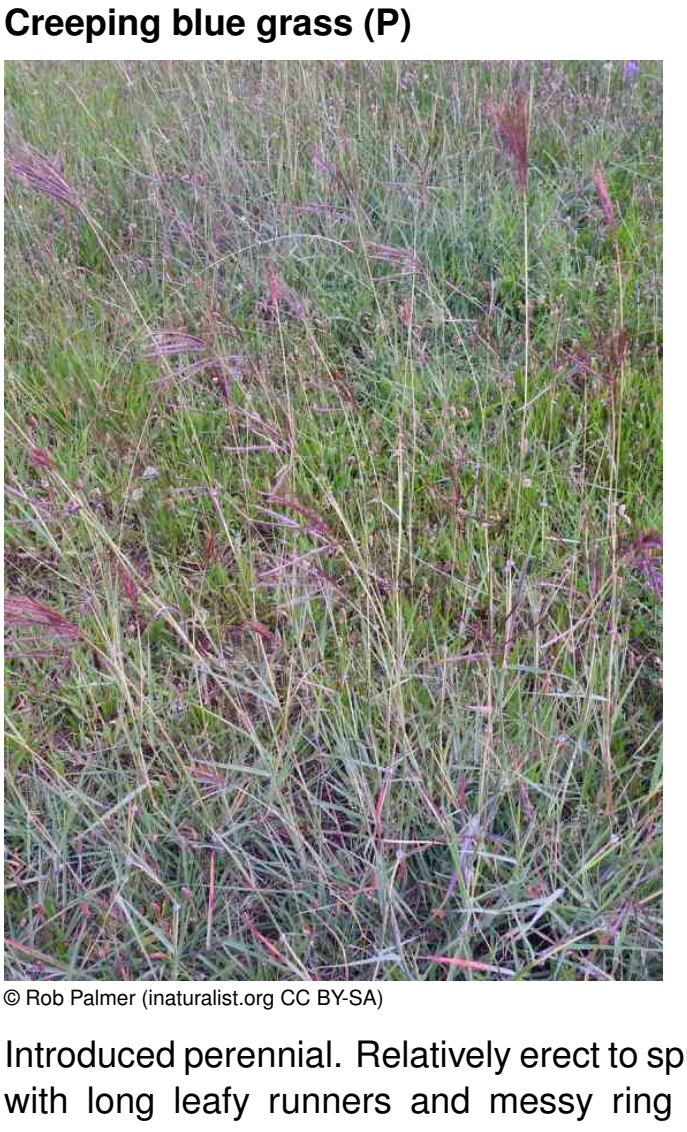
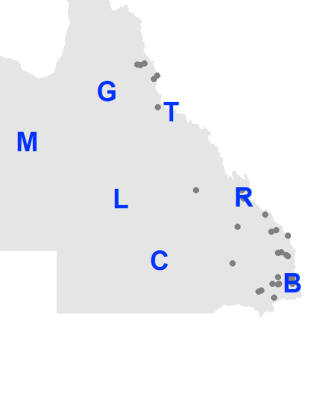
Bothriochloa insculpta

Creeping blue grass (P)

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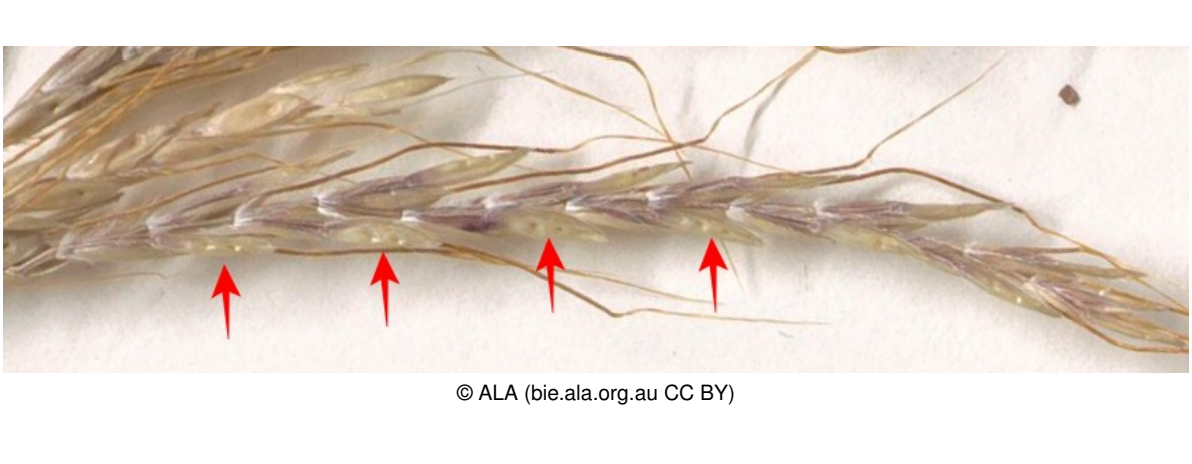
Introduced perennial. Relatively erect to sprawling tussock grass (25-200cm) with long leafy runners and messy ring of white hairs (4mm) at nodes. Leaves 4-30cm x 2-8mm. Seed head axis 0-3cm long with 3-20 branches 2-8cm long bearing pitted seeds with 1-3 pits (multiple pitted seeds are common). Can occupy a range of soils but difficult to grow on sands or very heavy black clays.

Look for these features in the field.

- One of only two Bothriochloa with runners which are distinctively long, looping and sparsely attached to the ground
- Seed heads generally and characteristically include seeds with 2 or 3 pits, which is not seen in other *Bothriochloa*.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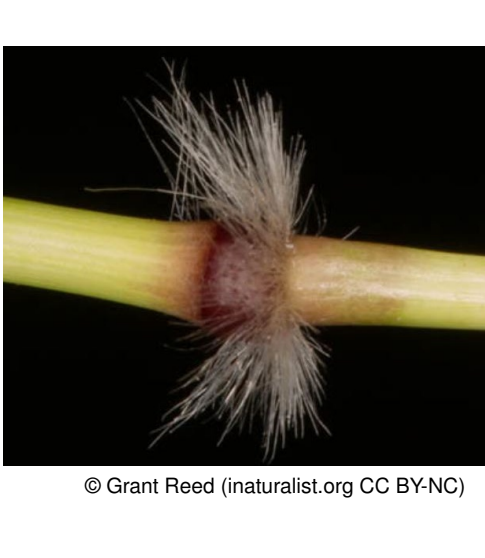
- Stems yellowish with hairy nodes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Similar Species

Creeping blue grass is the only *Bothriochloa* in Queensland with long loose runners and multiple pits on the seeds.

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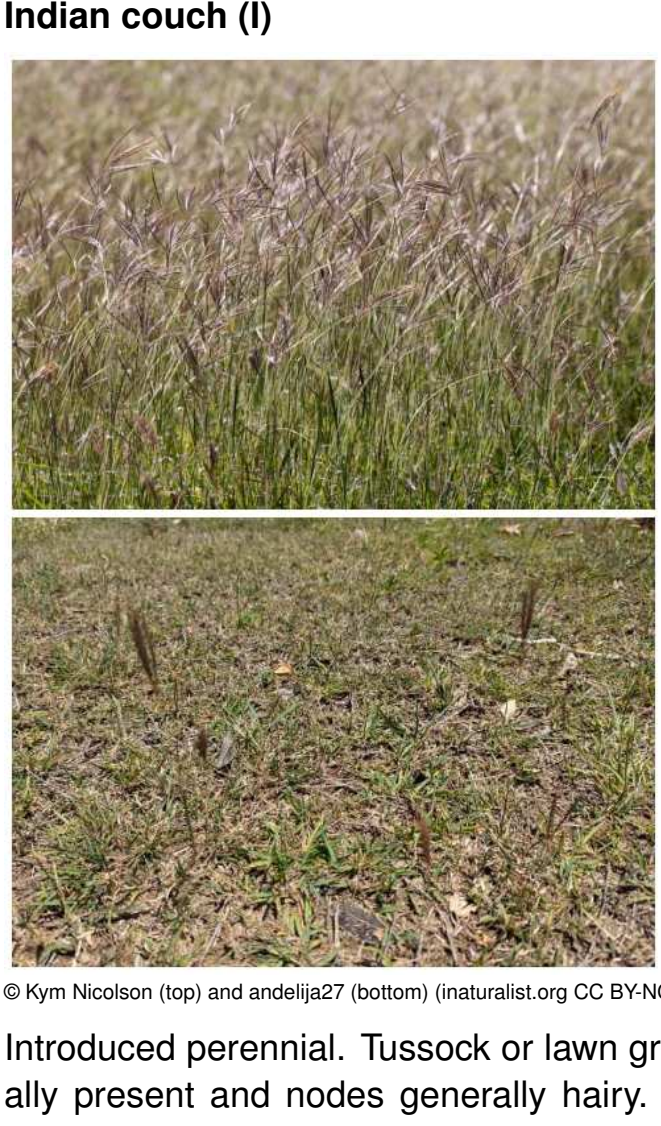
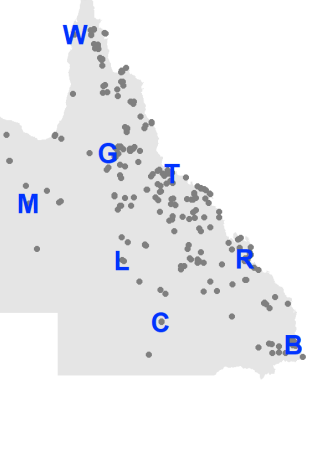
Bothriochloa pertusa

Indian couch (I)

© Kym Nicolson (top) and andelija27 (bottom) (inaturalist.org CC BY-NC)

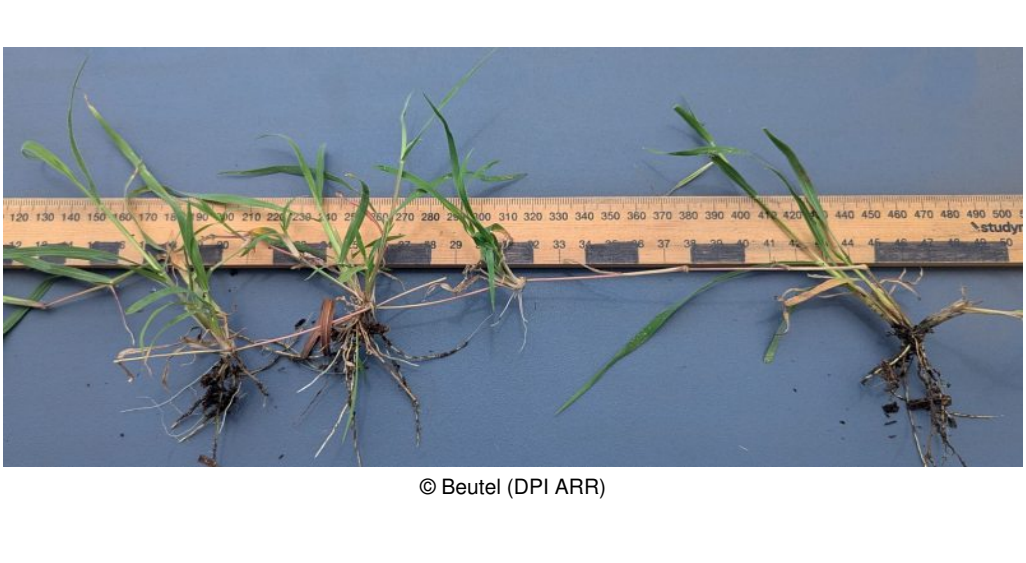
Introduced perennial. Tussock or lawn grass (15-70cm) with runners generally present and nodes generally hairy. Leaves (5-30cm x 2.5-5mm) and highly aromatic when crushed. Seed head axis is 1-3cm long with 3-8 branches 2.5-5cm long with pitted seeds. Prefers eucalypt woodlands on a range of moderate to low fertility soils.

Look for these features in the field.

- Leaves have a distinctive gingery / citrus smell when crushed. This is common to *Bothriochloa* but Indian couch is particularly aromatic.
- Fine, hay-coloured stems with / without hairy nodes. Form lawns (above) but stems often remain after seed fall giving dense monocultures a golden windswept appearance.

© Beutel (DPI ARR)

- One of only two *Bothriochloa* with runners. If present, they run along the ground and are firmly rooted at regular intervals.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Similar Species

See Creeping blue grass (*B. insculpta*) and Pitted blue grass (*B. decipiens*)

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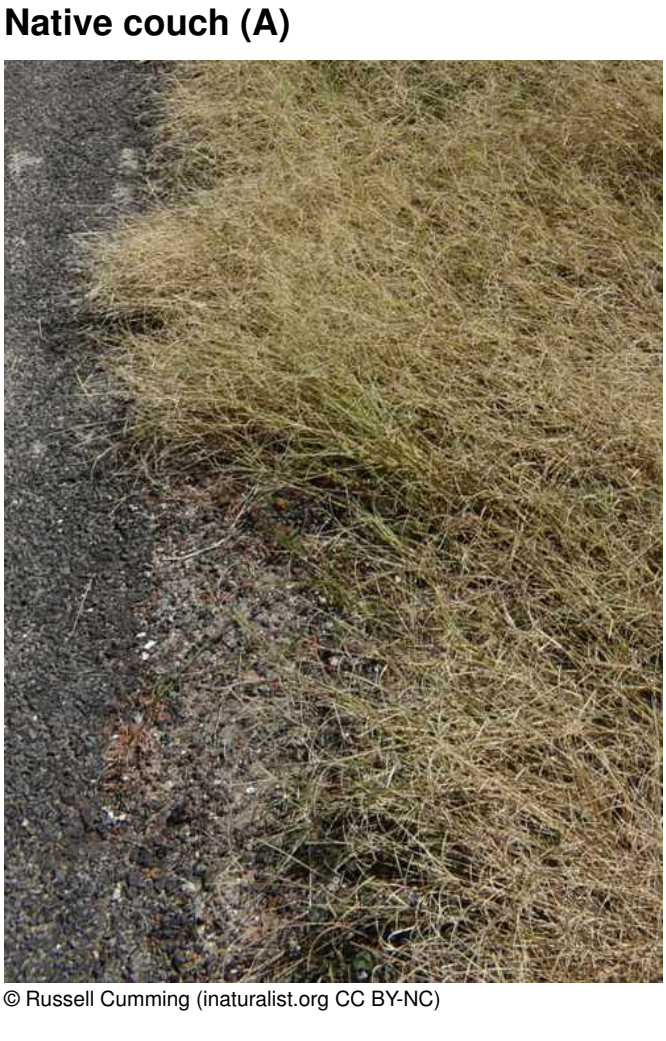
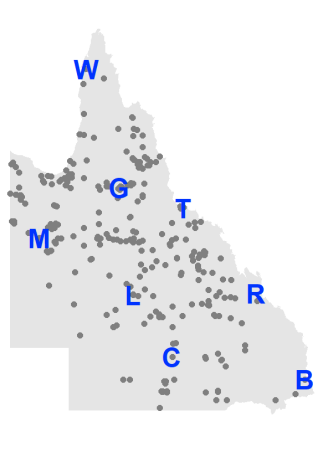
Brachyachne convergens

Native couch (A)





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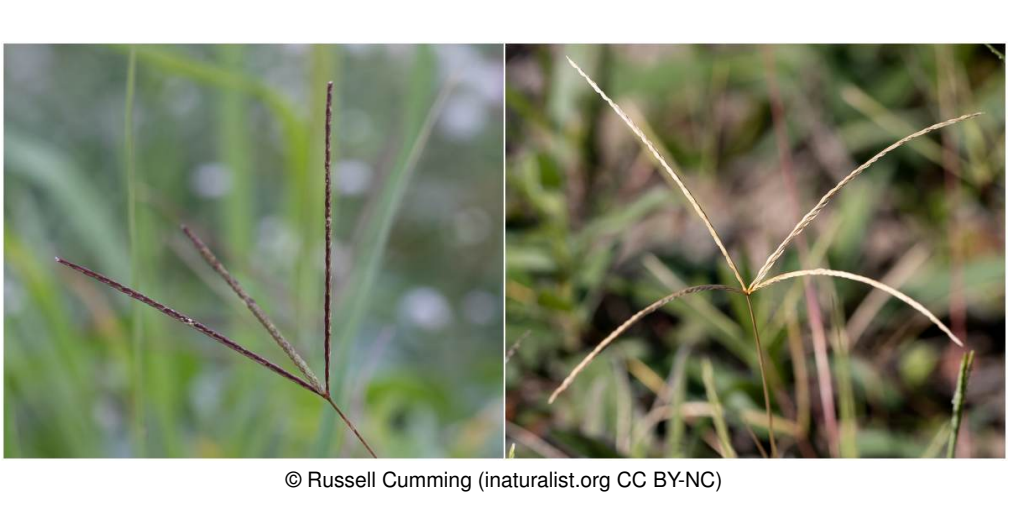
Native annual tussock grass (20-60cm) with / without runners and much branched. Leaves are 3-6cm x 2-3mm. Seed head is characteristic with 2-5 branches (2-7cm) all emerging at the top of the stem. Prefers clay soils, temporarily flooded and bare areas.

Look for these features in the field.

- Can have runners (stolons) and form lawns (above).
- Seed head has 2-5 spikes at top of stalk that curve and pale they age (left to right).



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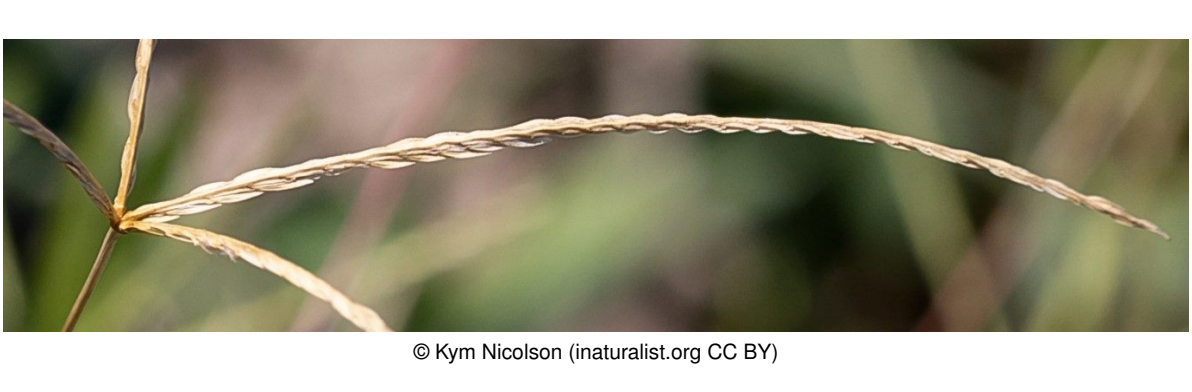
- Each spike of the seed head carries two tightly packed rows of seeds on its underside.



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Similar Species

These features distinguish two common stoloniferous (runner) grasses from Native couch. Indian couch (*B. pertusa*) has a gingery aroma when crushed, is perennial, and seed head branches can emerge below the tip of the stem. Green couch (*C. dactylon*) is perennial and seed head branches don't curve as they age.

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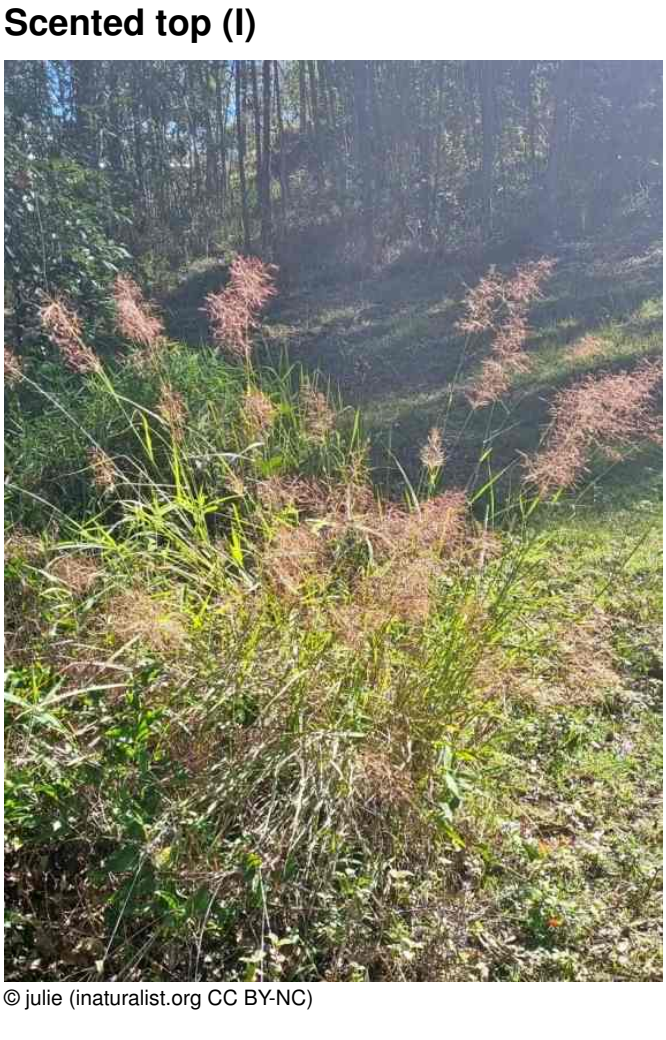
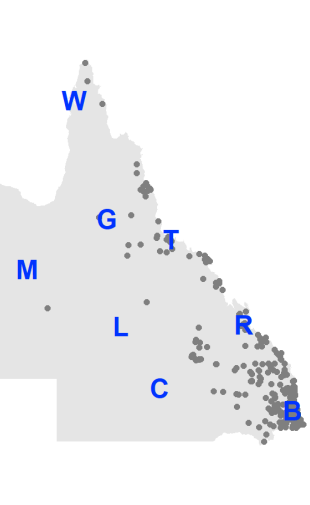
Capillipedium spicigerum

Scented top (I)





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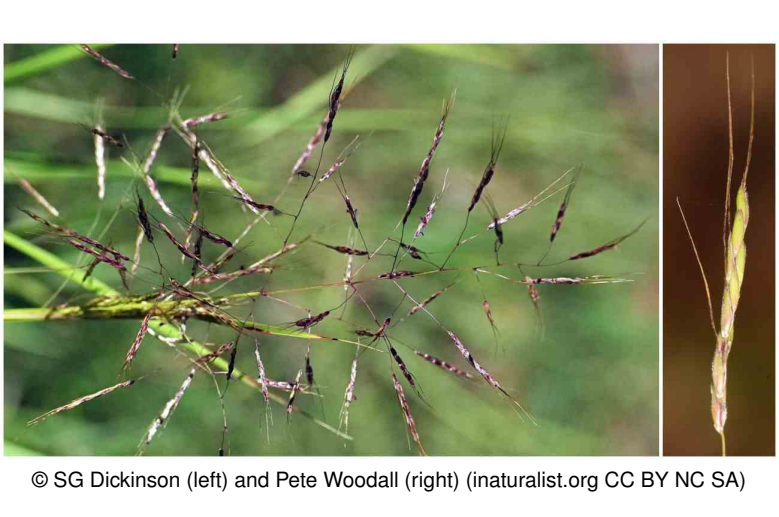
Native perennial tussock grass (100-150cm). Leaves (10-25cm x 5-8mm) and concentrated on stems rather than base. Seed head a panicle (10-25 x 5-7cm) of purple seeds with a pleasant medicinal aroma when crushed. Prefers eucalypt woodland and forest.

Look for these features in the field.

- Seed head has medicinal aroma when crushed.
- Seed head a many-branched panicle with purplish seed clusters at the end of each branch. Each cluster has 3-8 seeds, and each seed a twisted bristle 12-18mm long.



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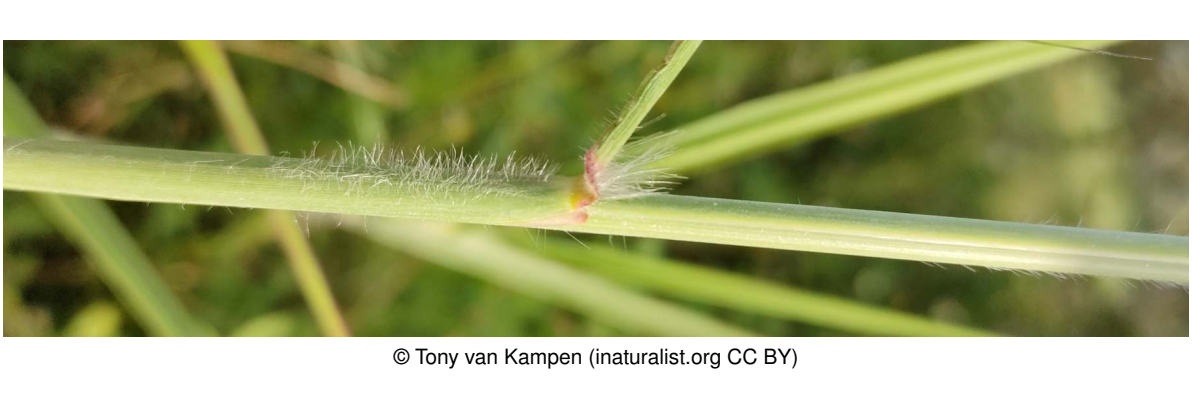
- Leaf sheaths around the stem, particularly at base of stem are generally covered in fine hairs.



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Similar Species

Similar to related *C. parviflorum* (Little scented top). Little scented top seed heads are more delicate due to having only 1-2 spikelets and bristles (top) per seed cluster compared to 3-8 in Scented top (bottom).

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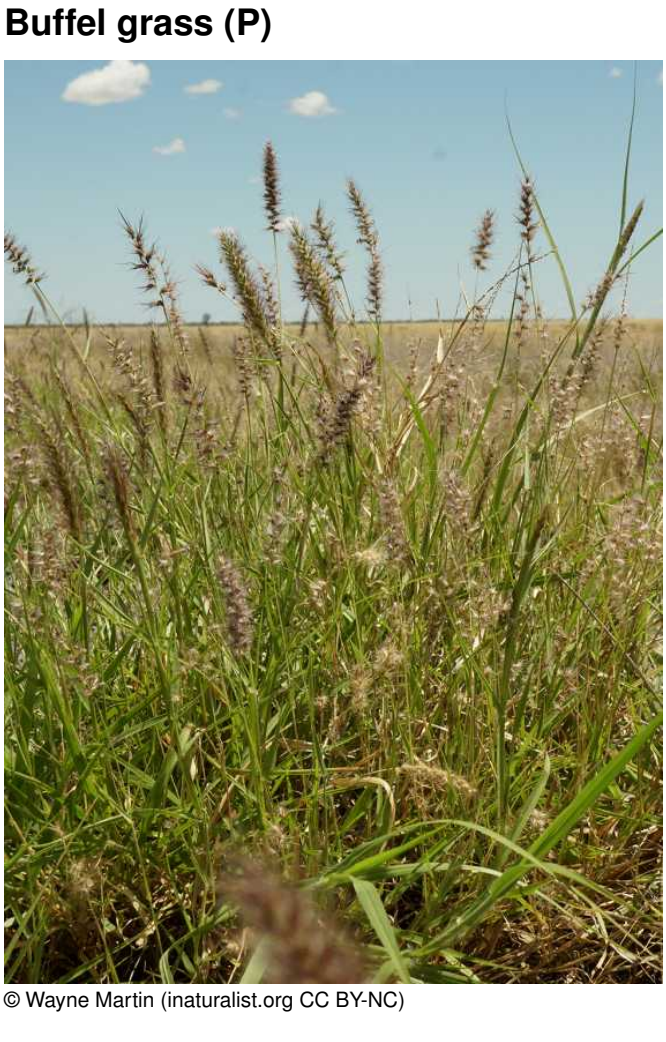
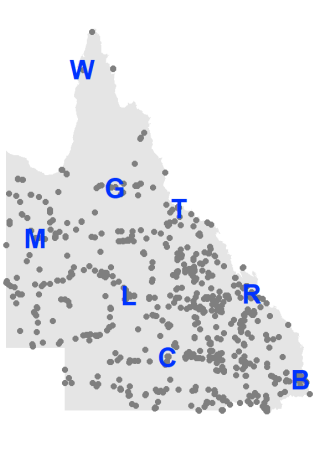
Cenchrus ciliaris

Buffel grass (P)





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Introduced perennial. Highly variable but generally deeply rooted semi-erect tussock grass (10-150cm). Wiry stems with somewhat enlarged nodes. Leaves flat 3-30cm x 4-10mm and vary in colour between cultivars. Seed head a brushy spike (2-15cm x 1-2.5cm) covered in scratchy burr-like seeds. Very high biomass pasture grass crossing a range of soils but dependent on high nutrient (N, P, Ca) levels. More common where average annual rainfall ¡750 mm.

Look for these features in the field.

- Generally large, robust tussocks with well developed root system that occur often in monoculture.

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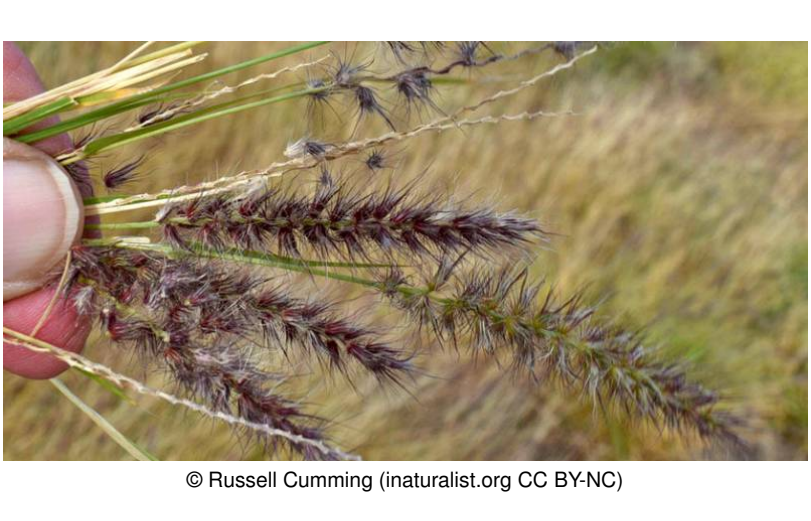
- Full seed head is a foxtail shape (top) and after seedfall the residual seed head stem has a distinctive zigzag shape.



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- Stems wiry/woody (especially when grazed down) with slightly swollen nodes, and that don't give easily under foot compared to most other grasses when tussocks are stepped on.

Similar Species

Only distinguishable from related *C. pennisetiformis* (Cloncurry Buffel) with a microscope, but both are classified under LCAT as preferred (P) species.

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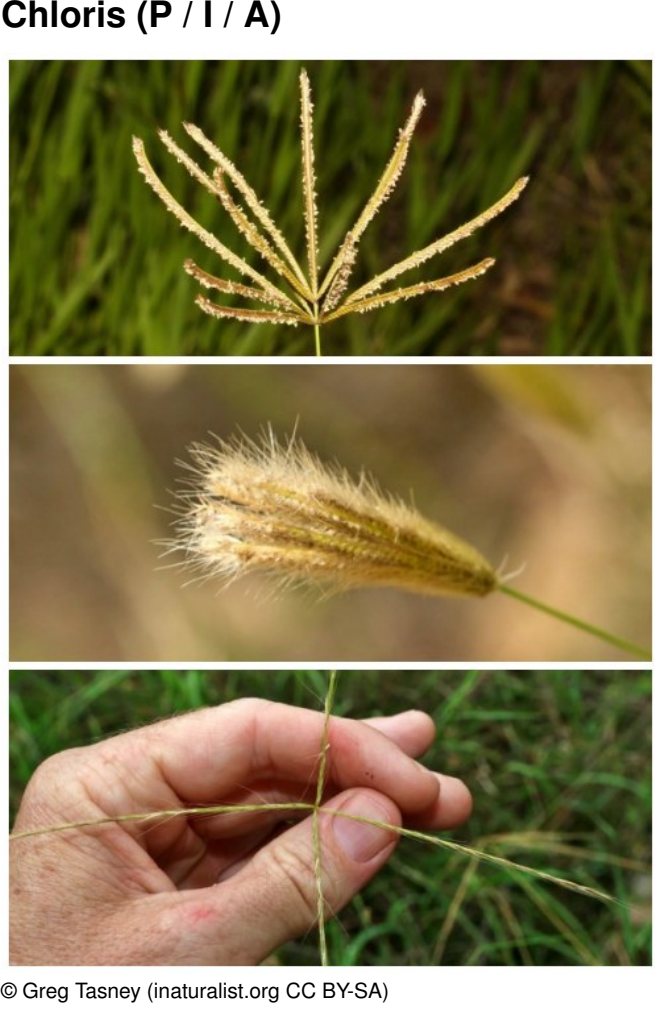
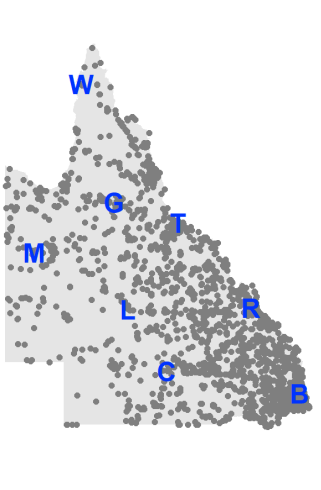
Chloris

Chloris (P / I / A)





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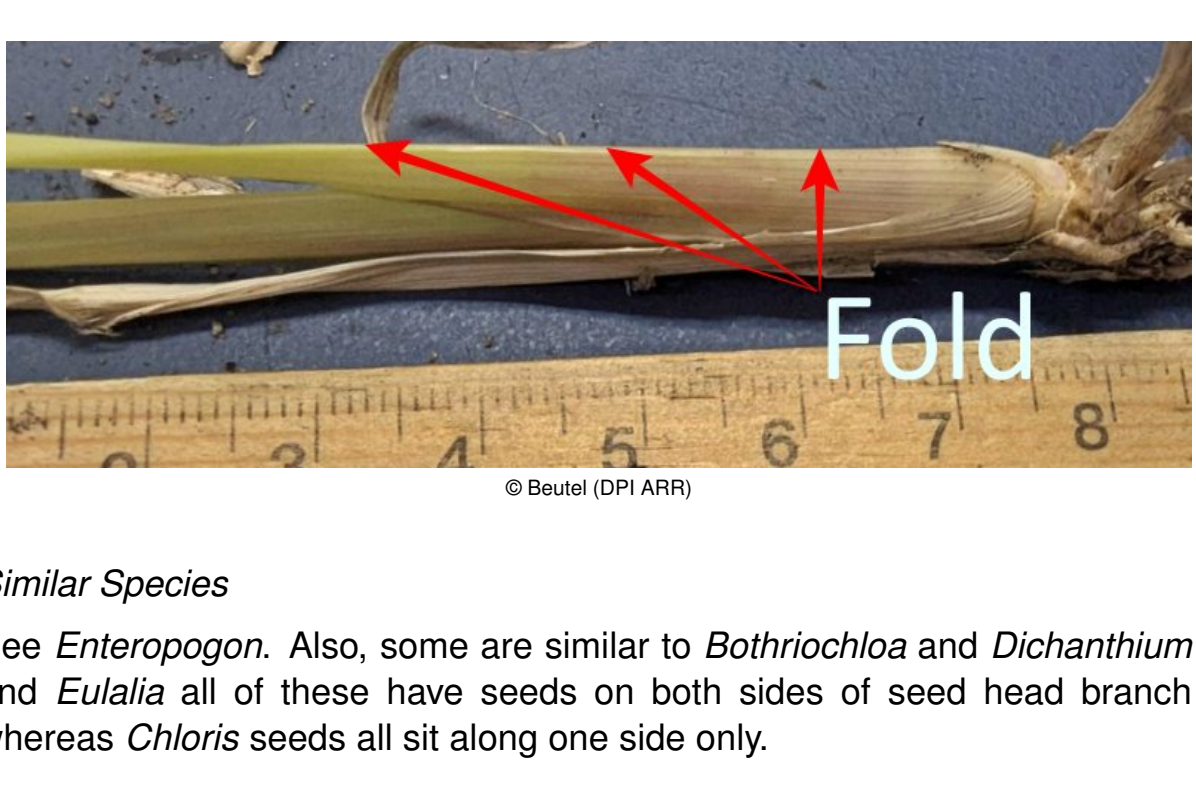
Ten species of mostly native perennial and annuals. Tussock grasses, highly variable in size (10-200cm) and some with runners. Leaves (5-50cm x 2-8mm). Seed heads are always digitate or subdigitate (linear branches all radiating from the top or near top of the stem) with seeds along only one side of each branch. Variable in their habitat preferences, but the genus is very common across Queensland and a number of species are very common on road sides and other disturbed areas.

Look for these features in the field.

- Seed head branches radiate from the top of the stem at one or two points in a flat or conical plane (above). More irregular arrangements are uncommon.
- Seed are in two rows along one side of the seed head branch only, while the other side of the branch exposed.
- In most species some basal leaf sheaths are flattened with a distinctly folded edge up the centre of the sheath. This is a useful characteristic when plants are heavily grazed.



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Similar Species

See *Enteropogon*. Also, some are similar to *Bothriochloa* and *Dichanthium* and *Eulalia* all of these have seeds on both sides of seed head branch whereas *Chloris* seeds all sit along one side only.

Species in this guide:

- Slender Chloris (*Chloris divaricata*)
- Rhodes grass (*Chloris gayana*)
- Windmill grass (*Chloris truncata*)
- Tall Chloris (*Chloris ventricosa*)

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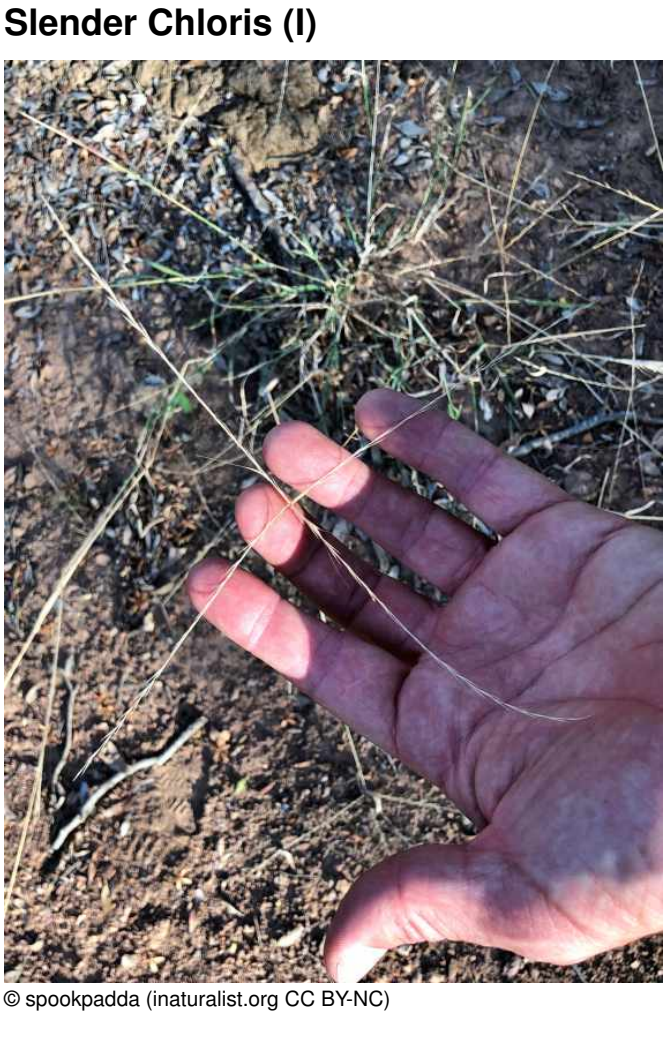
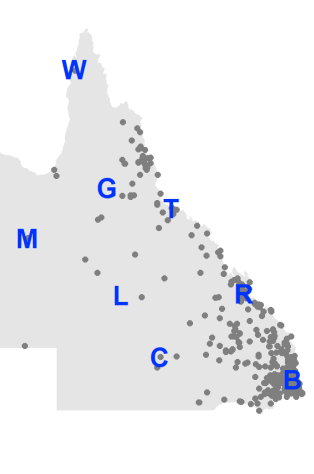
Chloris divaricata

Slender Chloris (I)



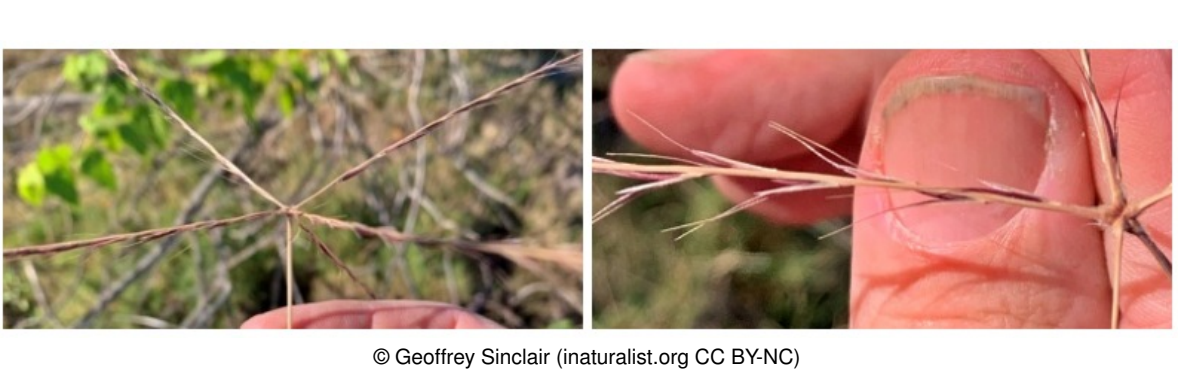


© spookpadda (inaturalist.org CC BY-NC)

Native perennial. Delicate tussocks (15-60cm) sometimes with runners. Leaves 3-15cm x 1-2mm. Seed head with 3-9 pink, spike-like branches 4-17cm long radiating from top of stem. Tolerates a range of soils, common in disturbed areas.

Look for these features in the field.

- Delicate tussocks, often with creeping lower stems.
- Seeds (and seed heads) have long fine hairs.



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Similar Species

Comb chloris (*C. pectinata*) is similarly delicate with hairs on seeds, but has shorter seed head branches (5-11 cm vs 10-18 cm) and longer hairs on seeds (8-22 mm vs 3-7 mm) than Slender chloris.

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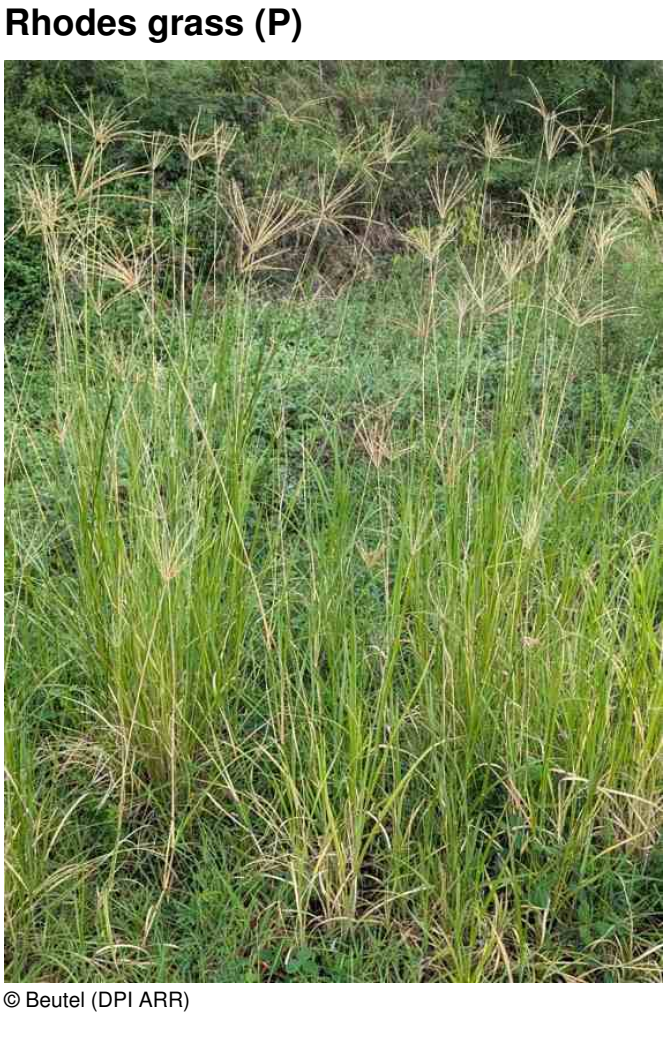
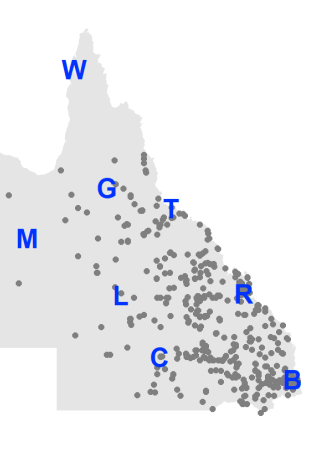
Chloris gayana

Rhodes grass (P)





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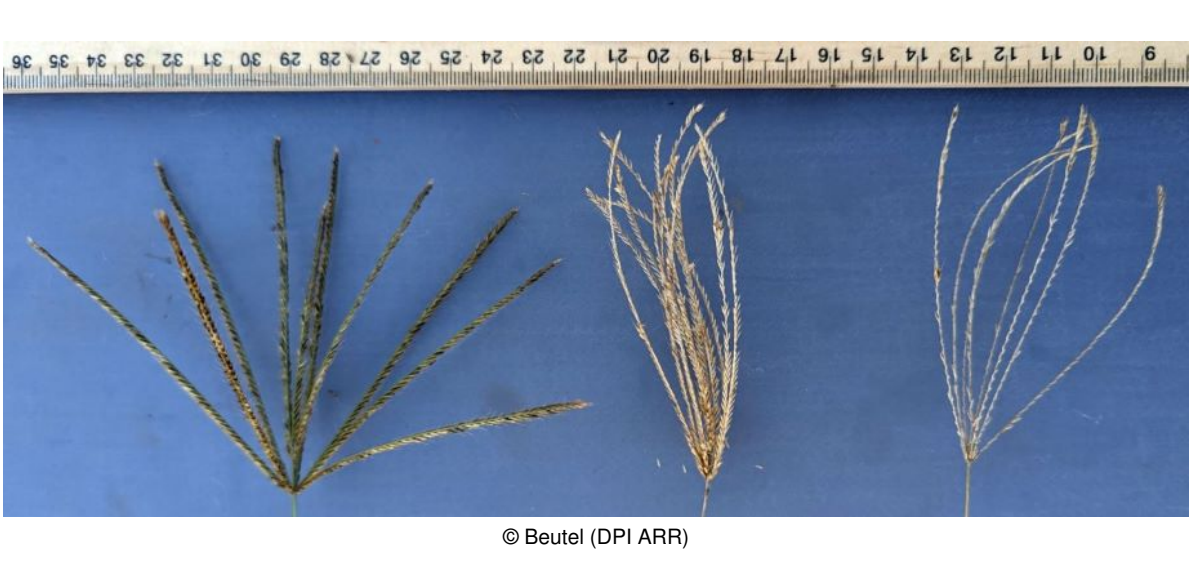
Introduced perennial. Robust tussocks (45-200cm) sometimes with runners. Leaves 15-50cm x 3-9mm. Seed head with 7-20 spike-like branches 4-15cm long radiating from top of stem. Widely cultivated for fodder, does best on fertile loams, but also very common on road sides and other disturbed areas.

Look for these features in the field.

- A single or double circle of 5-17 linear greenish brown branches 4-15cm long all radiating from the top of the stem. After seed fall the seed head branches remain but curl inward in a claw-like arrangement.



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- Tallest of the *Chloris* species, typically >1m when mature and capable of forming dense monocultures.

Similar Species

Can be confused with Purpletop Rhodes grass (*C. inflata*) and Feathertop Rhodes (*C. virgata*). These are both typically shorter (<1 m) than Rhodes grass (left). Seed heads also differ - Purpletop Rhodes is smaller and dark purplish (top left) while Feathertop Rhodes is smaller still, silvery-white and fluffy (bottom right).

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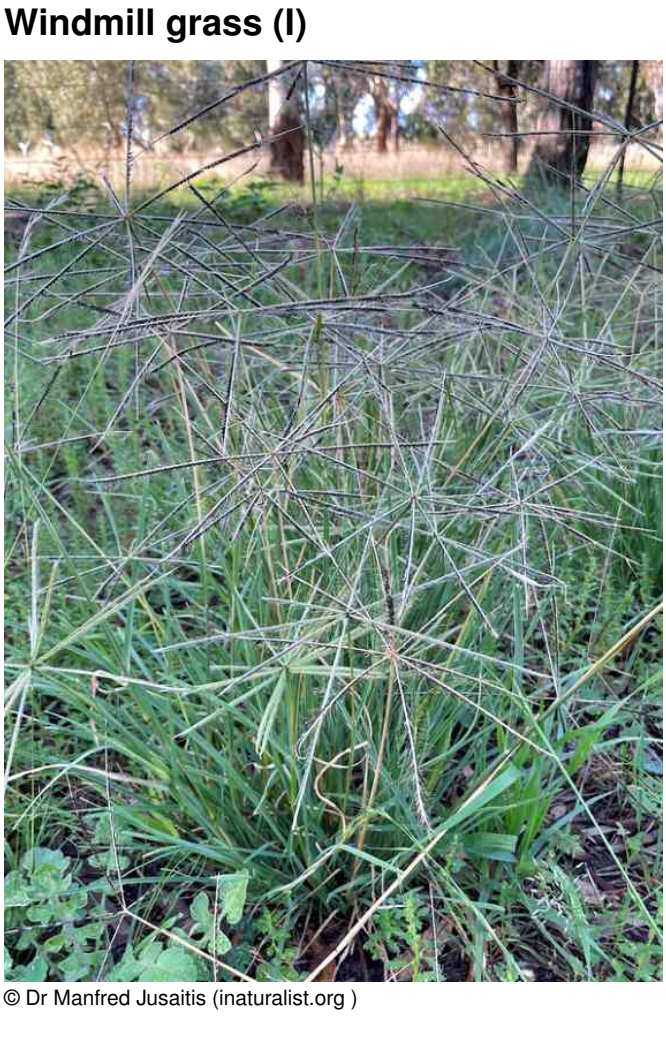
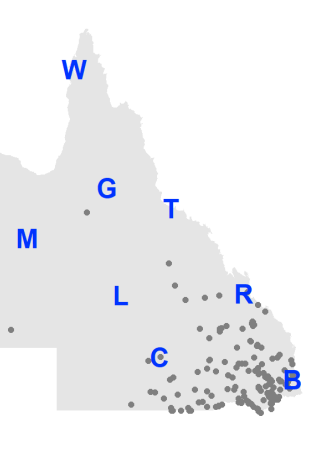
Chloris truncata

Windmill grass (I)





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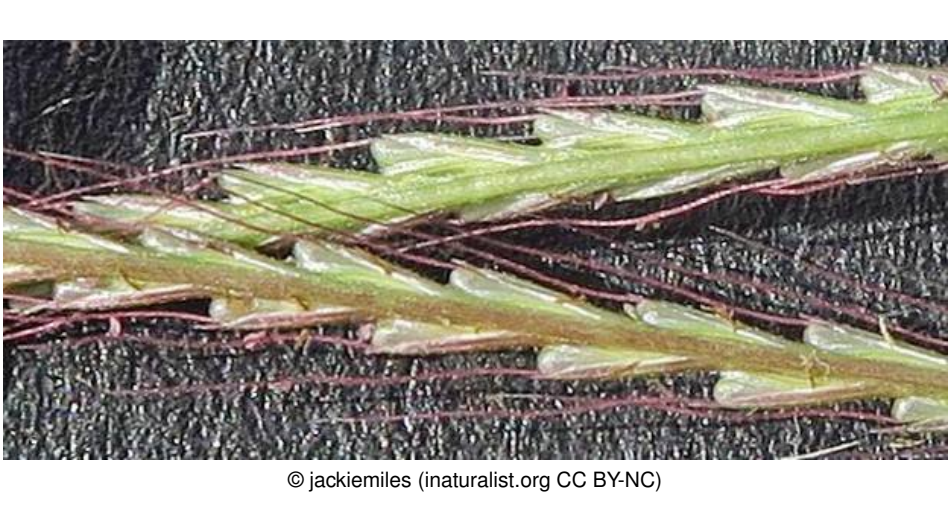
Native perennial. Erect tussocks (10-45cm) sometimes with runners. Leaves 3-17cm x 1.5-3mm. Seed head with 5-13 spike-like branches 5-23cm (mostly < 10cm) long radiating from top of stem. Largely contained to south eastern Queensland and crosses a range of soils.

Look for these features in the field.

- Seed heads stems about as tall as length of seed head branches (above).
- Seeds are arranged regularly along seed head branches and have distinctly flat tops with a hair / bristle on each upper corner



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- Rare west or north of Longreach

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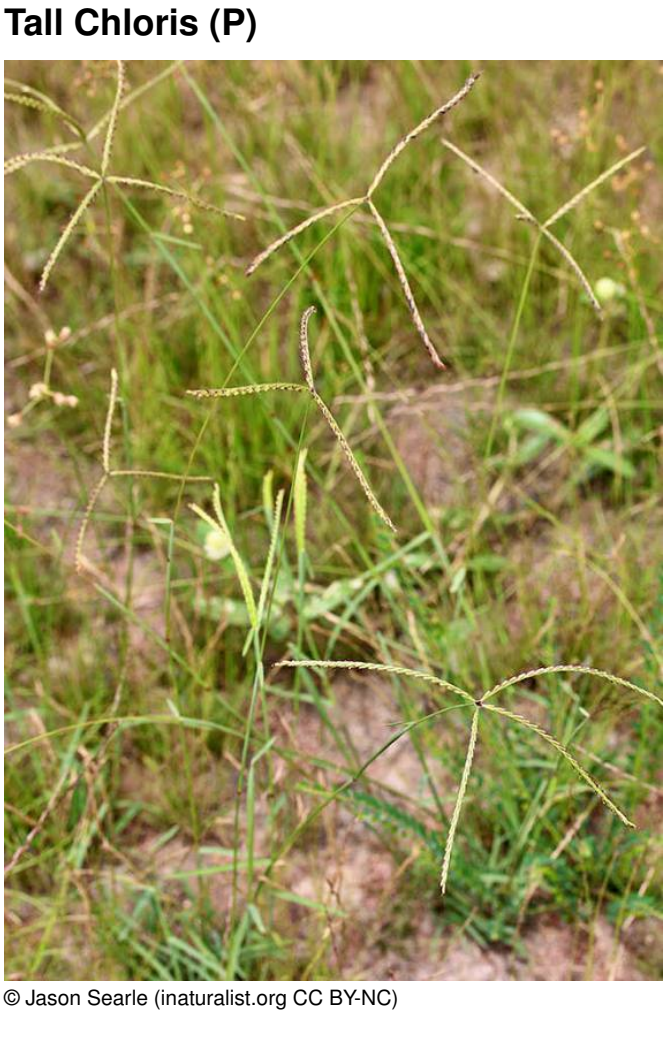
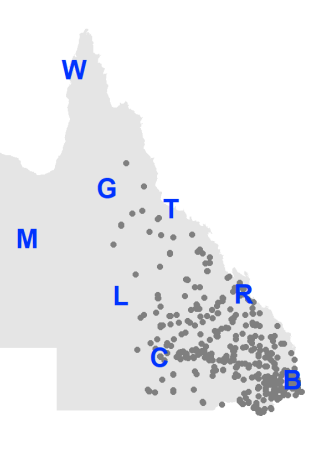
Chloris ventricosa

Tall Chloris (P)





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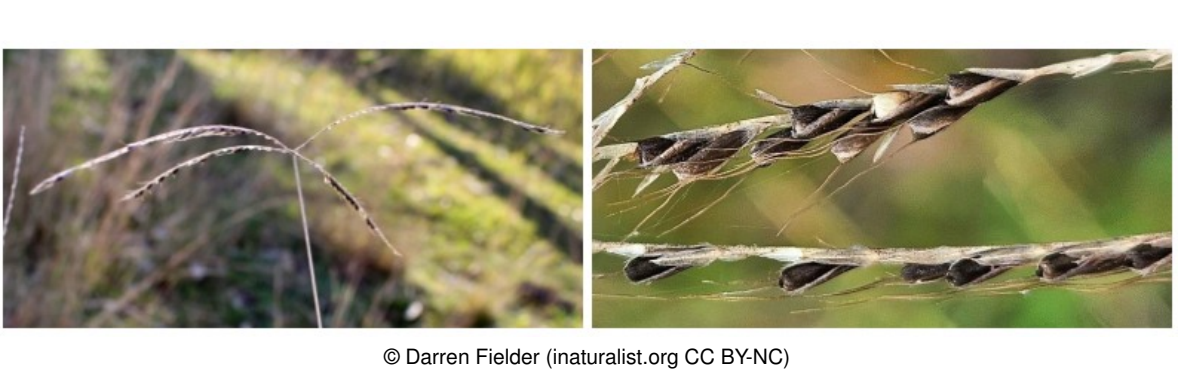
Native perennial. Erect tussocks (50-100cm) sometimes with runners. Leaves 4-20cm x 2-3mm. Seed head with 3-5 spike-like branches 5-11cm long radiating from top of stem. Often found in woodlands on good soils.

Look for these features in the field.

- Seed head branches typically drooping, especially when fully laden with seed. (above)



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- Relatively tall compared to most other *Chloris* (up to 1 m) with seed heads on leafless stems.

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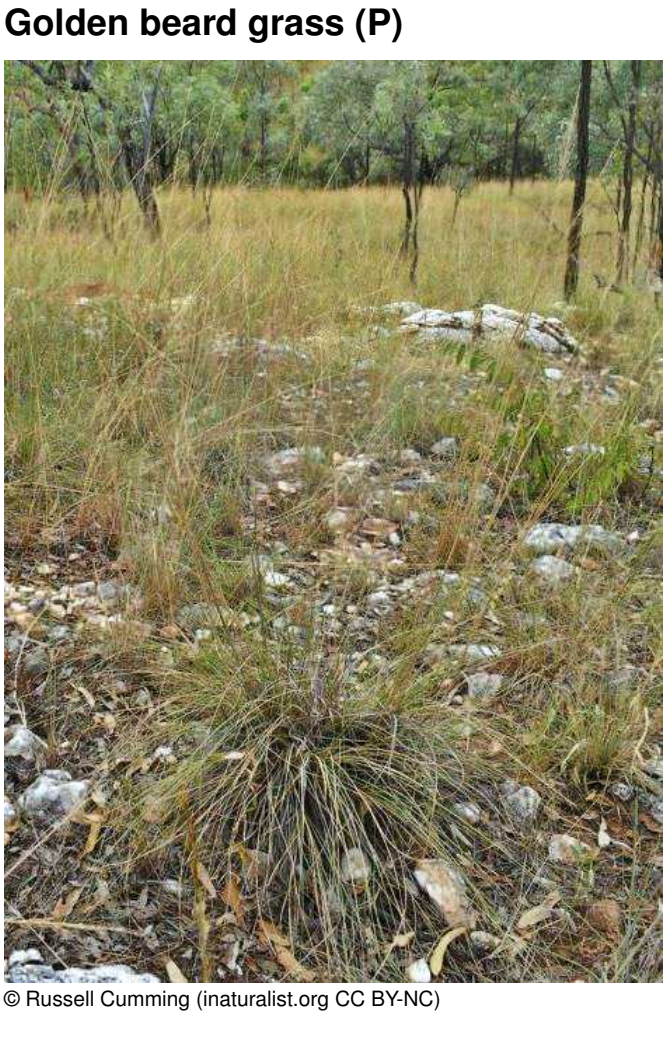
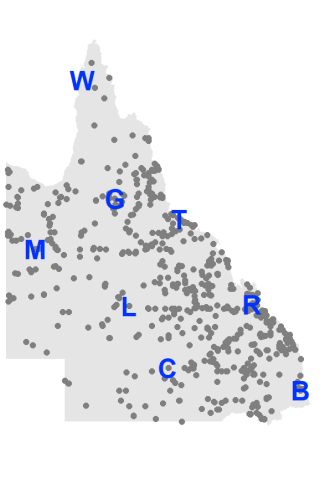
Chrysopogon fallax

Golden beard grass (P)





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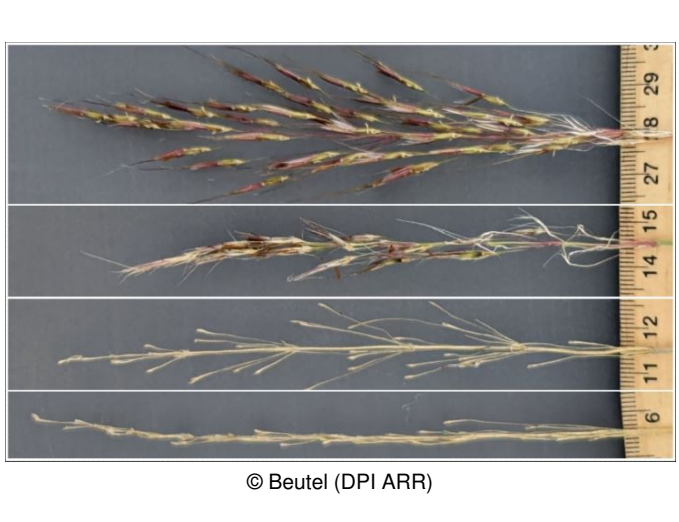
Native perennial grass (30-120cm tall). Tussocks are dense with most leaves (5-45cm x 2 -7mm) at base of the plant. The lower stem has a fibrous sheath that extends a few cm below ground to the roots. Seed head branches are whorled with a single elongated seed on each. Prefers a range of soils and woodlands across most of the state.

Look for these features in the field.

- Leaves are densely basal, drooping in a fountain like formation around the base (above). Plant bases can form tough raised mounds on heavy clays.
- Seed head distinctive. Most branches are in whorls (attached at a single point on the stem) with a single long awned seed on each branch. As seed head ages (below, top to bottom) branches remain after seedfall, closing up around the stem, but whorls are still visible on close inspection.



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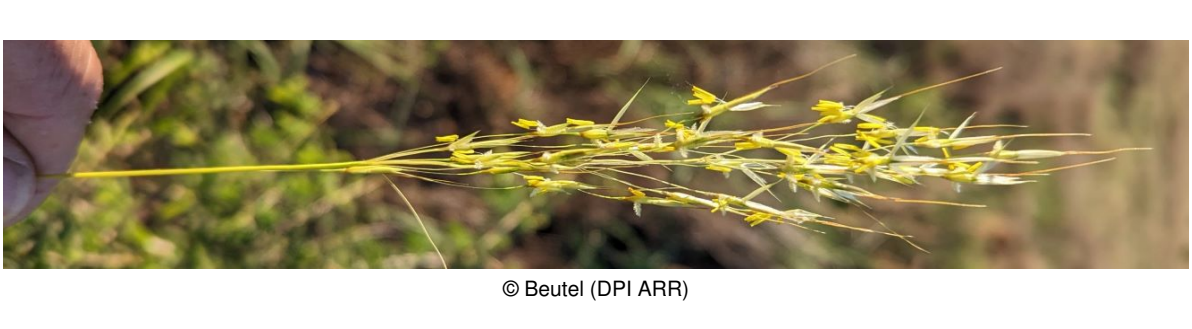
- Seeds have a bright yellow flower (anther) while maturing.



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- The bottom of the stem has a extends 1-3cm below ground and is covered by fibrous sheaths.

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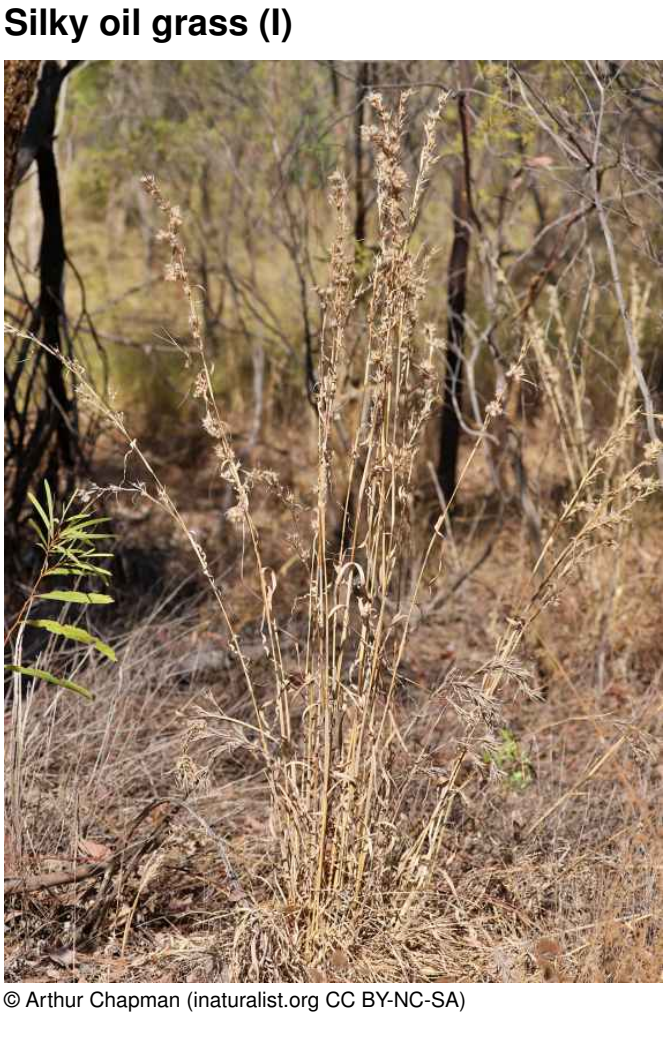
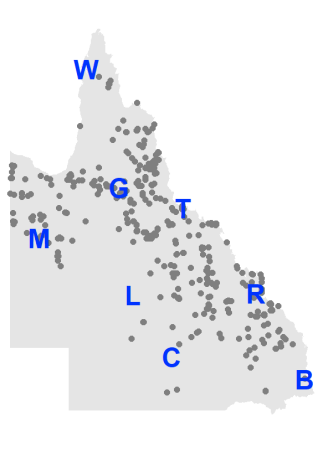
Cymbopogon bombycinus

Silky oil grass (I)





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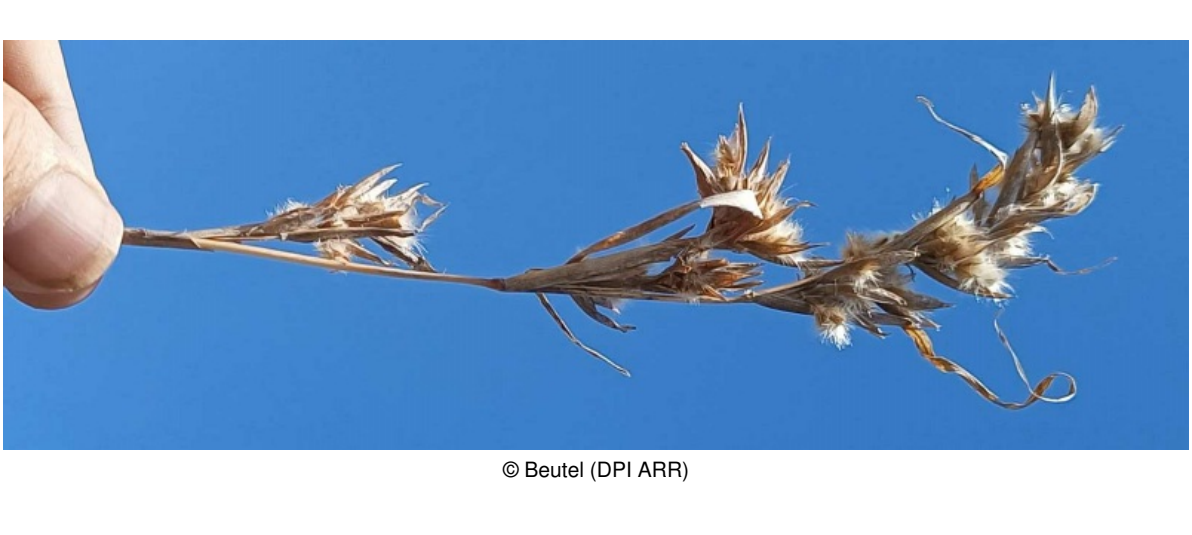
Native perennial tussock (30-120cm). Leaves (15-40cm x 1-6mm) curl conspicuously as they dry. Seed head (6-40cm long) with multiple slightly drooping branches off a central axis and conspicuous white fluffy seeds protruding from leafy sheaths (spathes). Prefers sandy and stony soils, eucalypt woodland.

Look for these features in the field.

- Crushed leaves have a strong and persistent citronella fragrance.
- Seed head with multiple slightly drooping branches (above) and conspicuous white silky seeds protruding from short leafy sheaths.



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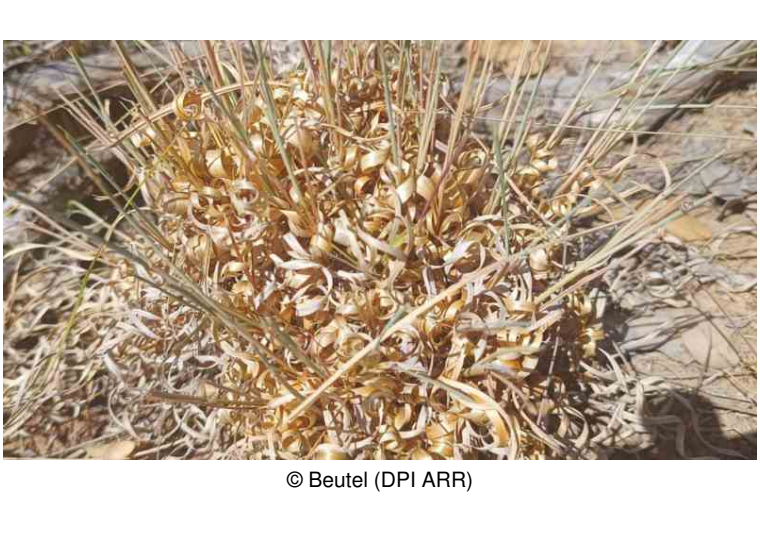
- Leaves to 6mm wide that curl visibly and harden as they hay off. Grazed down tussocks can form a short mounds of very curly residual leaf



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Similar Species

Very similar to related Silky heads (*C. obtectus*) but Silky heads has yellow roots and narrower leaves (1-3 mm wide) that do not curl significantly with age.

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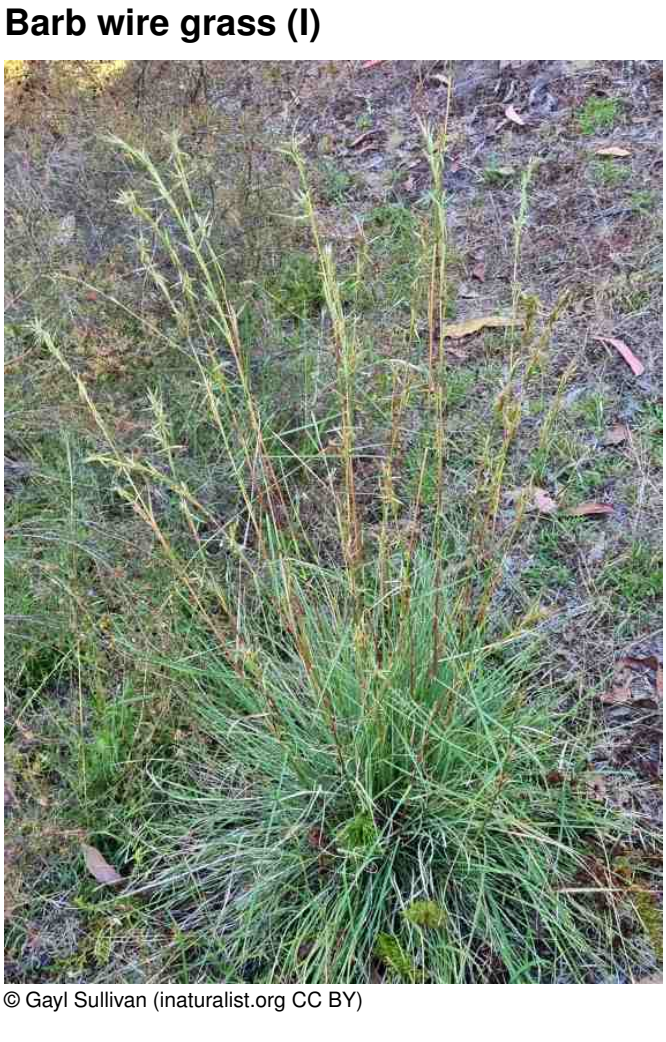
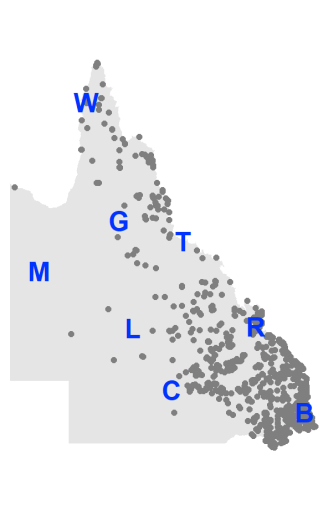
Cymbopogon refractus

Barb wire grass (I)





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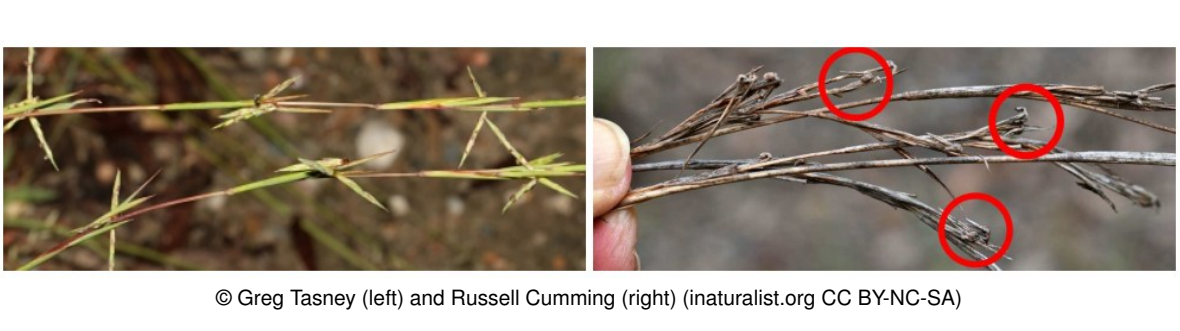
Perennial native tussock grass (30-150cm). Leaves (10-40cm x 1-4mm) with strong lemony fragrance when crushed. Seed head (10-45cm long) with distinctive barbed wire shaped seed structures. Rare in drier western areas, but crosses a wide range of soil and vegetation types.

Look for these features in the field.

- Crushed leaves have a sweet lemony fragrance that persists as the plant ages.
- Seeds arranged in characteristic "barbed wire" clumps (left) along the seed head with some seeds bent backwards (reflexed). These clusters are much reduced on very old seed heads but still maintain some reflexed structures. (circled right).



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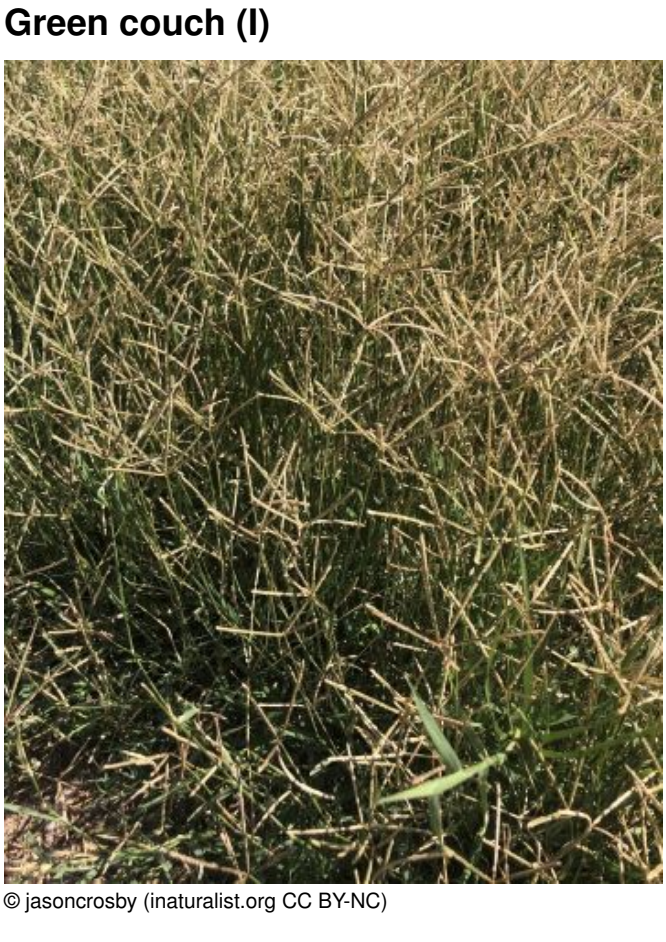
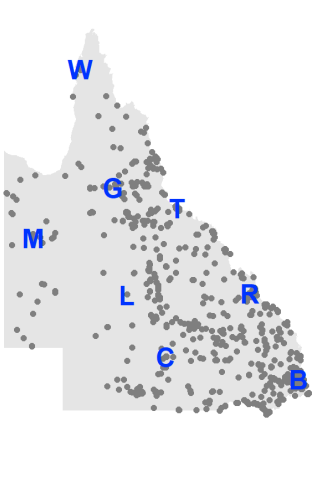
Cynodon dactylon

Green couch (I)





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Introduced perennial. Distinctive lawn forming species (5-40cm) with runners and fine pointed leaves (3-12cm x 0.5-4mm). Prefers higher fertility and moister soils. More common in disturbed areas (e.g. old cultivation, roadsides etc).

Look for these features in the field.

- Has runners and forms lawns, especially under heavy grazing.

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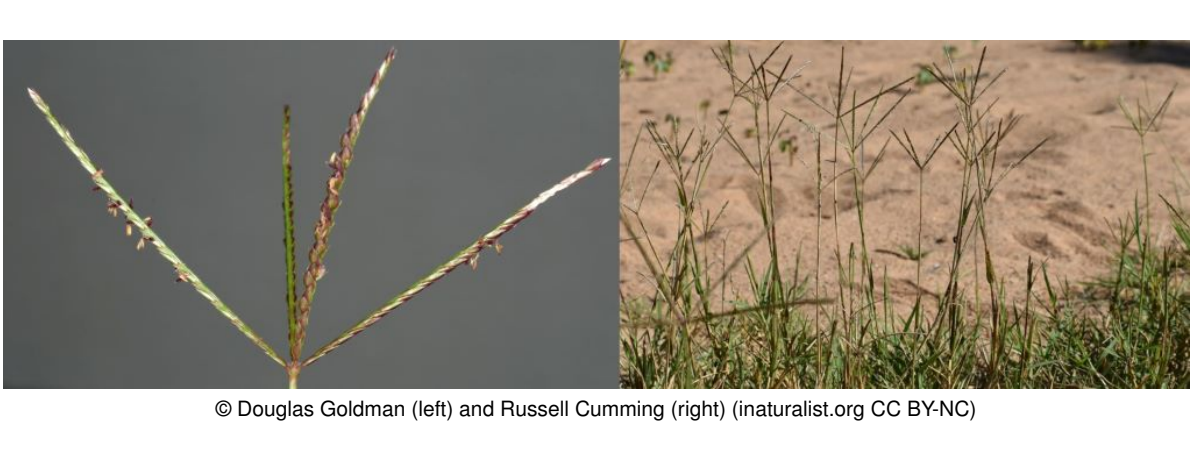
- The seed head with generally 4 digitate branches 3-5cm long. Each branch is tightly packed with seeds along one of its sides.



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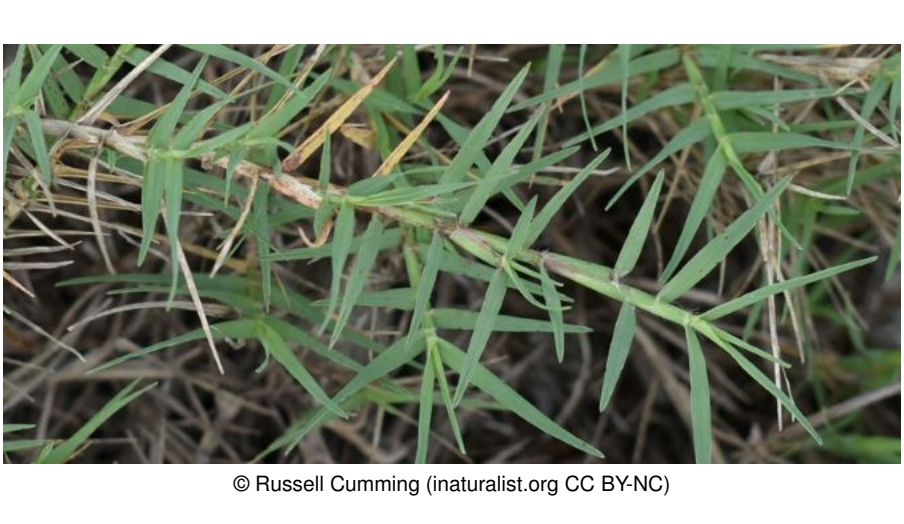
- Leaves small and pointed, almost arranged in opposite pairs perpendicular to stem, each with two tufts of hairs at their base.



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Similar Species

These features distinguish two common stoloniferous (runner) grasses from Green couch. Indian couch (*B. pertusa*) has a gingery aroma when crushed. Native couch (*B. convergens*) is annual and seed head branches curve as they age.

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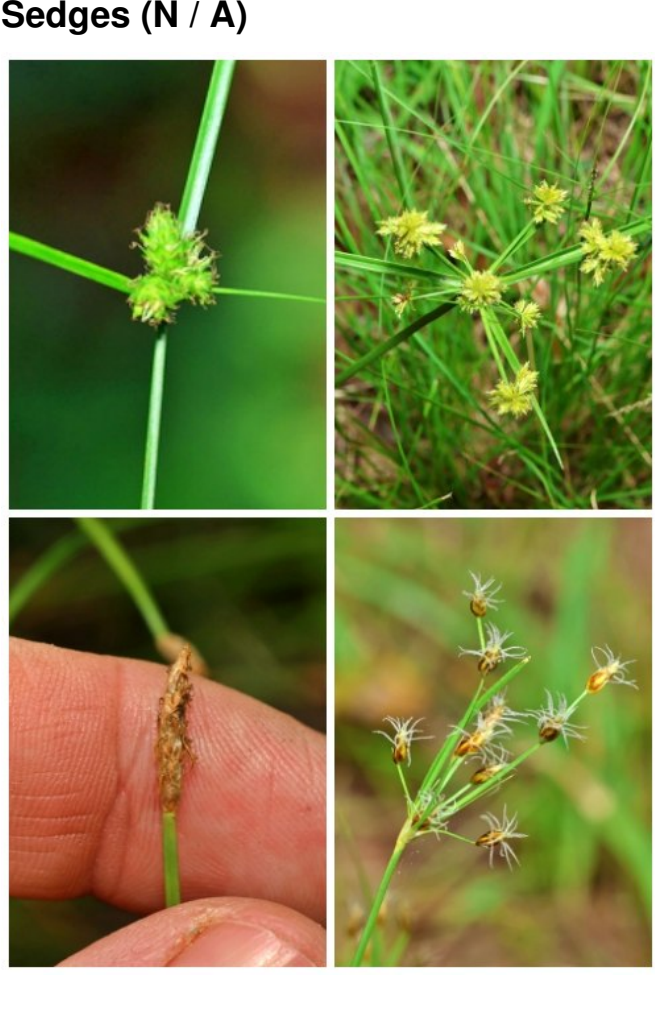
Cyperaceae

Sedges (N / A)



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A large group of grass-like annual / perennial mostly native species. Highly variable in size with stems that are triangular in cross section. Most prefer damper locations though they can be found in a wide range of habitats.

Look for these features in the field.

- Stems are triangular in profile (rather than round like the grasses), which you will feel if you roll the stem between thumb and finger.
- Sedges have no nodes on the stem.
- Most species seed heads are quite elaborate compared to grasses, and are reminiscent of fireworks explosions in shape, with modified leaves below stalked seed clusters (above).

Similar Species

Often confused with grasses but the absence of nodes on stems and the triangular stem profile makes Cyperaceae relatively easy to distinguish from grasses.

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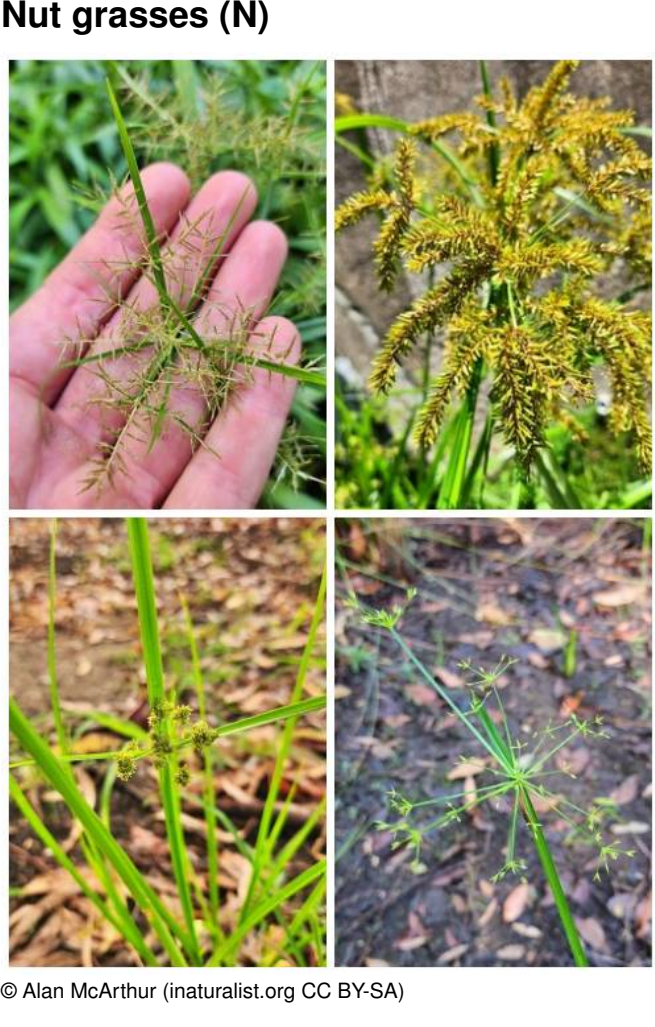
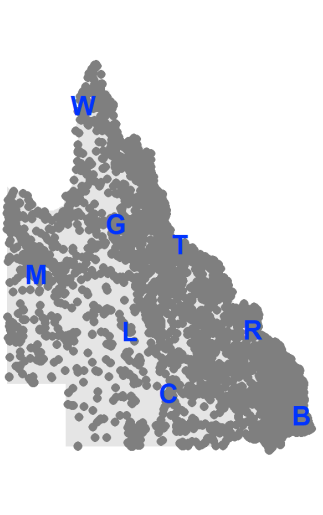
Cyperus

Nut grasses (N)





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A subset of about 140 species of Queensland Cyperaceae. Annual and perennials, some introduced. Vary greatly in size, most with triangular stem profile of Cyperaceae. Leaves typically narrow and mostly from base of plant. Seed heads with characteristic whorl of leaves at base (above). Most prefer damp soils.

Look for these features in the field.

- Most species have a whorl of two to six leaves extending laterally from base of seed head. Seeds are in clusters often at end of stems extending from the leaf whorl at their base (above).
- See Cyperaceae for other identifying features.

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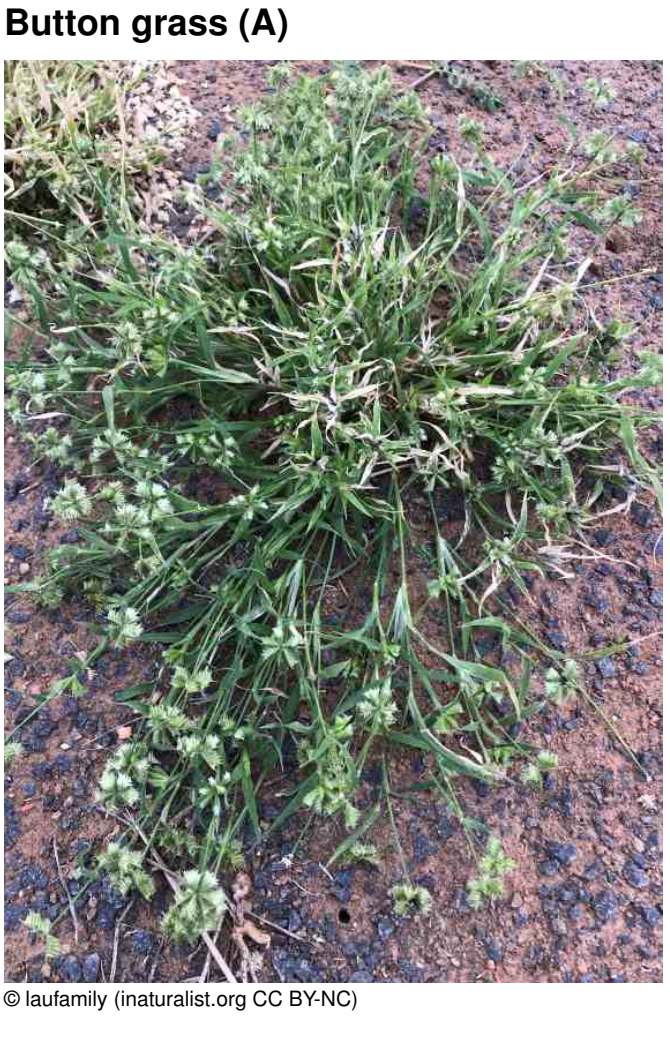
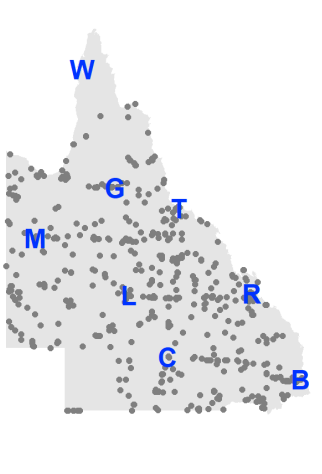
Dactyloctenium radulans

Button grass (A)





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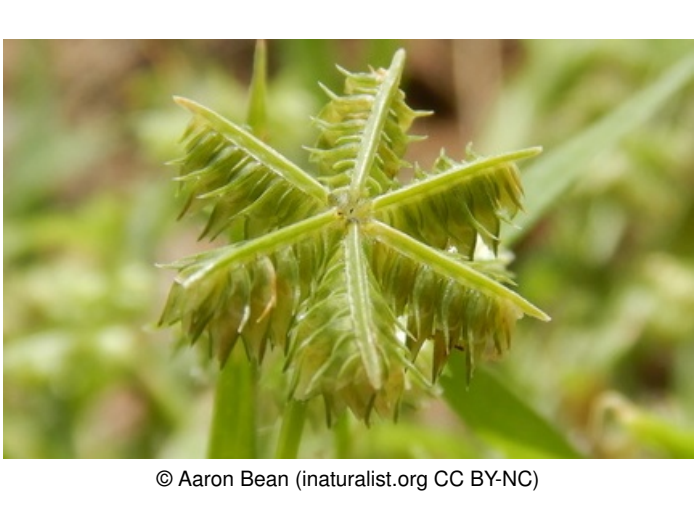
Native annual. Small, leafy, weakly rooted, sprawling tussocks to 30cm tall, with upcurved seed head stems. Leaves tapered (2-20cm x 3-4mm), light green and crinkled/papery when hayed off. Seed head is a distinctive button shape. Prefers lighter soils and disturbed areas.

Look for these features in the field.

- Small, sprawling leafy tussock. Seed head stems often curve upward and seeds often gather in clumps around the plant base (above).
- Distinctive button shaped seed head with 4-7 tightly packed, thick arms. Each arm ends in a bare spike and seeds are held in two rows along the arms in a brush-like formation.



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- Leaves are fringed with long hairs.

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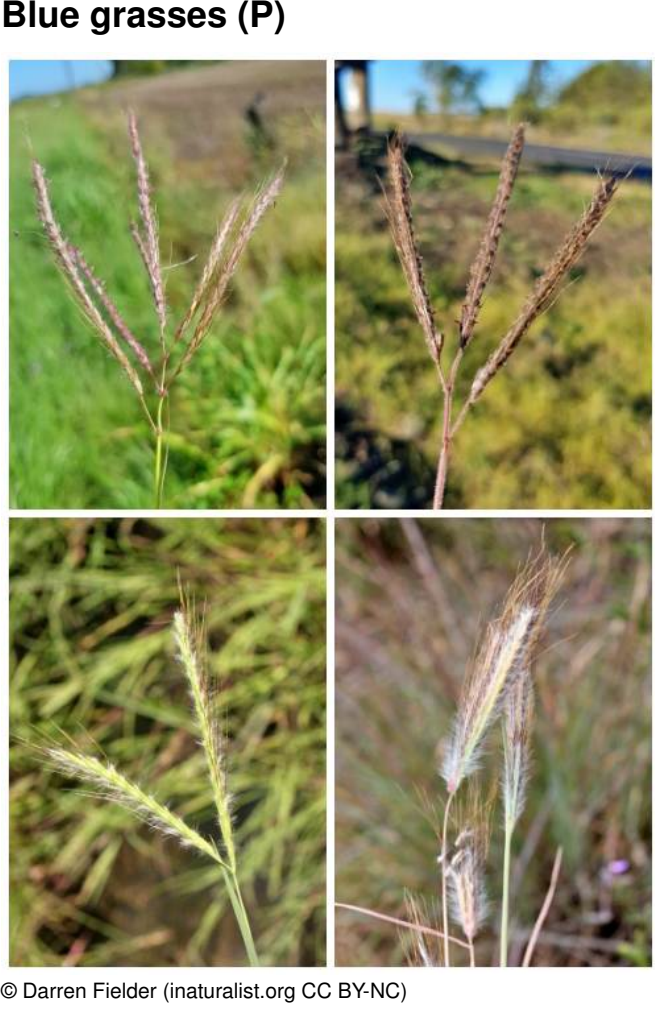
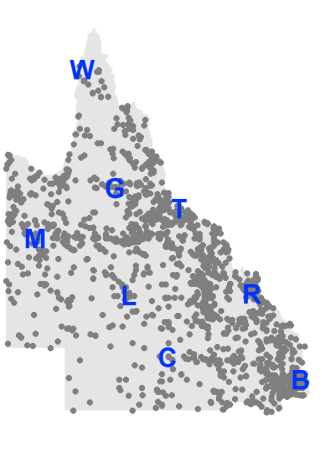
Dichanthium

Blue grasses (P)





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Eight mostly perennial, native species. Tussock grasses (10-150cm) erect or leaning to the point lower nodes touching ground. Leaves are generally thin (5-30cm x 2-7mm). Seed head with one to many linear branches all emerging neat the top of the stem and varying in their hairiness. This group is found across a wide range of soil and vegetation types.

Look for these features in the field.

- Linear seed head branches all emerge at or near the top of the stem (above).
- Leaves lack any distinctive aroma when crushed.

Similar Species

See *Bothriocloa*

Species in this guide:

- Sheda grass (*Dichanthium annulatum*)
- Angleton grass (*Dichanthium aristatum*)
- Queensland bluegrass (*Dichanthium sericeum*)

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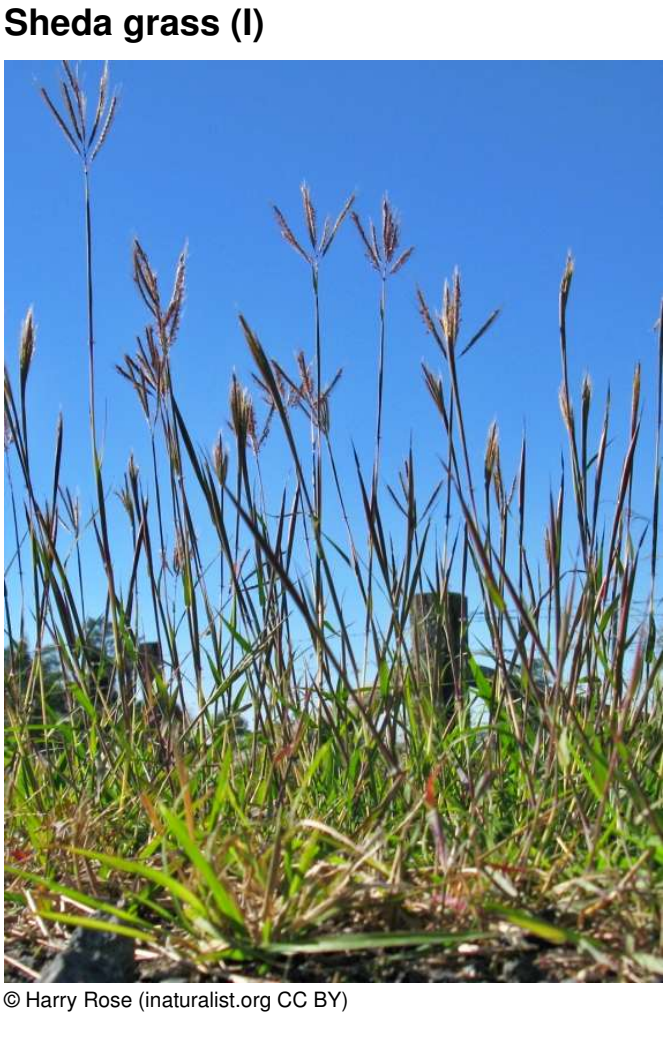
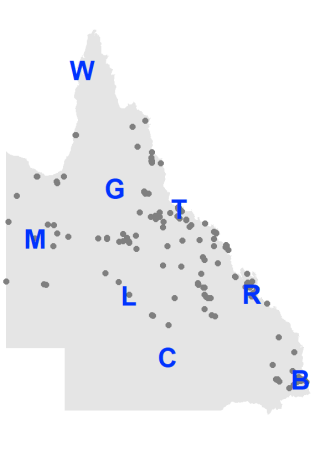
Dichanthium annulatum

Sheda grass (I)





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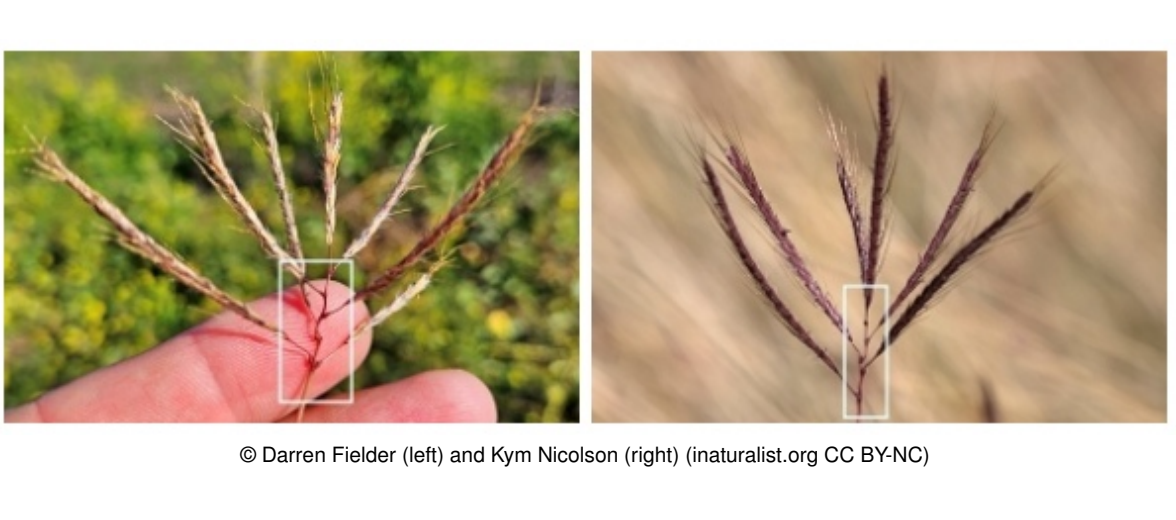
Perennial native. Tussock grass (25-100cm) with hairy nodes. Stems contact the ground at lower nodes then curve upward toward tip. Leaves 3-30cm x 2-7mm. Seed head with 2-9 branches 3-7cm long emerging over 1-3cm of top of the stem. Adapted to a range of soils and can outcompete other species by forming dense stands.

Look for these features in the field.

- Seed head branches emerge along a longer section of stem (1-3cm) than other *Dichanthium*, also the only Queensland *Dichanthium* where the base of each seed head branch and adjacent top of the stem are bare of any hair or leaf.



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- Stems have hairy nodes.
- Stems spread horizontally, touching ground at lower nodes before arching upward toward seed head end (above).

Similar Species

See *Bothriochloa*

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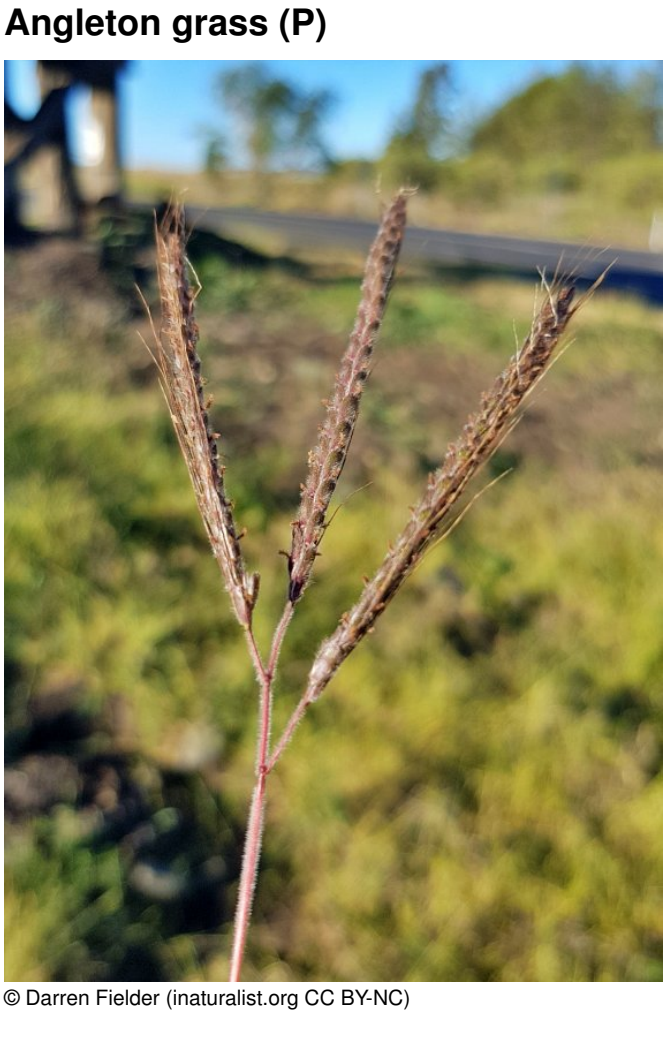
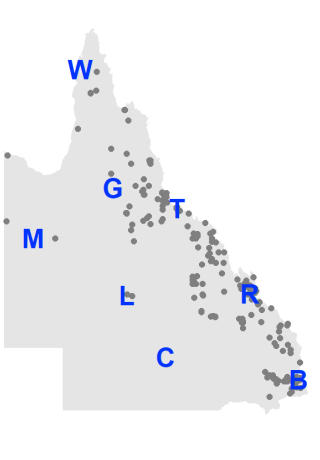
Dichanthium aristatum

Angleton grass (P)





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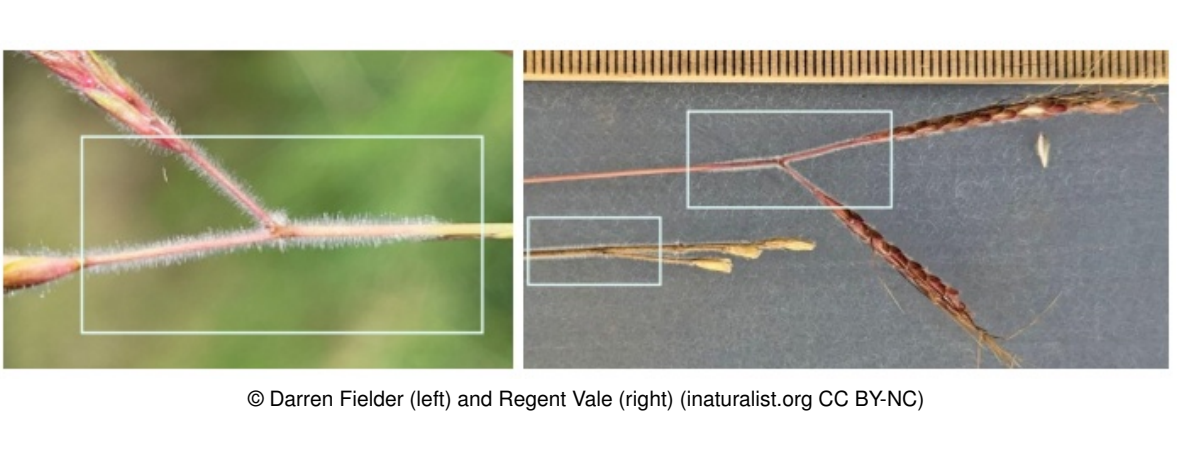
Introduced perennial. Tussock grass (20-100cm) with or without hairy nodes. Older tussocks erect, with younger plants contacting the ground at lower nodes then curving upward toward seed head. Leaves 3-25cm x 2-5mm. Seed head with 1-6 branches 2-6cm long that all emerge at the top of the stem. Mostly prefers clays and clay loams, not well suited to most lighter soils.

Look for these features in the field.

- The base of each seed head branch and adjacent top of the stem are covered by short velvety purplish hairs. These are relatively resilient and often still visible after seed fall.



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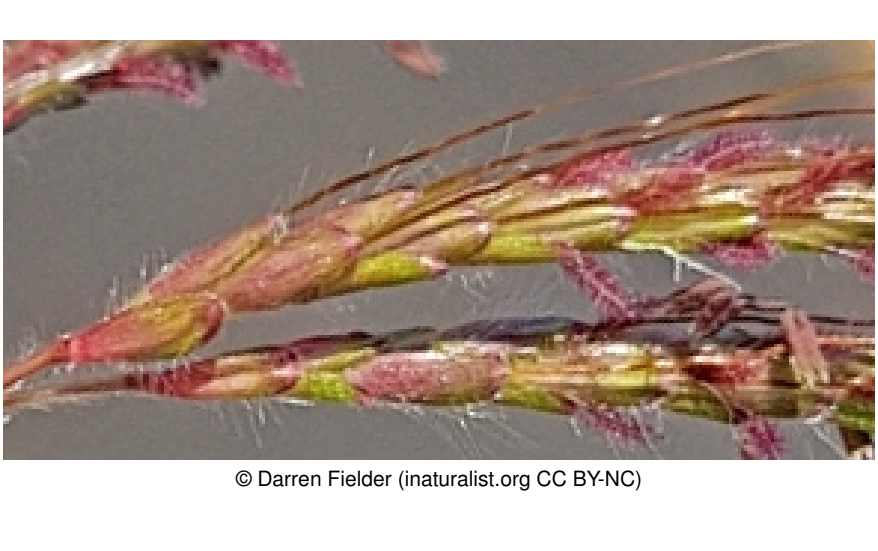
- Seeds with many short white hairs and one long dark twisted bristle up to 25mm long.



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Similar Species

See *Bothriochloa*

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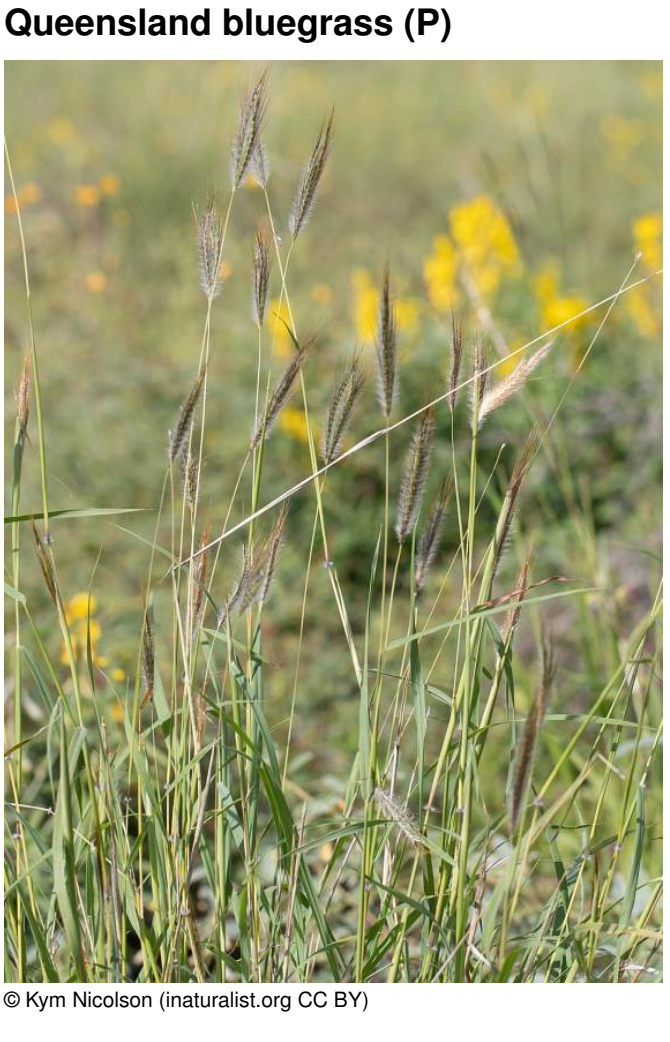
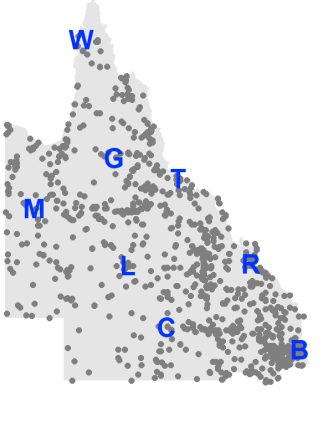
Dichanthium sericeum

Queensland bluegrass (P)





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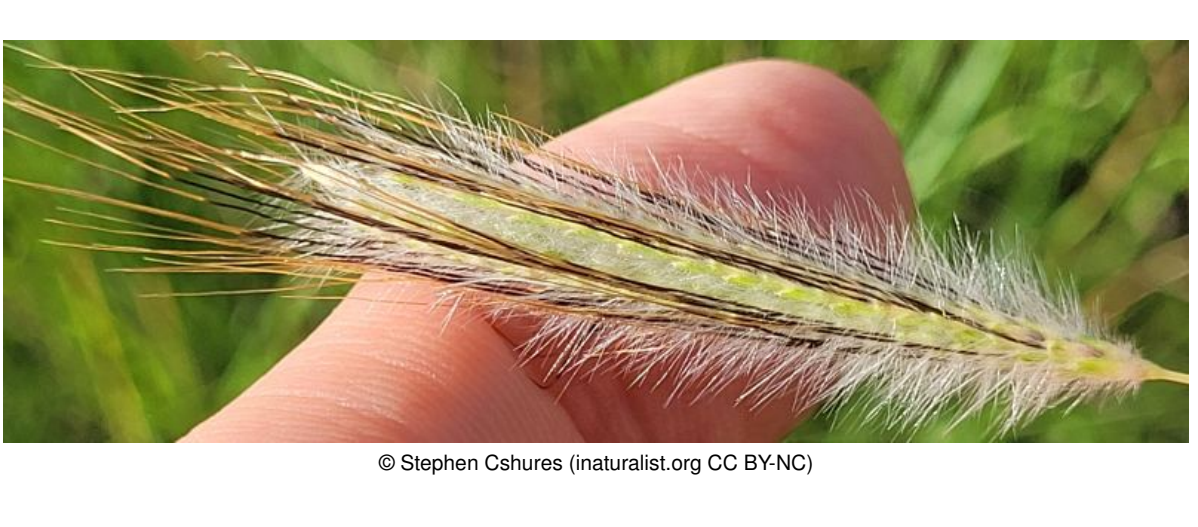
Annual or perennial native. Erect tussock (10-120cm) with characteristic hairy nodes. Leaves (8-15cm x 2-4mm) blue-green with obvious mid vein. Seed heads typically with 2-8 hairy branches all attached at same point at top of stem. Prefers clay soils and downs country with good water holding capacity.

Look for these features in the field.

- Seed head branches with two types of hairs (long brown and short white). These lay almost perpendicular to each other and both emerge along the length of each branch.



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- Stems with ring of white hairs on nodes and channelled between nodes.

© Martin Bennett (inaturalist.org CC BY-NC)

- Old seed heads often bear a fluffy white remnant tuft.

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Similar Species

There are three subspecies of *D. sericeum*. All three may grow as annuals and are difficult to distinguish in the field. But for the LCAT assessments, all are classified as preferred (P) species.

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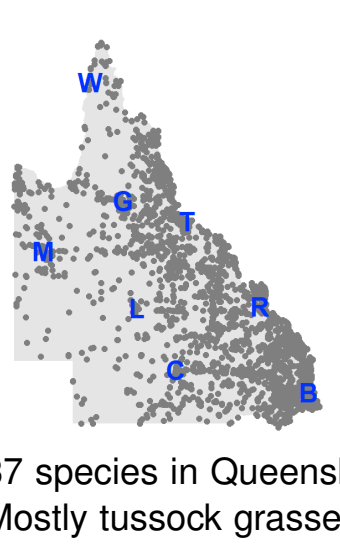
Digitaria

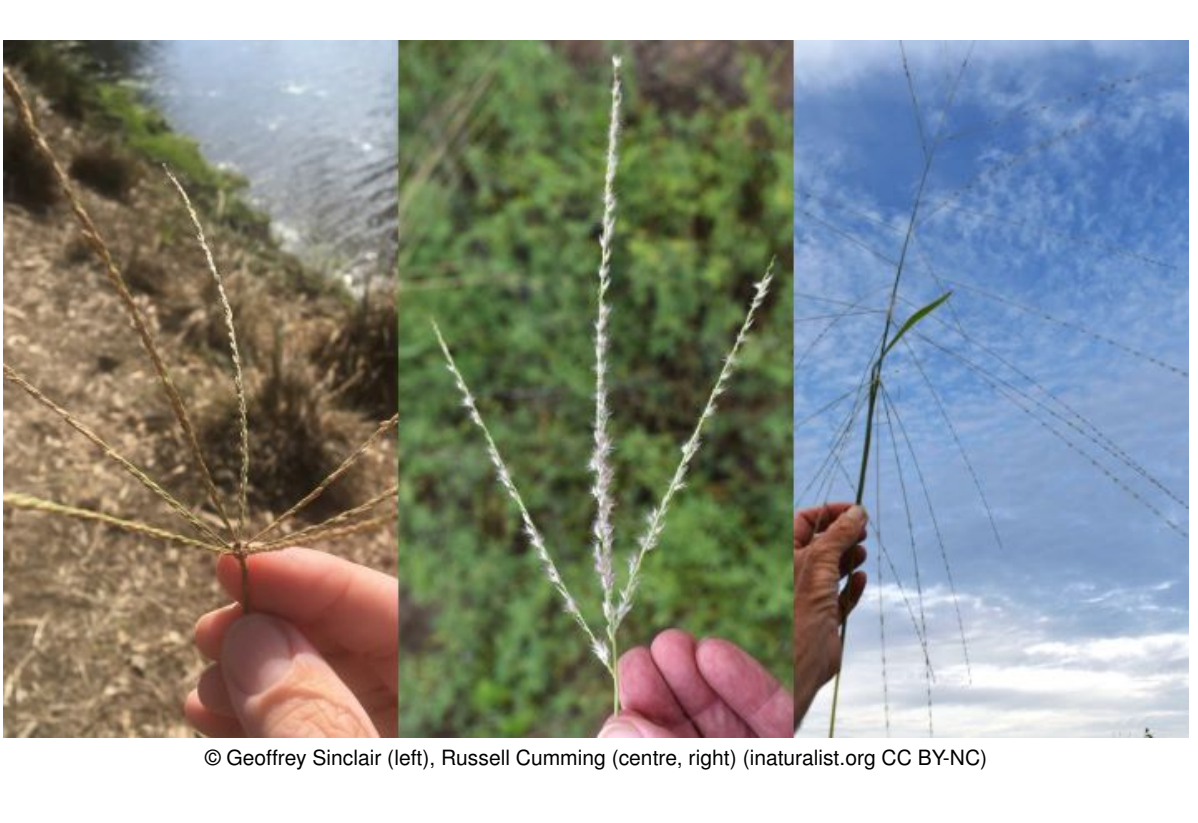
Finger grasses (I / A)



37 species in Queensland. Mostly native with mix of annual and perennial. Mostly tussock grasses (5-120cm), but some species with runners. Leaves 5-35cm. Seed heads with multiple linear branches in digitate (all emerging at tip of stalk) or subdigitate (all emerging near tip of stalk). Occupy a range of habitats.

Look for these features in the field.

- Seed head composed of 1 or more branches emerging from one point at the top of the stalk or multiple points spread along the top of the stalk.



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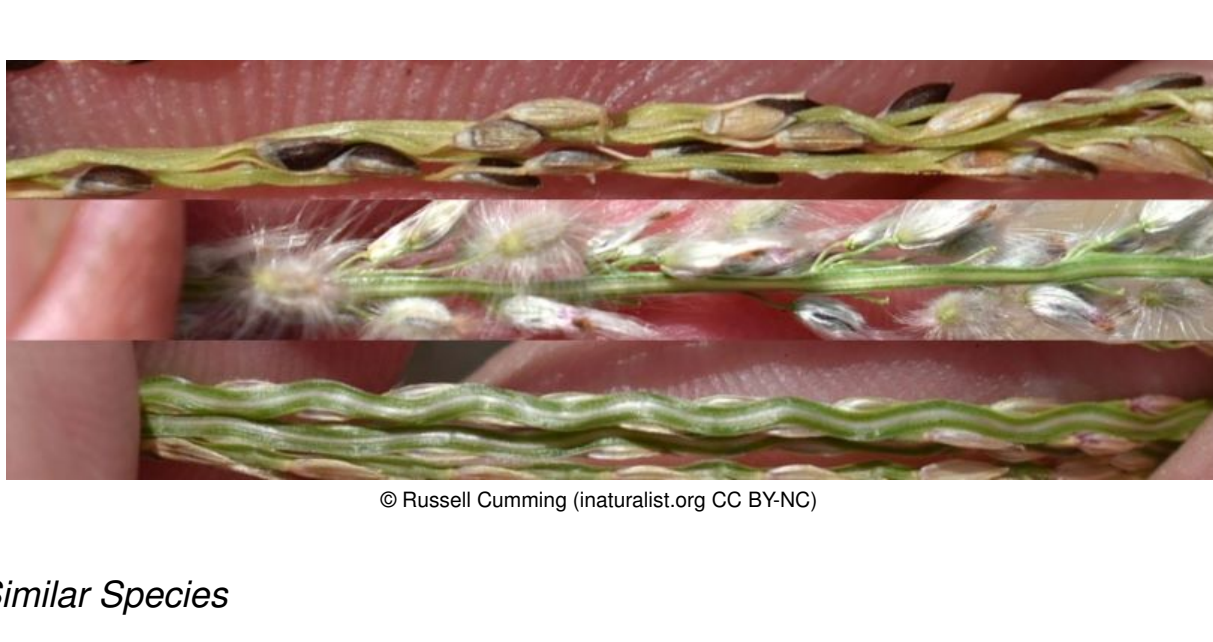
- Branches of the seed head on most species have a subtle but distinctive wavy shape where the branch curves slightly around the seeds that are generally flattened against the branch.



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Similar Species

See *Enteropogon*

Species in this guide:

- Silky umbrella grass (*Digitaria ammophila*)
- Cotton panic (*Digitaria brownii*)
- Umbrella grass (*Digitaria divaricatissima*)
- Pangola (*Digitaria eriantha*)

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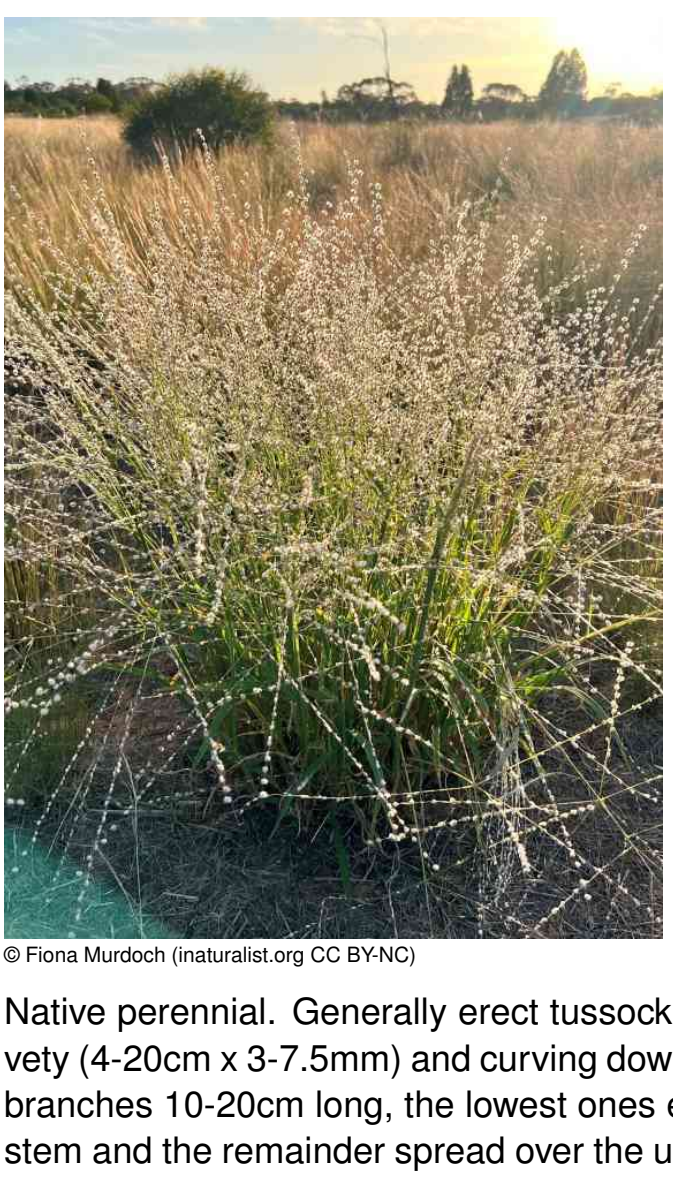
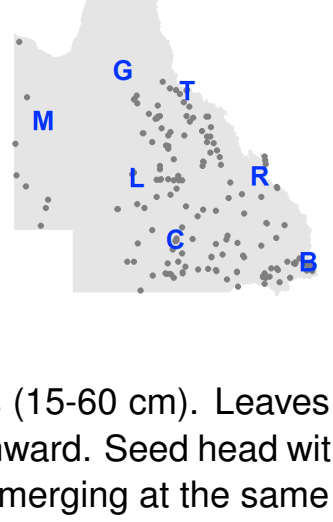
Digitaria ammophila

Silky umbrella grass (I)





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Native perennial. Generally erect tussocks (15-60 cm). Leaves flat and velvety (4-20cm x 3-7.5mm) and curving downward. Seed head with 5-15 linear branches 10-20cm long, the lowest ones emerging at the same point on the stem and the remainder spread over the upper 30cm of the stem. Seeds are very fluffy. More common in semi-arid woodlands, shrublands and grasslands.

Look for these features in the field.

- Leaves soft, flat and velvety (4-20cm x 3-7.5mm) sometimes crinkled edges and generally curve downward.

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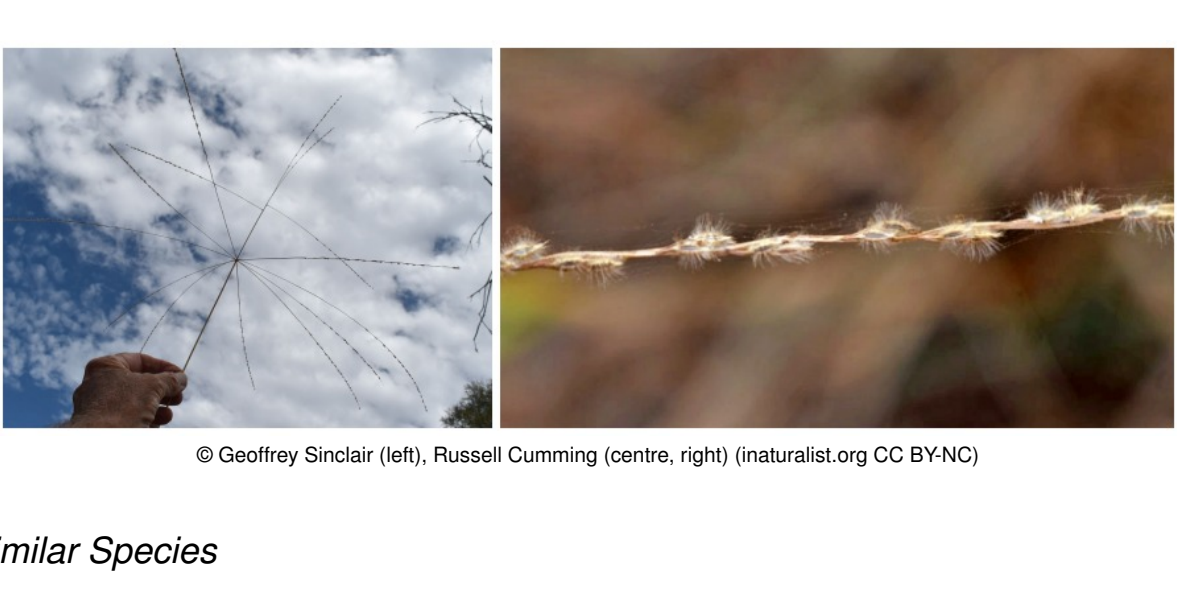
- Large seed heads 30-50cm long (above) with long wavy branches carrying well spaced very fluffy seeds on alternating sides of the branch. The lowest branches of the seed head are in a whorl (all emerging from the same point on the stem).



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Similar Species

Silky umbrella grass *D. ammophila* is similar to Umbrella grass (*D. divaricatissima*) but has down curved leaves and much hairier seeds than the latter.

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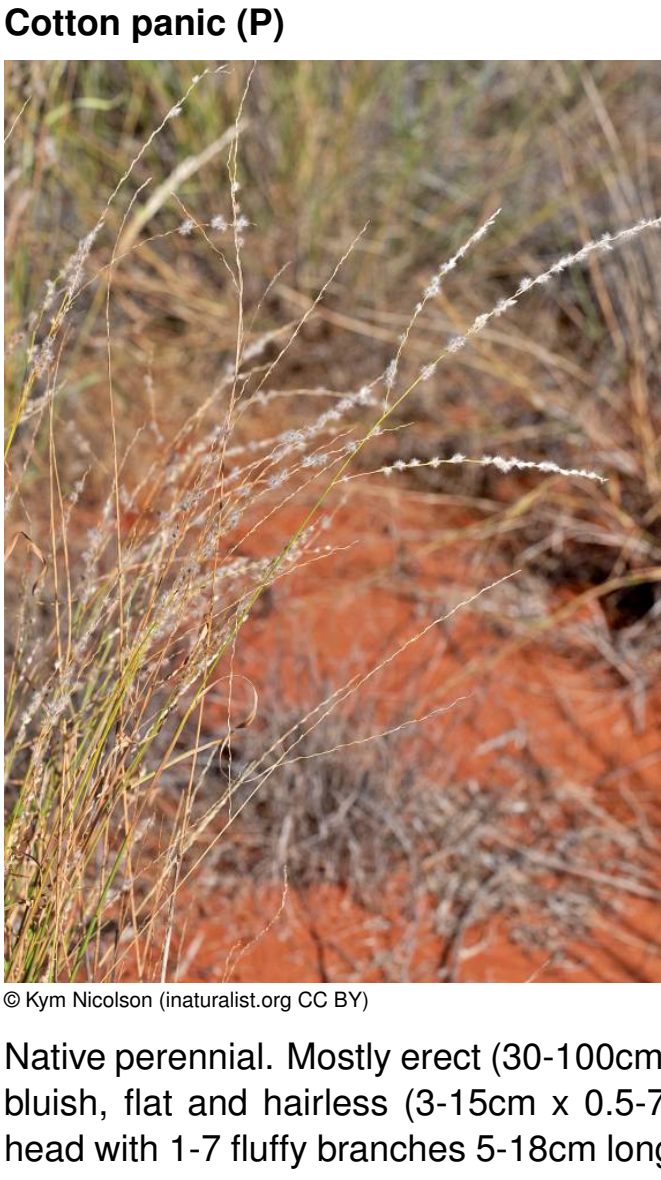
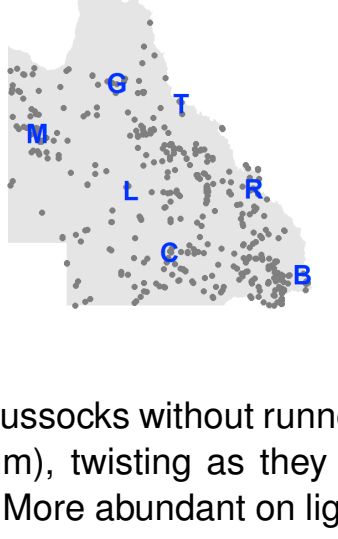
Digitaria brownii

Cotton panic (P)





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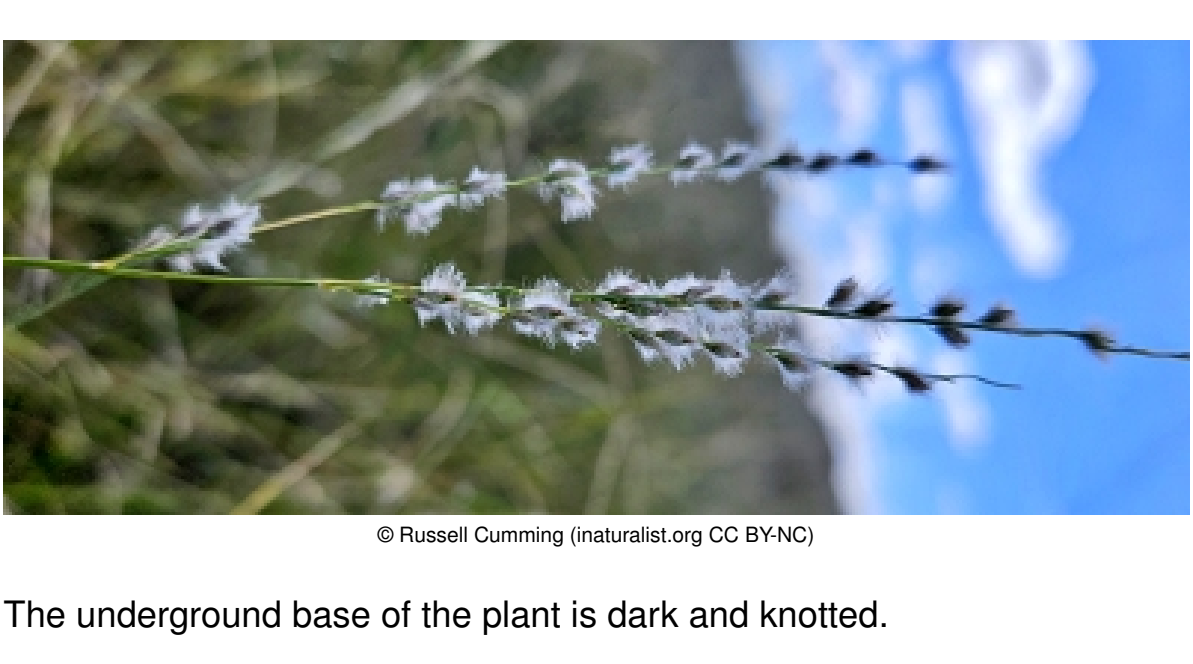
Native perennial. Mostly erect (30-100cm) tussocks without runners. Leaves bluish, flat and hairless (3-15cm x 0.5-7mm), twisting as they age. Seed head with 1-7 fluffy branches 5-18cm long. More abundant on lighter texture soils, particularly in association with Mulga, Cypress Pine and Poplar Box.

Look for these features in the field.

- Distinctive seed head with 1-7 straight but finely wavy (sometimes branched) branches 5-18cm long with pale fluffy seeds placed alternately along each side of each branch.



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- The underground base of the plant is dark and knotted.
- Crushed leaves smell somewhat like green tomatoes.

Similar Species

Can be confused with Desert blue grass (*Bothriochloa ewartiana*) but Cotton panic is finer, has a faint green tomato (rather than ginger) aroma, and a hairy butt.

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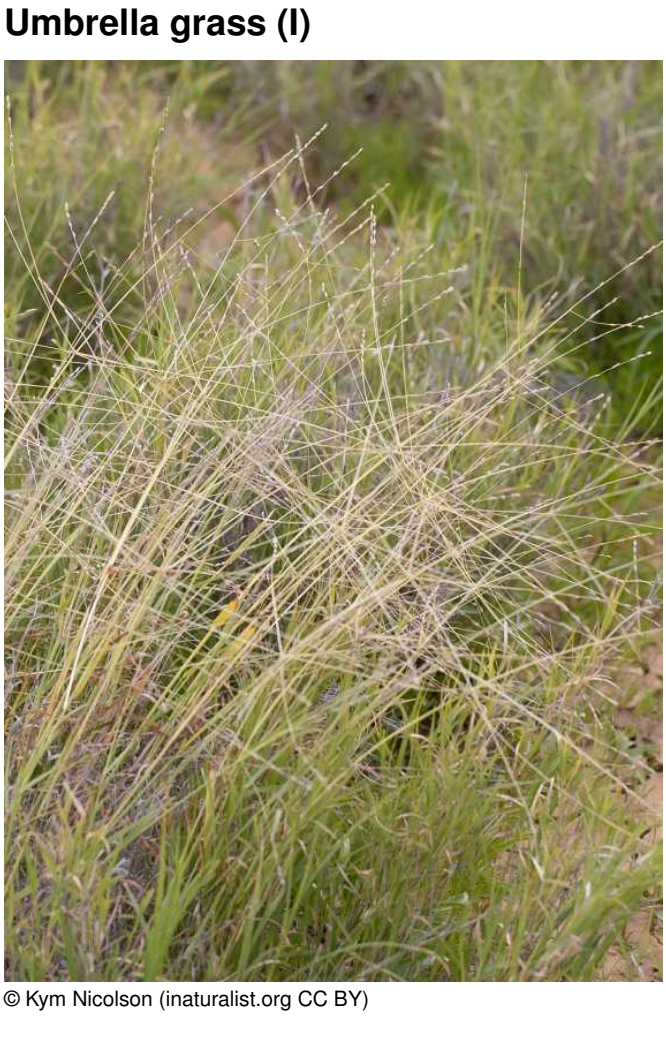
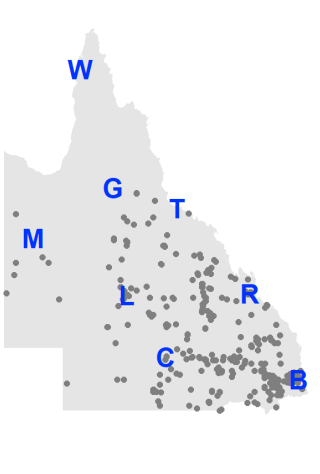
Digitaria divaricatissima

Umbrella grass (I)





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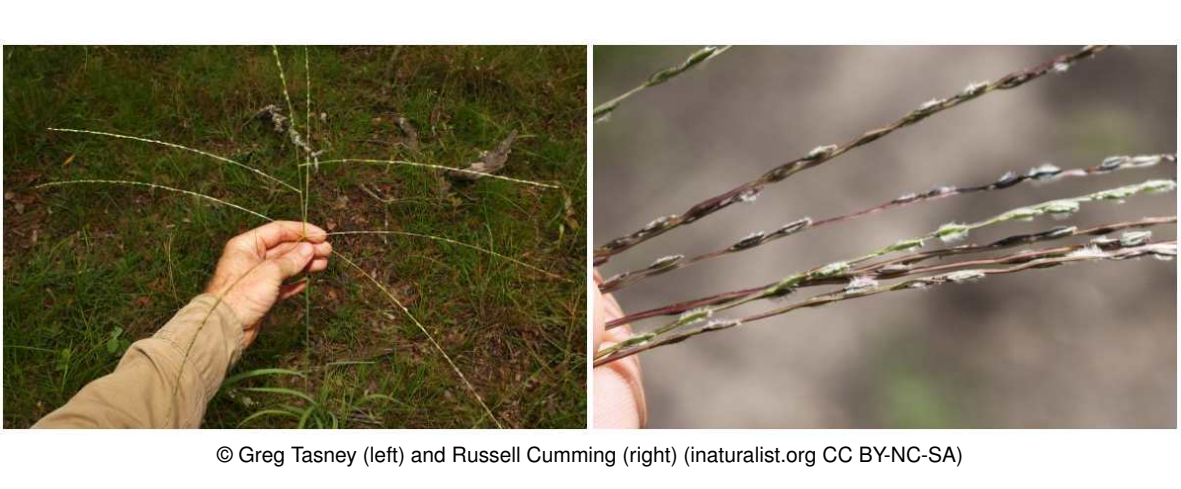
Native perennial. Tussocks (15-60cm). Leaves (4-22cm x 3-7mm) flat, erect and often velvety to touch. Seed head with 4-10 linear branches 8-35cm long with very hairy seeds, the lowest ones emerging from the same point on the stem with others above. Common in woodland communities.

Look for these features in the field.

- Leaves soft, often velvety (5-20cm x 2-7mm) and held fairly erect (above).
- Large seed heads 30-50cm long with long wavy branches carrying well spaced somewhat fluffy seeds on alternating sides of the branch. The lowest branches of the seed head are in a whorl (all emerging from the same point on the stem.



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- Seeds 4-5mm long, somewhat hairy, and quite pointed.

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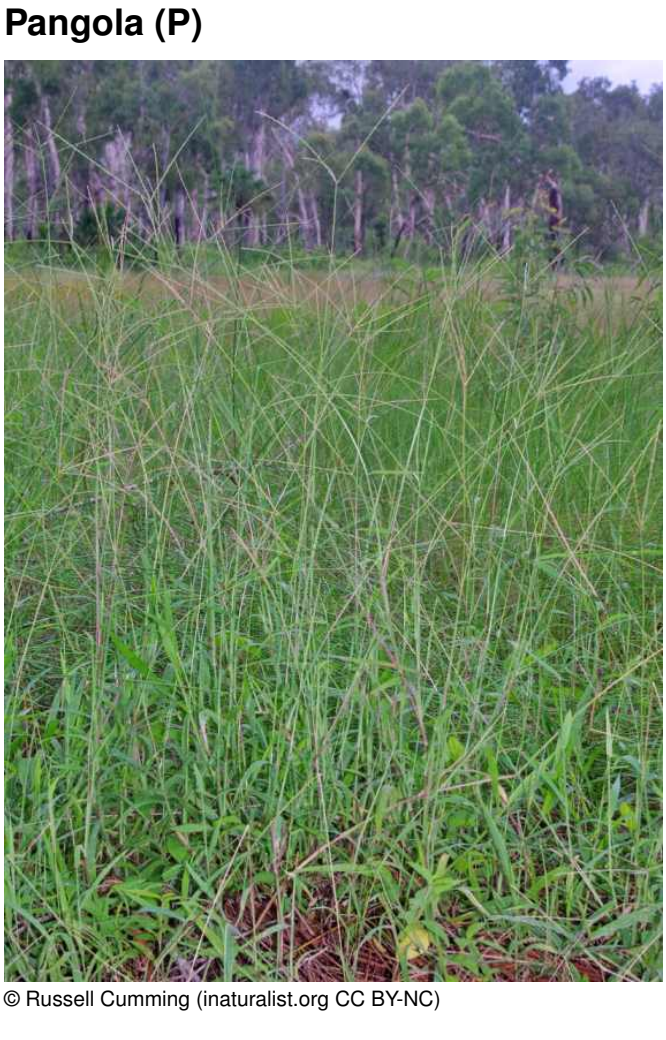
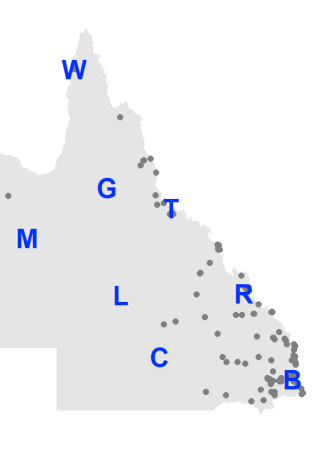
Digitaria eriantha

Pangola (P)





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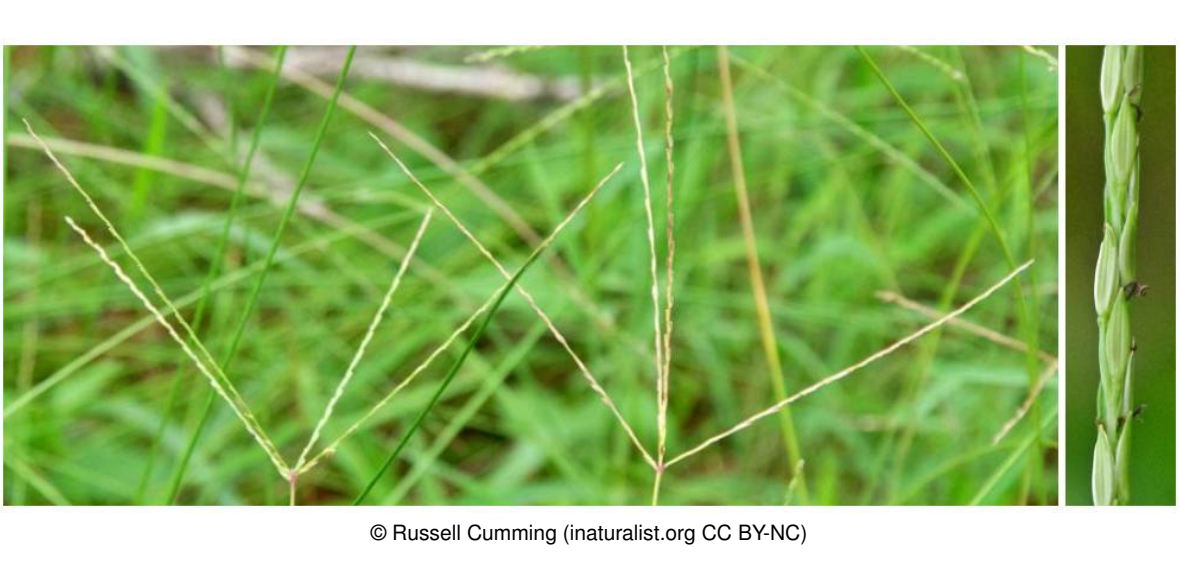
Introduced perennial. Semi-upright or spreading grass (40-120cm), sometimes with runners and/or fluffy nodes. Leaves 5-20cm x 2-7mm. Seed head with 3-17 linear hairless branches in one or more rings radiating from top of plant. Primarily a sown pasture but also in woodlands and grasslands , more common close to the eastern coast.

Look for these features in the field.

- Forms tussocks or mats with "looping" runners that root at the nodes, with erect seed head stems held well above foliage (above).
- Seed is one or two rings of 3-17 linear but slightly wavy branches (5-20cm) radiating from top of plant stem. Branches are packed with flat, pointed, hairless seeds.



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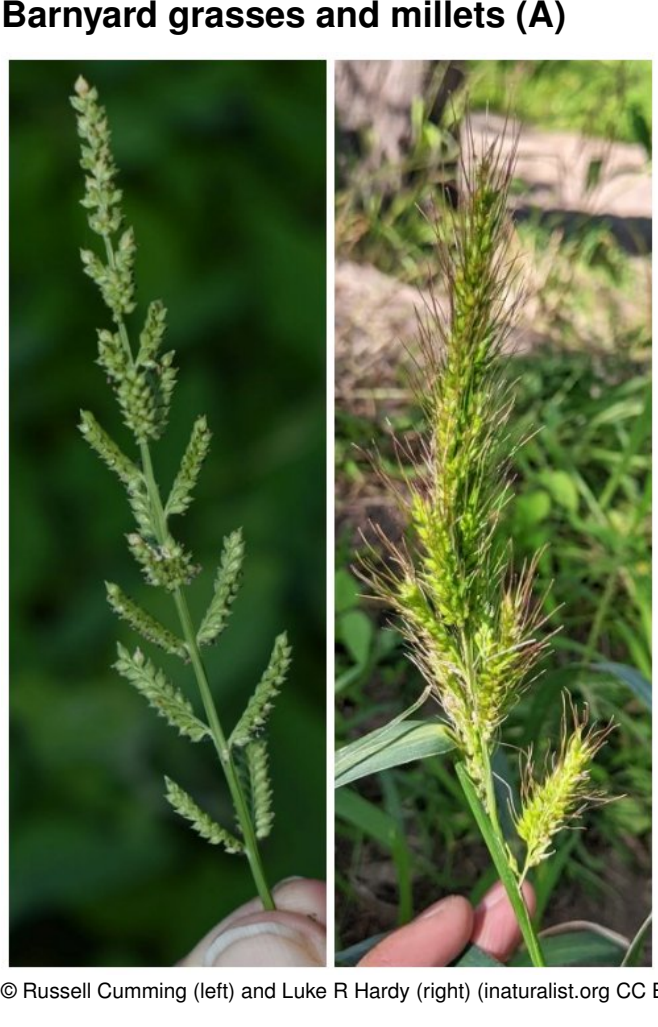
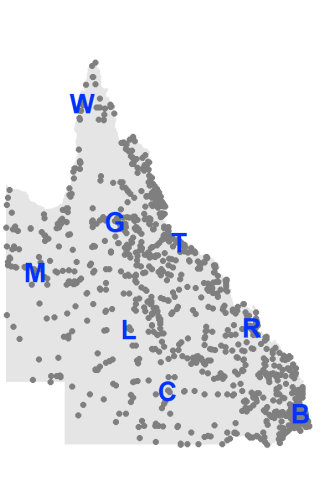
Echinochloa

Barnyard grasses and millets (A)





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Mostly annual, introduced and native, 13 species in Queensland. Tussocks (10-180cm) and leaves (1-40cm x 2-20mm) highly variable. Seed heads typically with increasingly short branches placed alternately up the stalk with many seeds, with or without long bristles.

Look for these features in the field.

- Seed heads typically have alternate branches in a triangular arrangement with longer branches closer to the bottom of the seed head (above).
- Branches of seed head covered in 2-4 rows of relatively large, roundish, tightly packed seeds (above).
- Some (not all) species have a long bristles covering seeds and branches (above).

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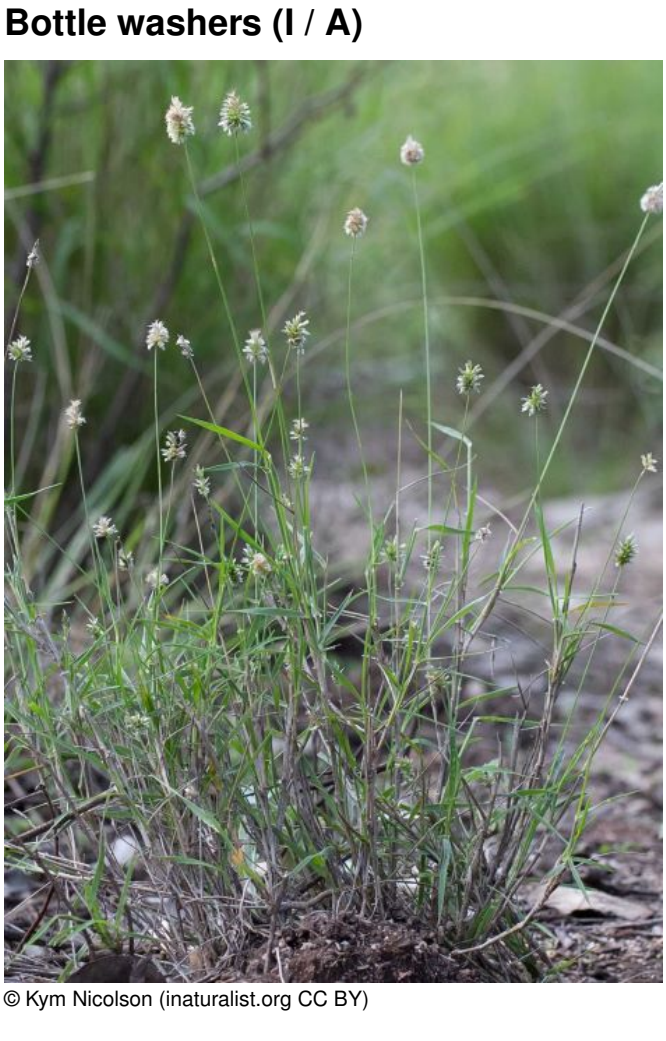
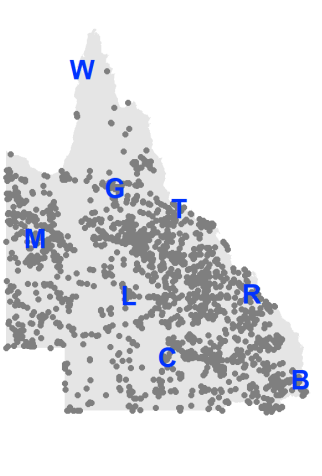
Enneapogon

Bottle washers (I / A)





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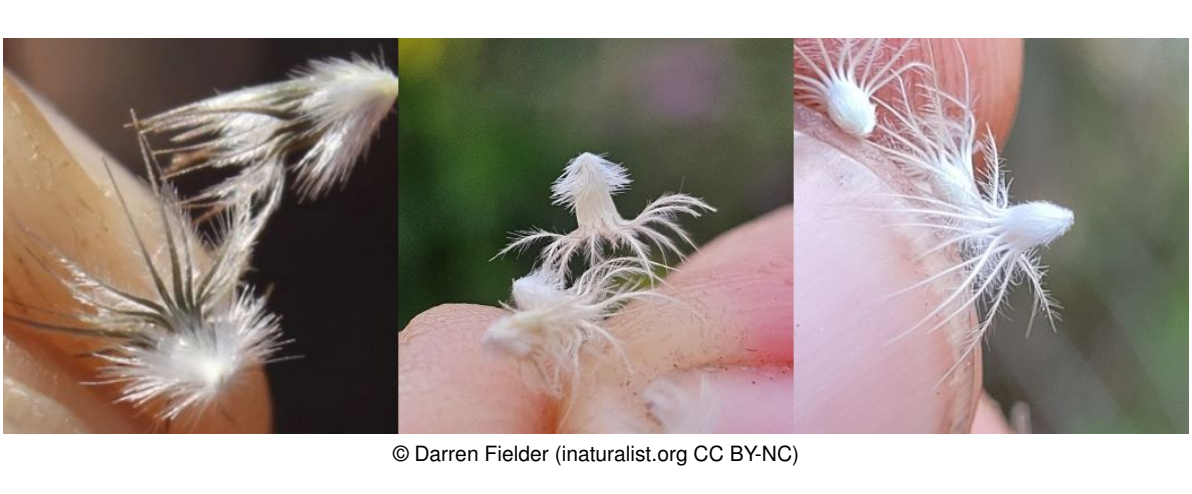
About 15 species in Queensland. All are native with a mix of perennials and annuals. The group is relatively uniform in appearance, mostly small to upright tussocks < 60cm tall. Leaves are narrow, generally <4mm wide and rough/hairy on many species. Seeds and inflorescence are very characteristic (below). Common across Queensland except for Cape York and prefer lighter well drained soils.

Look for these features in the field.

- Seeds of all species have a distinctive "little octopus" shape with a rounded seed and nine bristled awns.



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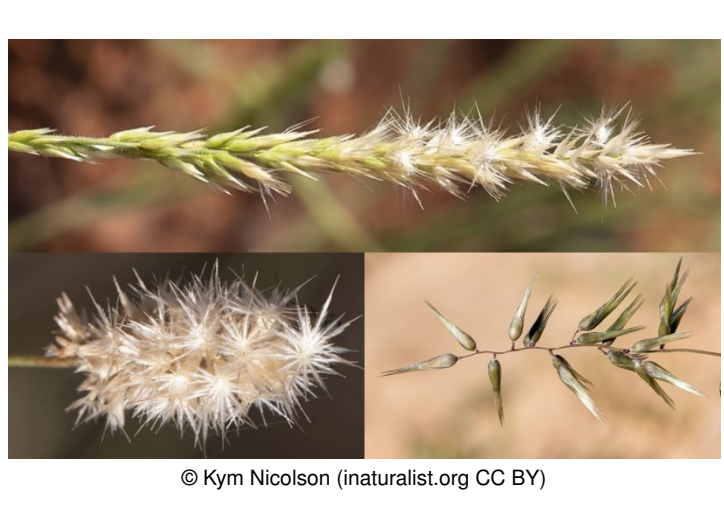
- Seed heads vary in size (1-15 x 0.5-3cm) but have the distinctive bottle washer shape. Seeds are densely packed in seed head of most species though branching is visible at arms length in some.



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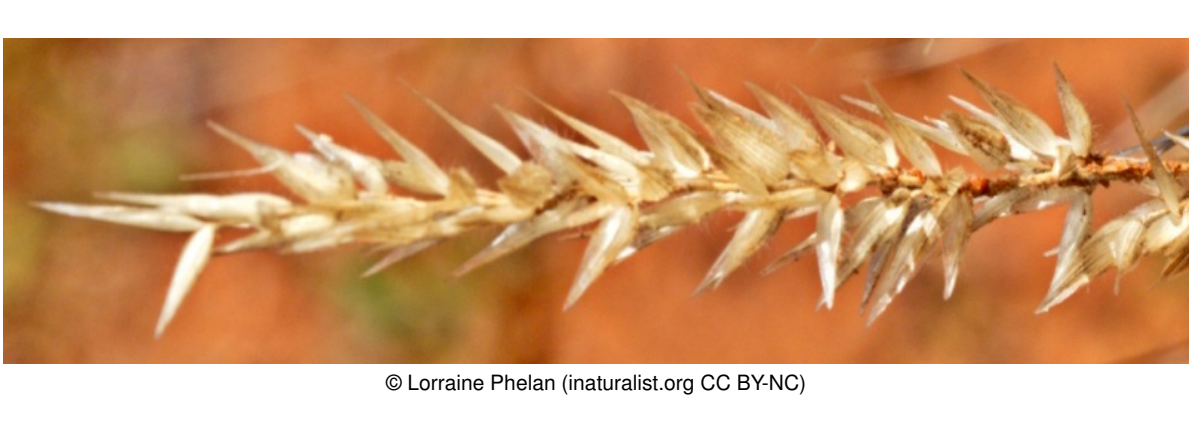
- As seeds are shed, narrow papery glumes (husks) remain on the tussock in pale, boat shaped pairs.



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Similar Species

The pale boat-shaped residual husks on Bottle washers may be confused with those of Wanderrie grasses (*Eriachne*) but Wanderrie seed heads lack both the tightly packed bottle washer arrangement and 'octopus' seeds of Bottlewashers.

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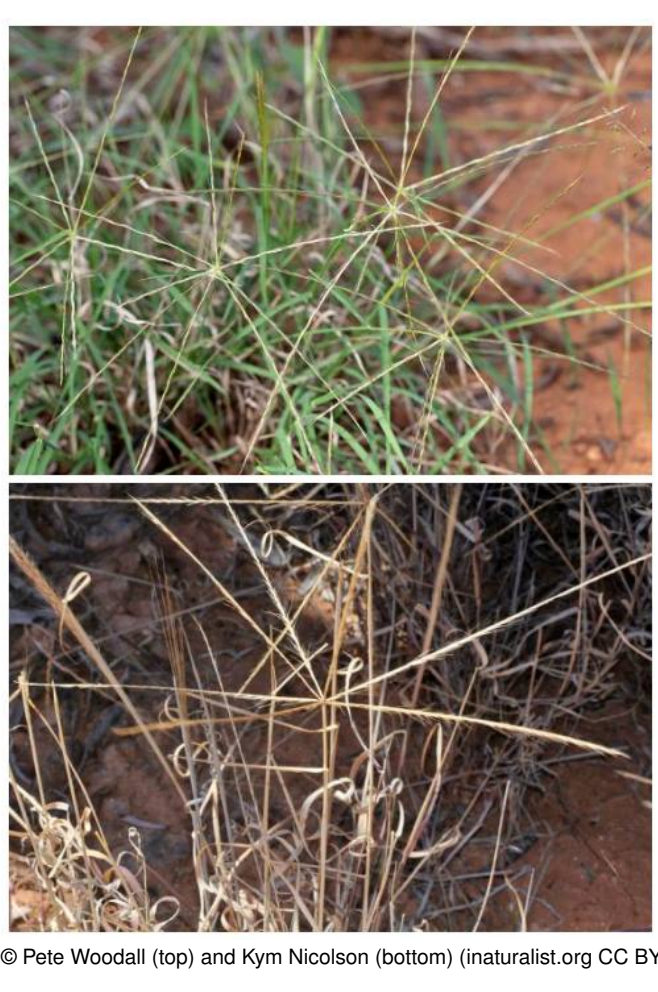
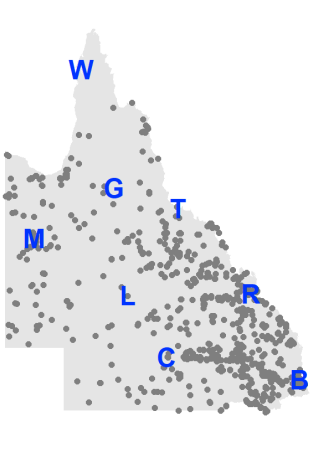
Enteropogon

Windmill grasses (I)





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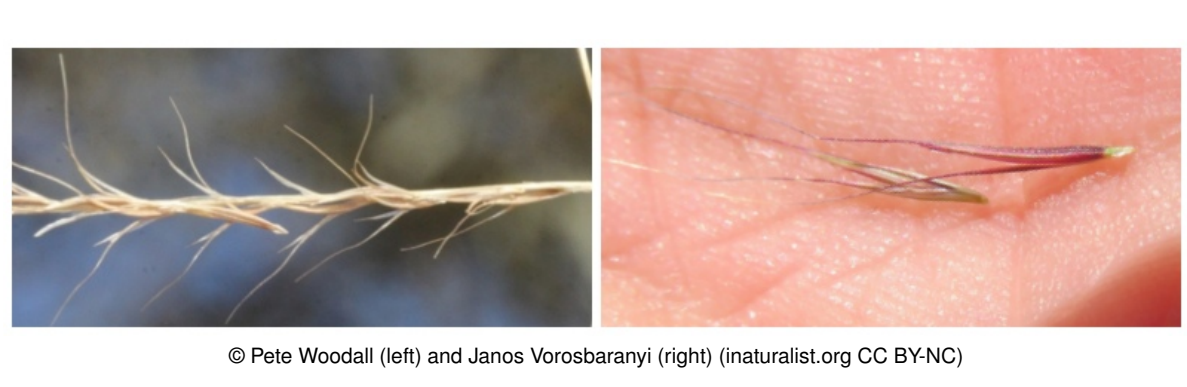
Six perennial native species. Tussock grasses (20-100cm). Leaves of most species are narrow (5-30cm x 1-4mm). The seed head has linear branches emerging at or near the top of the stalk. Often found in shade and preferring savannas on sand or clay.

Look for these features in the field.

- Seed head composed of one or more branches emerging from one point at the top of the stalk or multiple points spread along the top of the stalk.
- Seeds are elongate with two bristles (awns) giving mature seed heads a slightly spiny appearance.



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- The most common species (*E. acicularis*) and *E. ramosus*) are commonly found in shade and leaves curl noticeably when dry/old.

Similar Species

Many *Chloris* look similar but have keeled (folded along their length) leaf sheaths at the plant base (absent in *Enteropogon*) and seed head branches that tend to extend in flat/conical planes from the stem (more irregular arrangements in the common *Enteropogon*. *Digitaria* has a wavy form to the seed head branch that is absent in *Enteropogon*.

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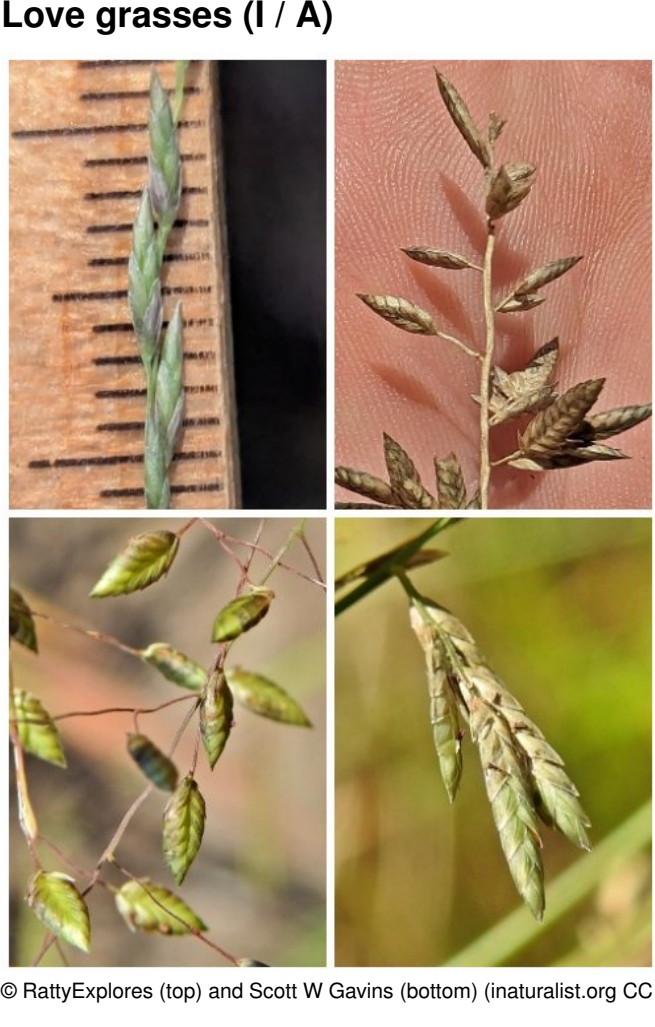
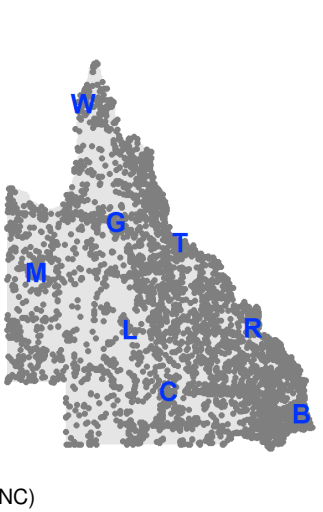
Eragrostis

Love grasses (I / A)





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About 60 Queensland species, introduced and natives, perennials and annuals. Highly variable sized tussock grasses (10-300cm, mostly <100cm). Leaves generally narrow and often specimens are not very leafy. Seed heads are variable in shape and size but all have distinctive herringbone seed units (florets) (below). Eragrostis is common across the state, and many species preferring disturbed / degraded locations and poorer soils.

Look for these features in the field.

- Seed head florets have a characteristic herringbone/chevron/wheat structure (above). These vary in size, shape and even colour between species but are ubiquitous to love grasses.

Similar Species

Poa also has herring bone florets, but is typically much larger and largely confined to southeast Queensland, particularly more hilly country.

Species in this guide:

- African love grass (*Eragrostis curvula*)
- Hairyflower love grass (*Eragrostis trichophora*)

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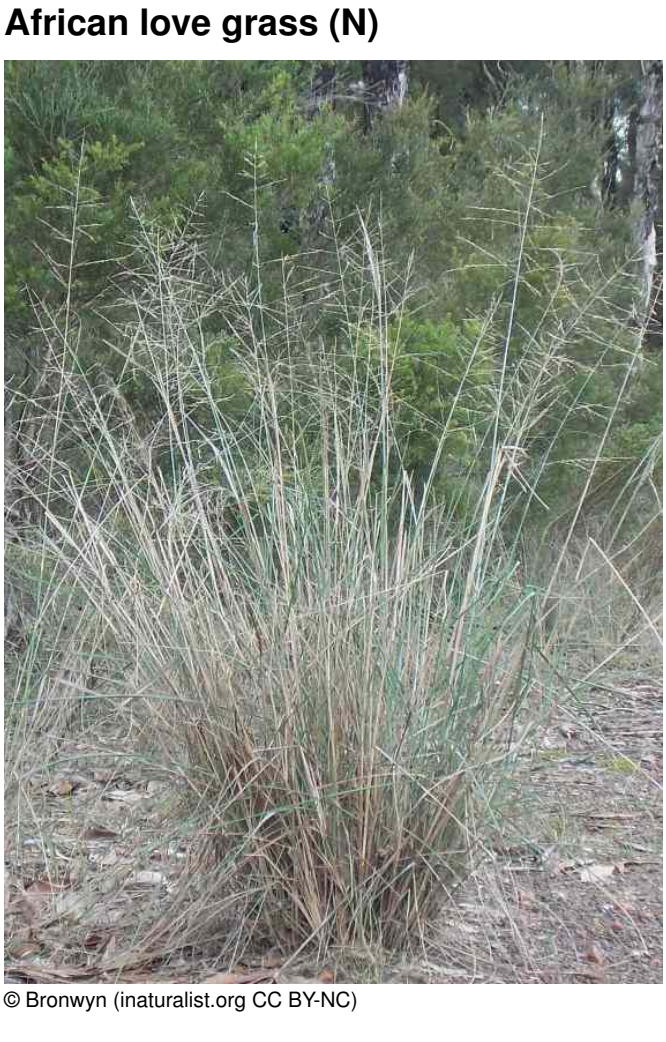
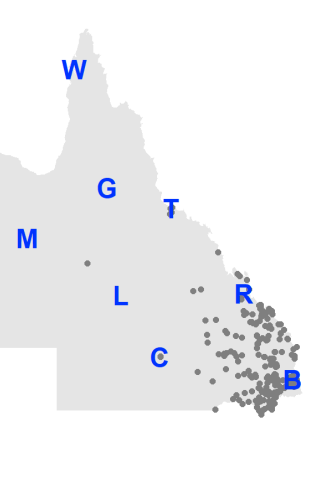
Eragrostis curvula

African love grass (N)





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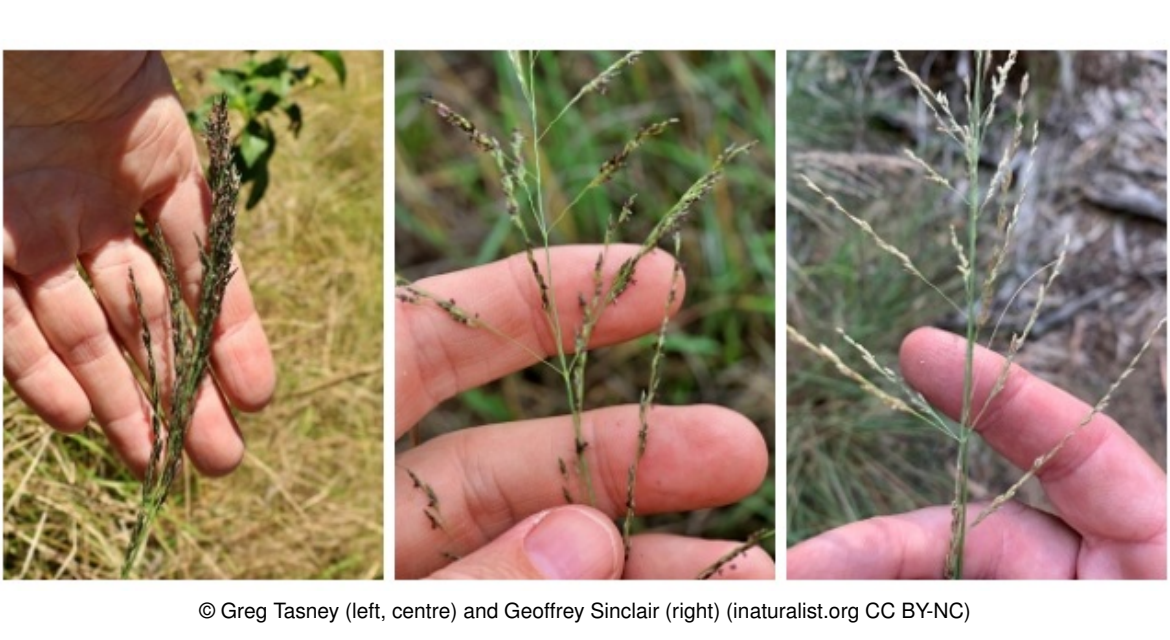
Introduced perennial tussock grass (30-120cm). Leaves (10-30cm x 1-3mm) and often drooping unless short. Seed heads 5-30cm long and triangular. Prefers disturbed areas like roadsides and degraded pastures especially on sandy and acidic soils.

Look for these features in the field.

- Forms large, very dense tussocks with sometimes drooping / weeping leaves (above). Tussocks often hollow from the middle as they age.
- The base of the plant at ground level is often sheathed with soft silky hairs.
- Mature seed heads in 6-30cm panicles. Branches are initially held fairly close to the stem but spread as they age, changing colour from dark hues (blackish / purplish) through green and then hay coloured as they age (left to right).



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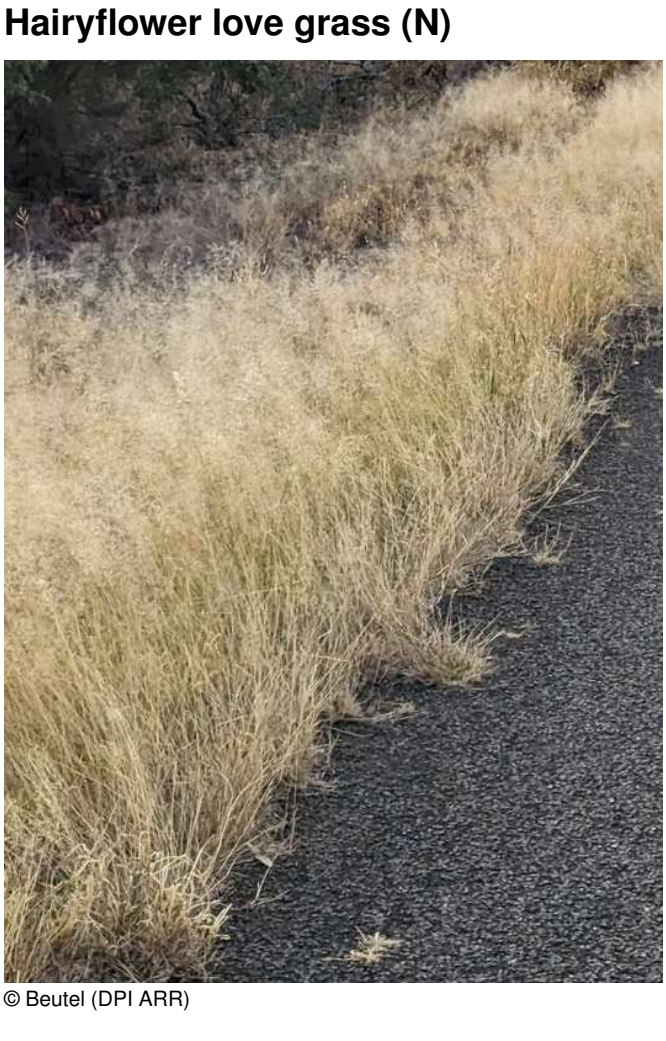
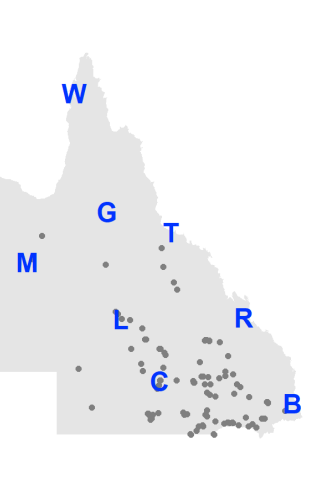
Eragrostis trichophora

Hairyflower love grass (N)





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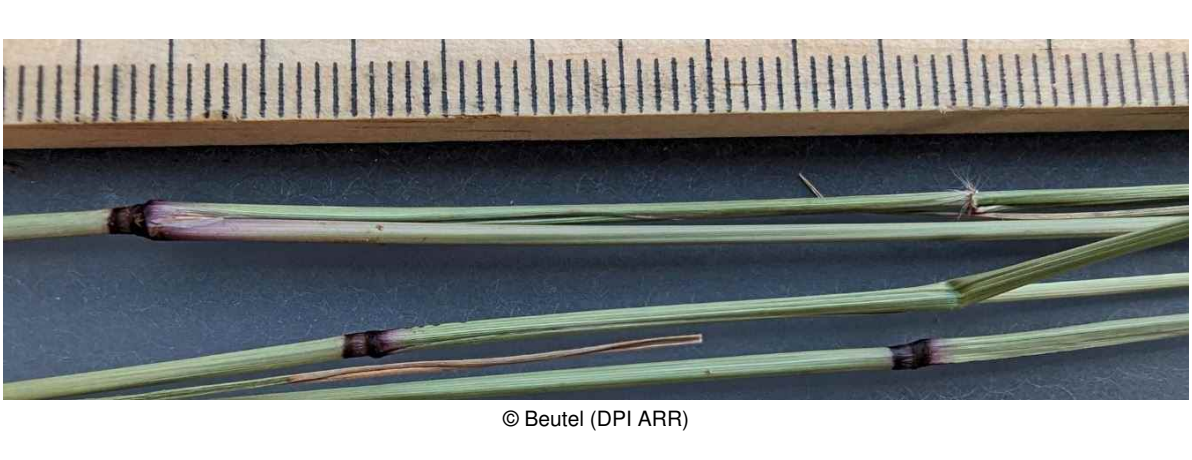
Introduced perennial tussock grass (50-100cm) with runners occasionally present. Leaves 2-10cm x 4mm. Seed head with 5-20 x 2-7cm and oval shaped. Prefers sandy loam. Rapidly colonising road networks and disturbed areas in central Queensland.

Look for these features in the field.

- Forms dense road side stands (above).
- One of a small number of *Eragrostis* with a dark ring of glands below at least some of the stem nodes.



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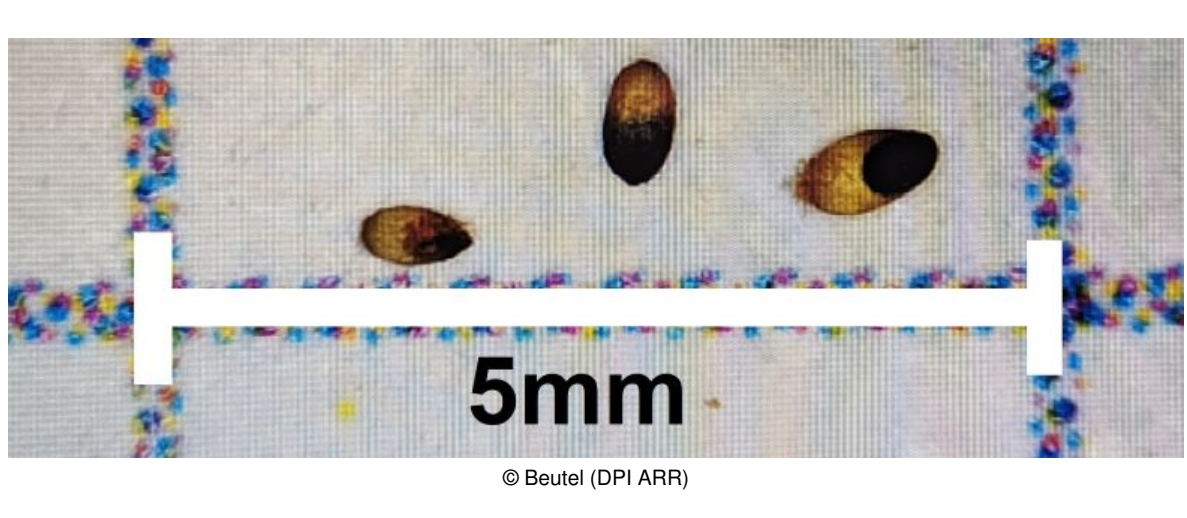
- The central seed body, only visible after outer layers are removed has a black dot in it. This is a reliable identifier for the species.



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Similar Species

Sporobolus caroli similarly colonises roadsides but lacks the herringbone florets of the Eragrostis genus (above).

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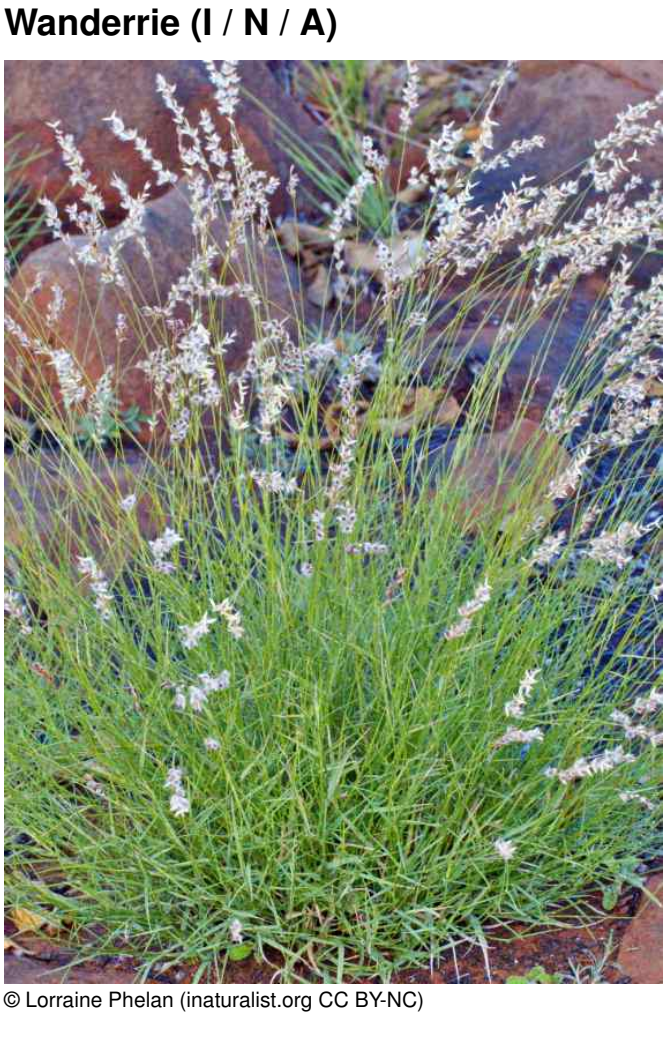
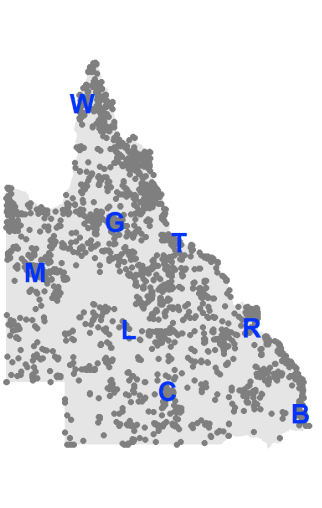
Eriachne

Wanderrie (I / N / A)





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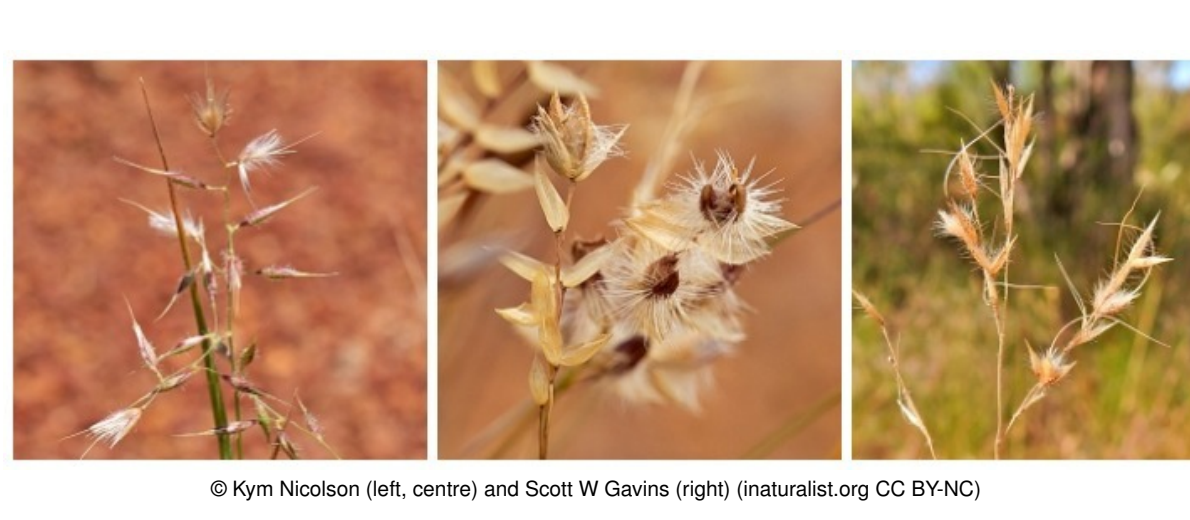
Approximately 27 annual and perennial native species in Queensland. Generally erect tussock grasses (10-120cm) with wiry / hard stems. Most are not very leafy, with narrow leaves (5-35cm x 1-8mm). Seed heads are panicles (have branched branches) with characteristic seed husks (below). Occupy a range of habitats, but often more prolific and visible on shallow and less fertile soils.

Look for these features in the field.

- Seeds are often fluffy and variably spiny between species. They are enclosed by two boat shaped husks. These husks become stiff and papery as they age and remain on the plant after seedfall.



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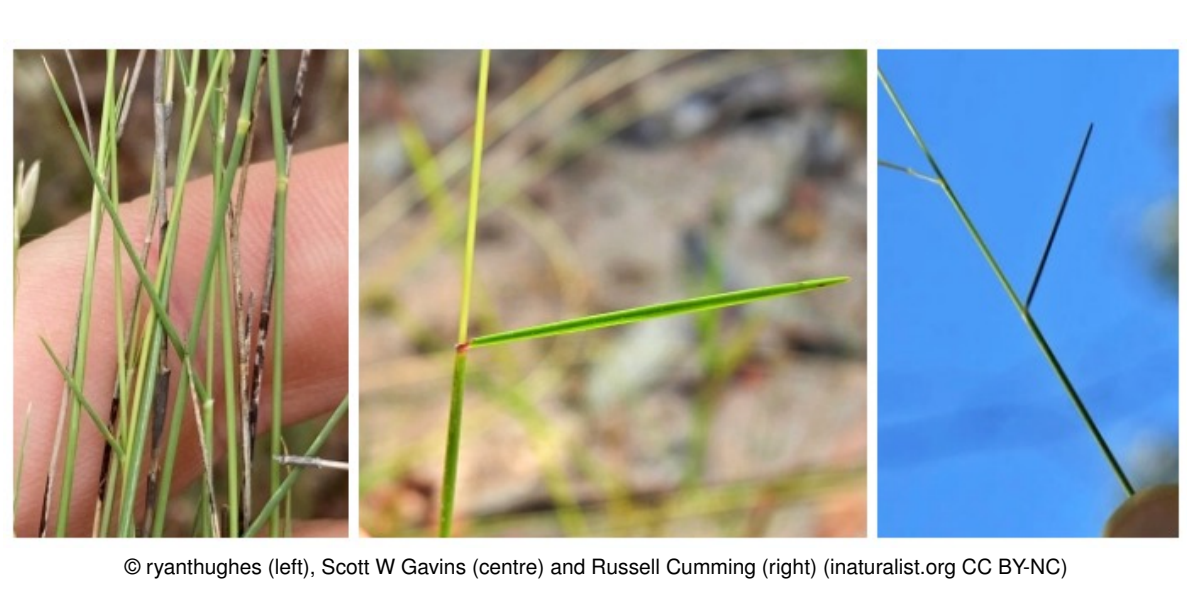
- Tussocks mostly erect with wiry/woody stems and relatively little leaf. Upper leaves often inrolled, spiny and approximately perpendicular to stem.



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Similar Species

See *Enneapogon*

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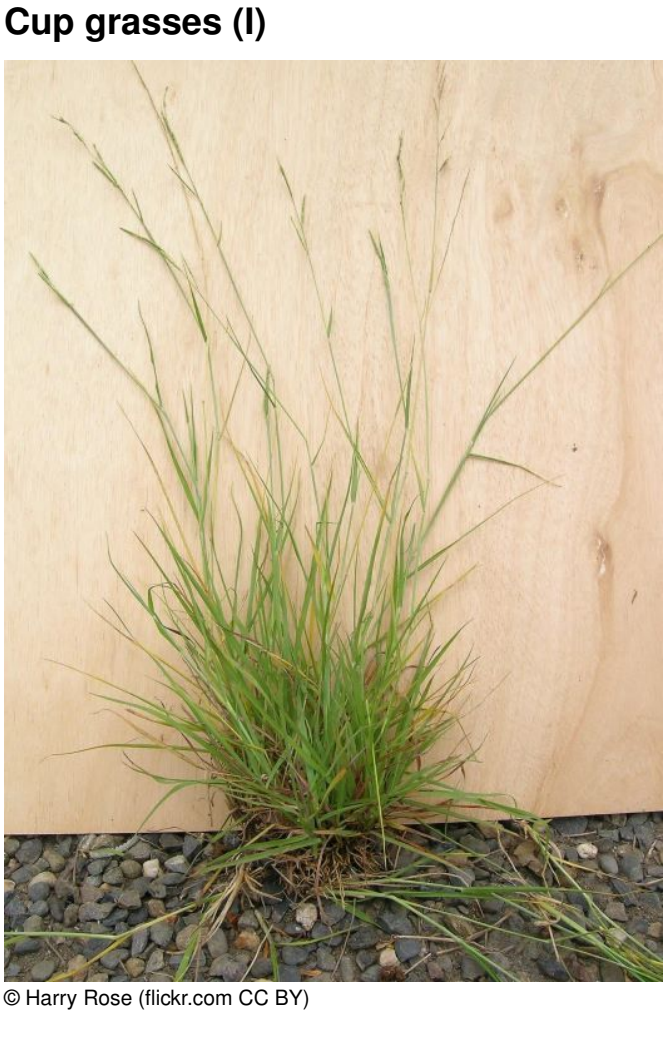
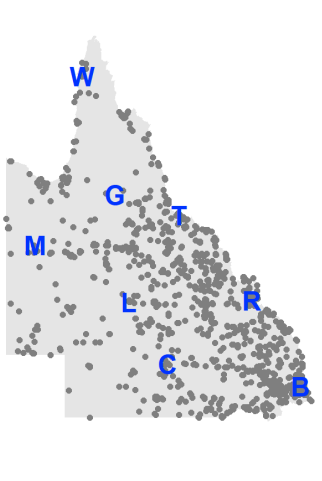
Eriochloa

Cup grasses (I)





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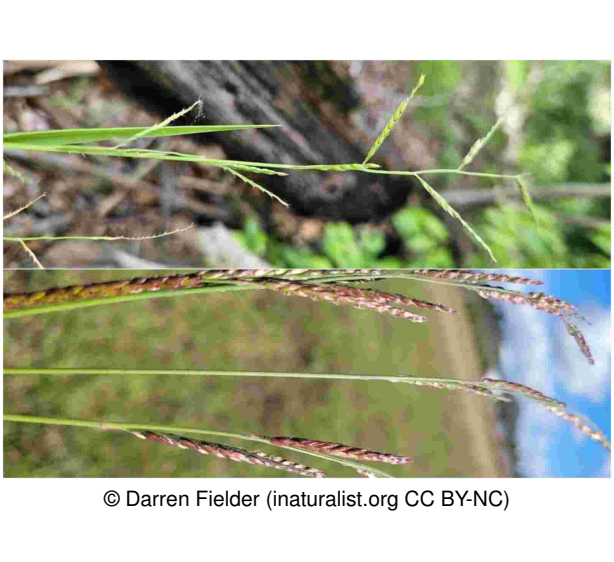
Mostly native and perennial. Commonest species are tussock grasses (20-100cm). Leaves (4-30cm x 2-8mm) are primarily around base of plant. Seed heads with 2-10 linear branches spread along the top of the stalk. Prefers damp areas, clay soils and bare/overgrazed areas.

Look for these features in the field.

- Seed heads are long and narrow with simple linear branches spread along the stalk.



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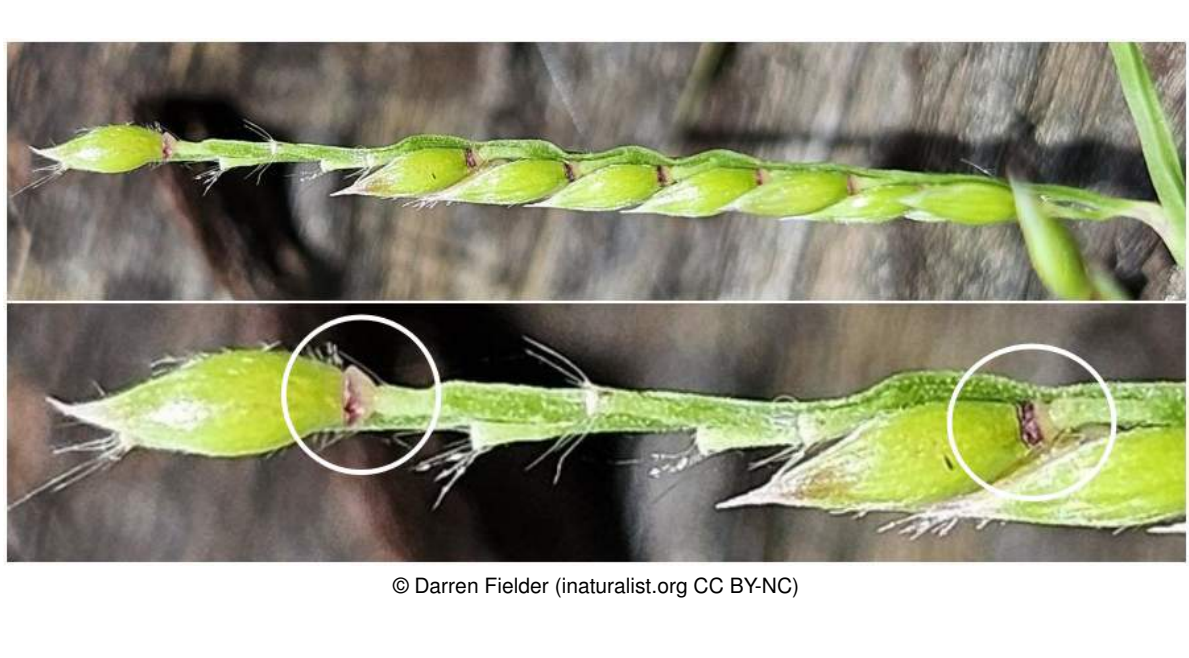
- Seeds are very pointed with a small cup-shaped bead (callus) at the base of each seed (circled).



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Similar Species

Both *Urochloa* and *Paspalidium* have similar seed head branching to Cup grasses, but lack both the callus and also often the distinctly pointed seed shape of the Cup grasses.

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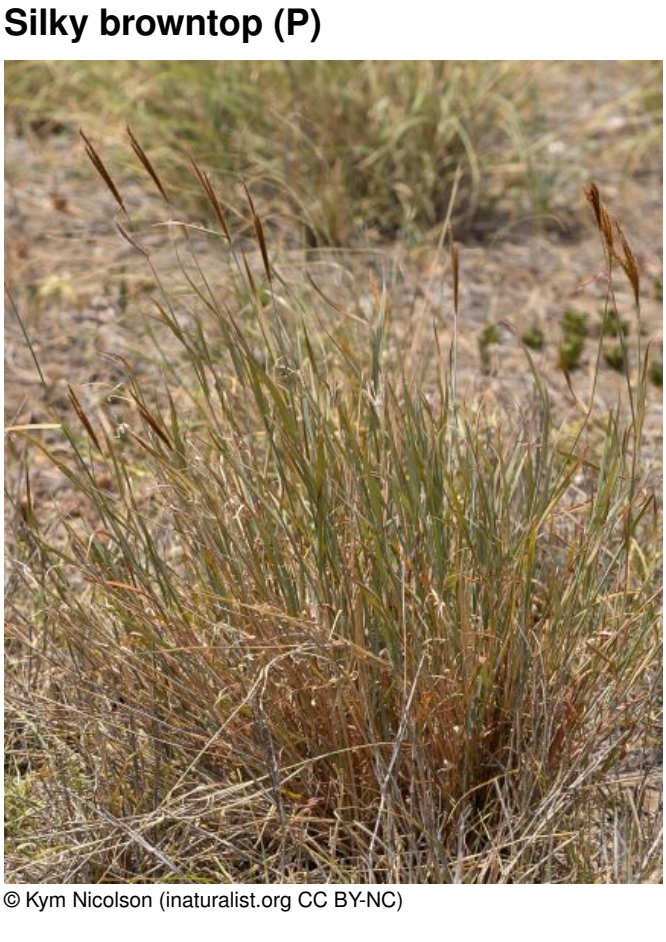
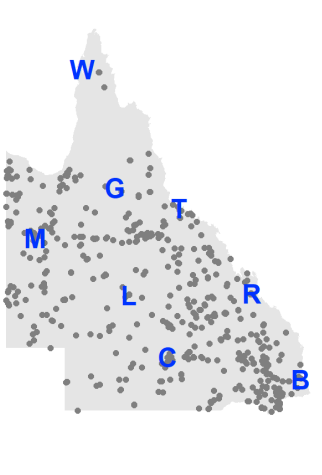
Eulalia aurea

Silky browntop (P)





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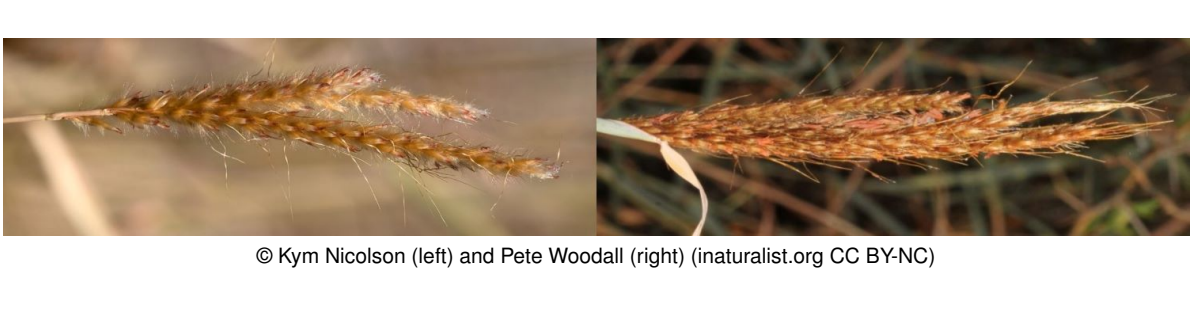
Native perennial. Erect tussock grass 40-150cm high. Most recognised by the rich brown colour of seed head. Leaves are 3-30cm x 2-6mm and often with distinct white mid-vein. Widespread throughout Queensland except Cape York, covers a wide range of soils but prefers less well drained areas further inland.

Look for these features in the field.

- Seed head with 2-4 narrowly spread branches at top of stalk, well above foliage. These branches are covered in dense rusty brown hairs giving the species its name.



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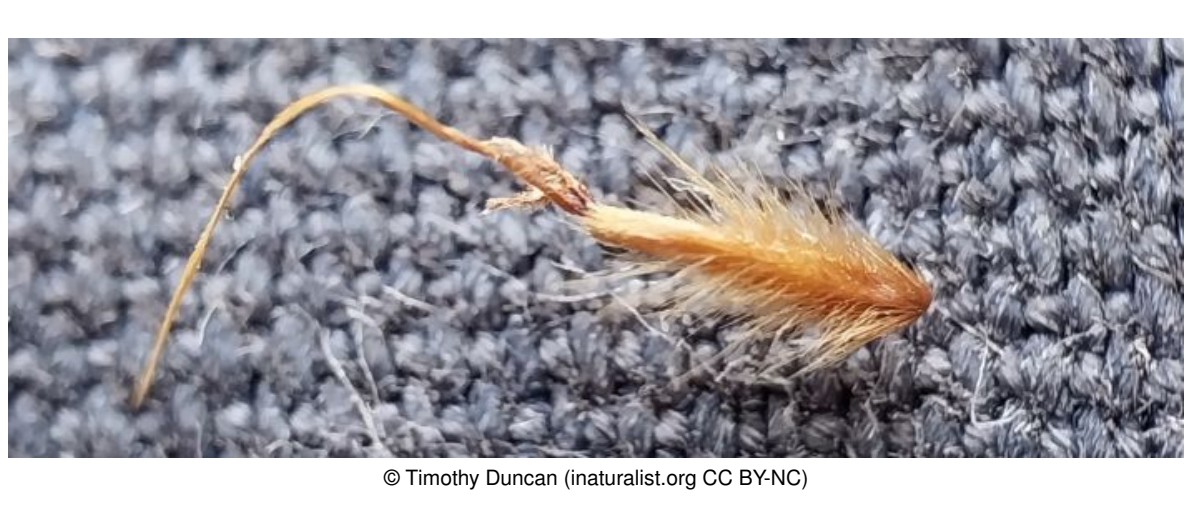
- Seeds are covered in dark brown hairs with a twisted 1cm awn (bristle).



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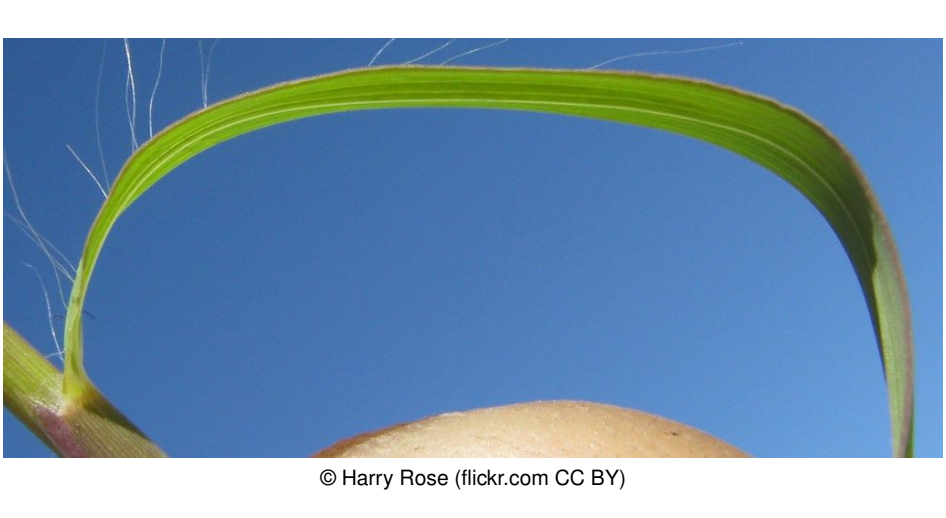
- The lowest part of the stem is short, scaley and below ground.
- Leaves vary in size but commonly have a white mid-vein, more conspicuous under leaf.



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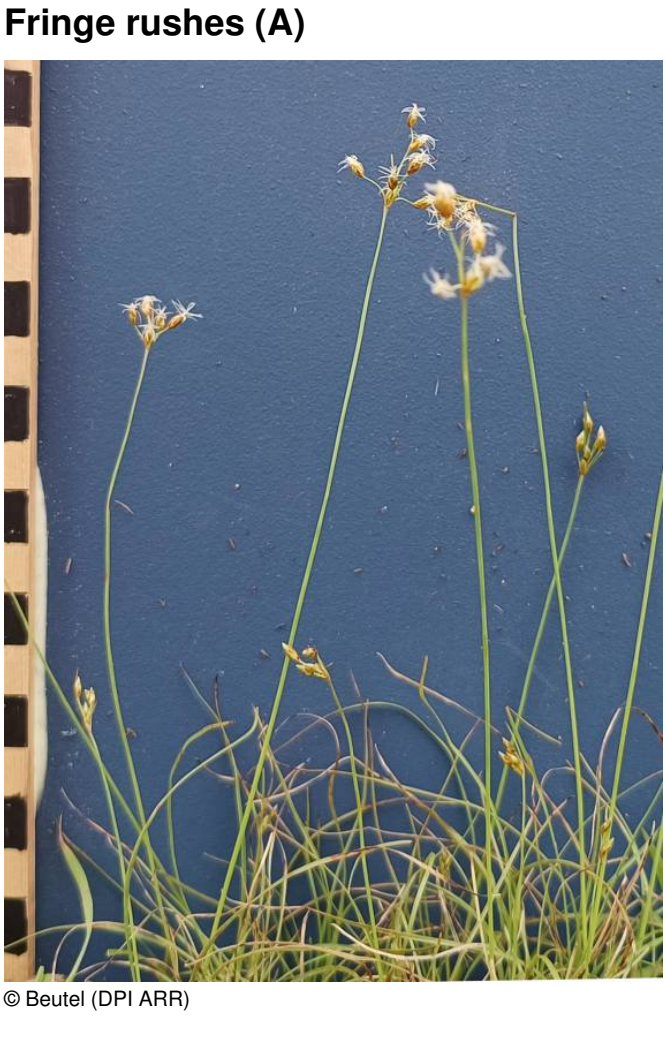
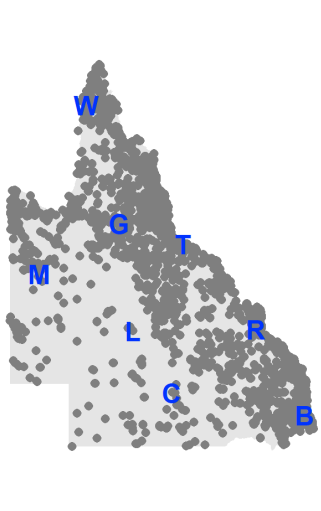
Fimbristylis

Fringe rushes (A)





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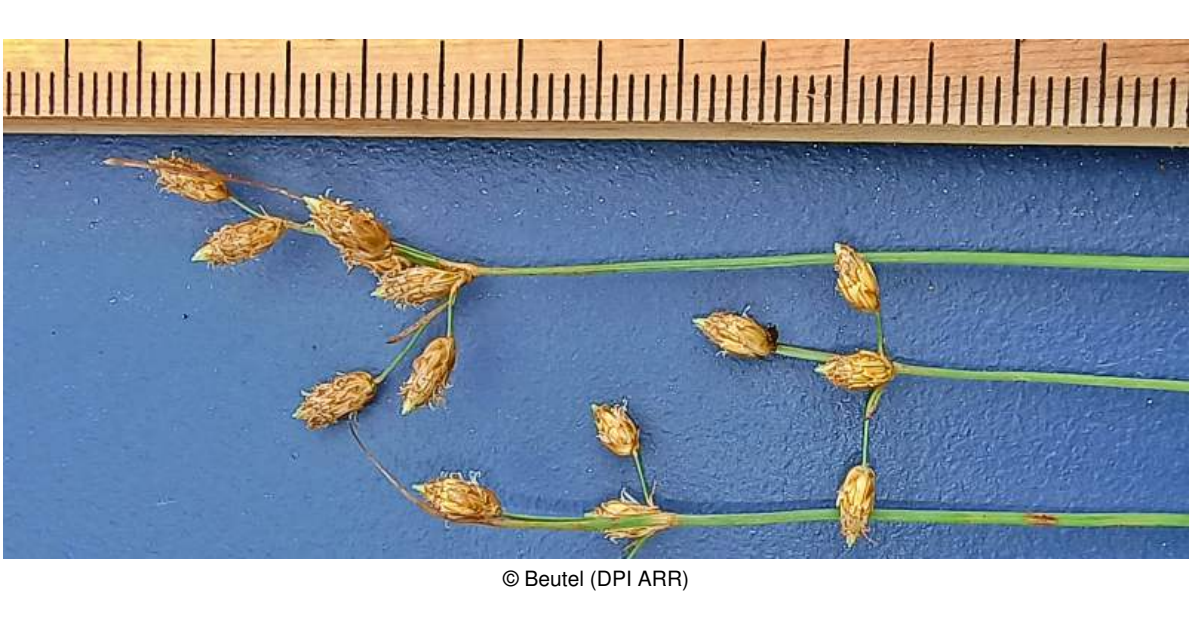
Genus of about 80 species in Queensland. Annual and perennials, some introduced. This is a sedge, not a grass. Vary greatly in size, most with triangular stem profile of Cyperaceae. Leaves typically narrow and mostly emerge at base of plant. Seed heads have spikelets (clusters of seeds) either singular or in irregular groups at ends of stems. Most prefer damp soils.

Look for these features in the field.

- Seeds are in cone shaped clusters at end of stem or end of seed head branches



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- See Cyperaceae for other identifying features

Similar Species

See Cyperaceae and *Tripogon loliiformis*

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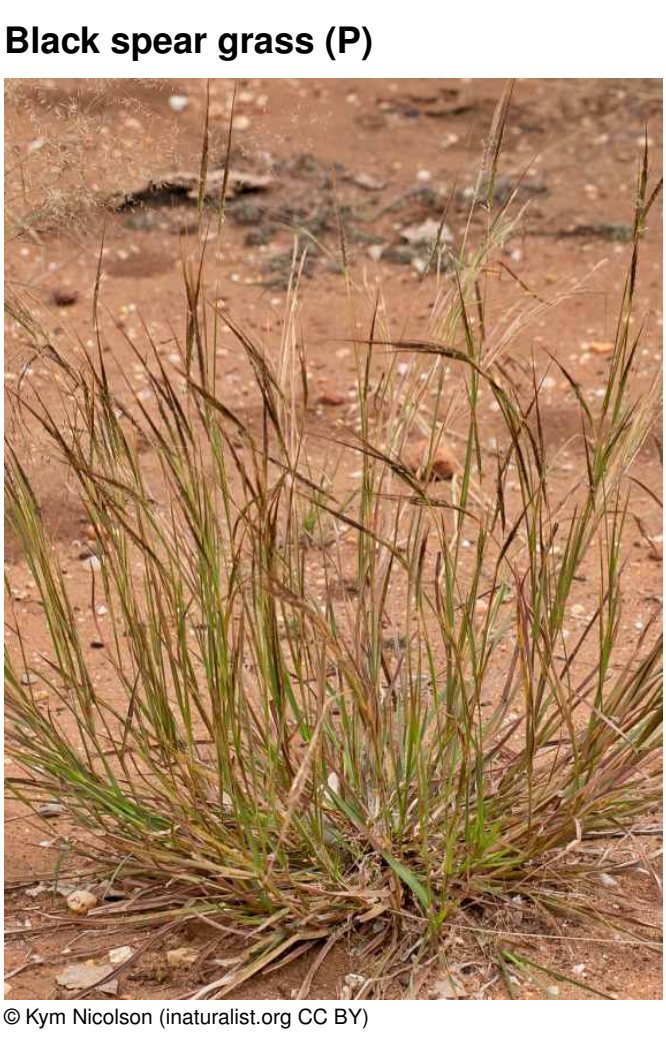
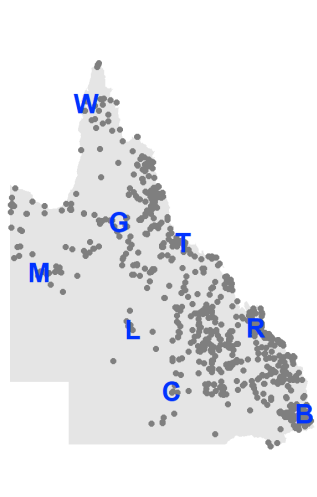
Heteropogon contortus

Black spear grass (P)





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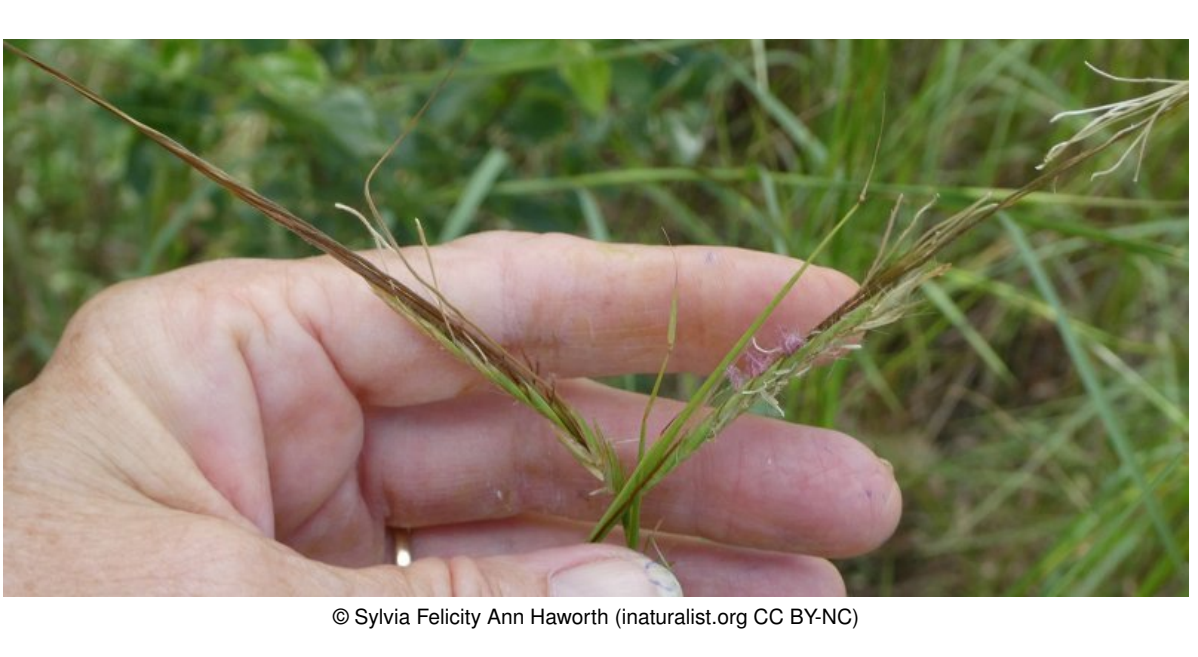
Native perennial. Tussocks (30-100cm) generally leafy with leaf sheaths folded along length at base of plant. Leaves (3-30cm x 2-8mm) bluey-green, reddening with age. Seed head is very distinctive at all stages (below) but characterised by presence of long (5-10cm) black spear-like seeds. In a wide range of soils and habitats, but rare in heavy clays and poorly drained areas.

Look for these features in the field.

- Seed head (2-6cm) is two rows of seed husks. Long black seeds extend from these husks.



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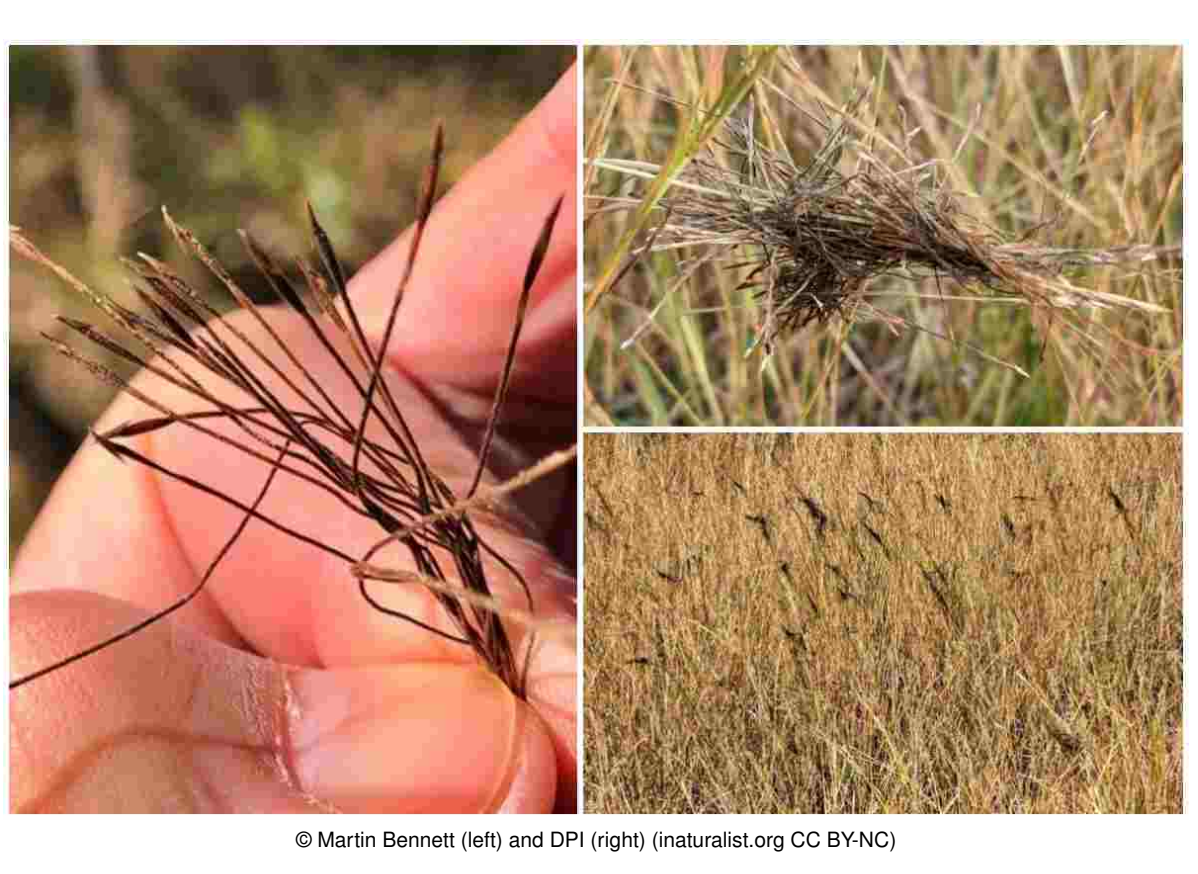
- As the seed head matures, the spears form tangled bunches large enough to be visible from a distance.



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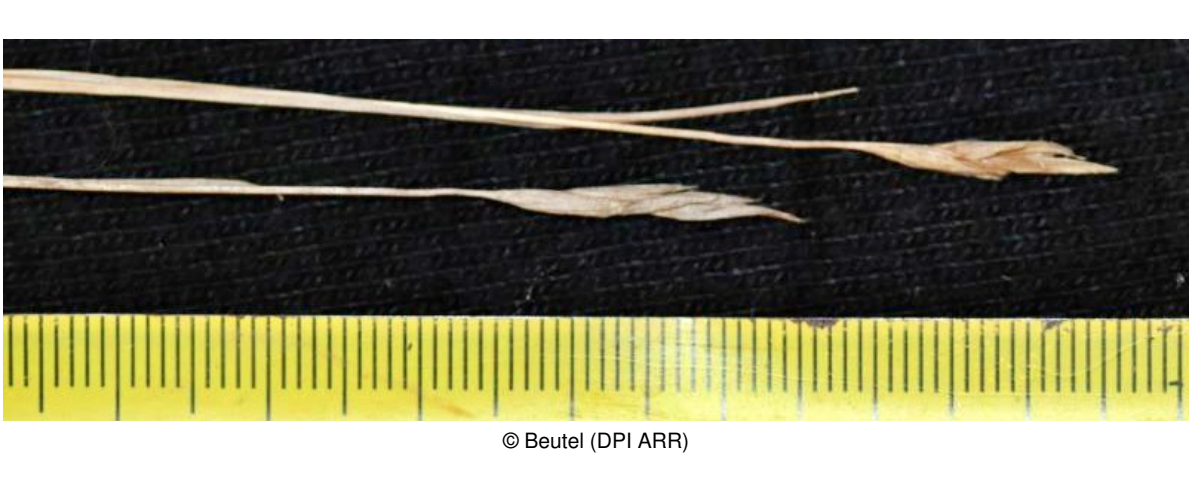
- After seed fall, residual seed husks persist in a characteristic spear head arrangement, making mature plants very easy to identify.



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- The underside of stems at the base have keeled (folded along their length) sheaths. Useful as this grass is often grazed flat.

Similar Species

When grazed down, can be confused with *Themeda* species, but *Themeda* lack the keeled (folded) leaf sheaths at their base, and Black spear grass leaves are finely toothed if you run a finger backward along the edges. Also see *H. triticeus* (Giant spear grass).

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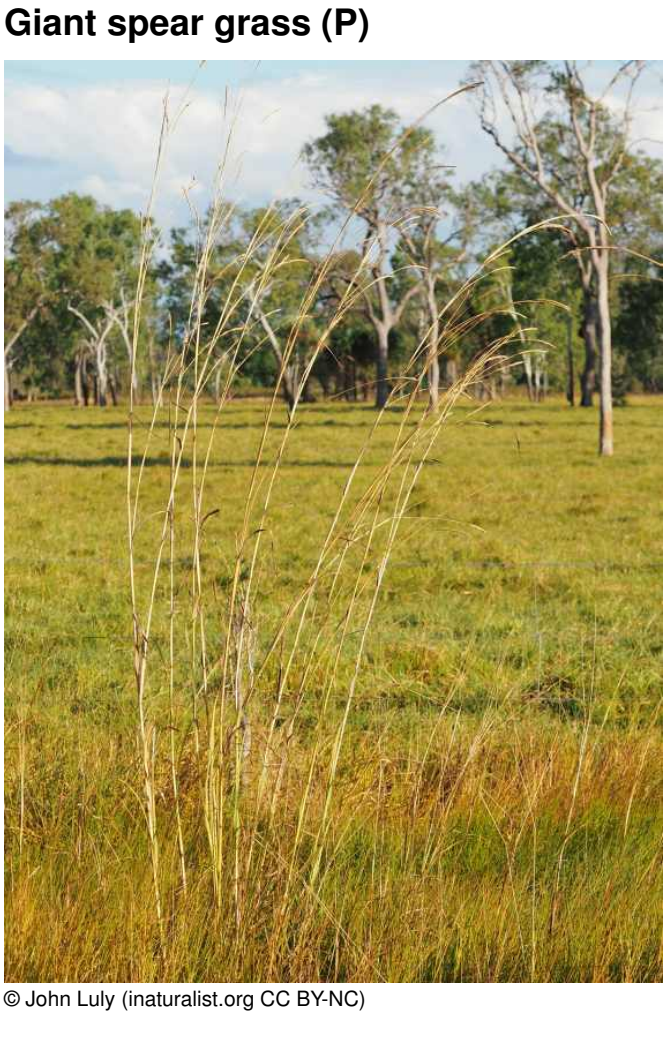
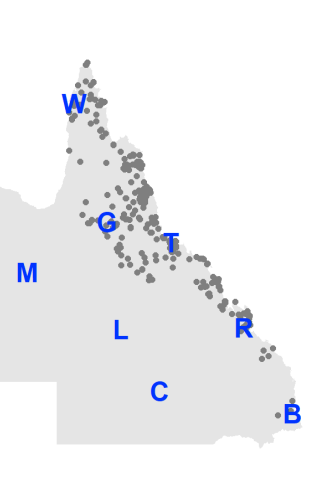
Heteropogon triticeus

Giant spear grass (P)





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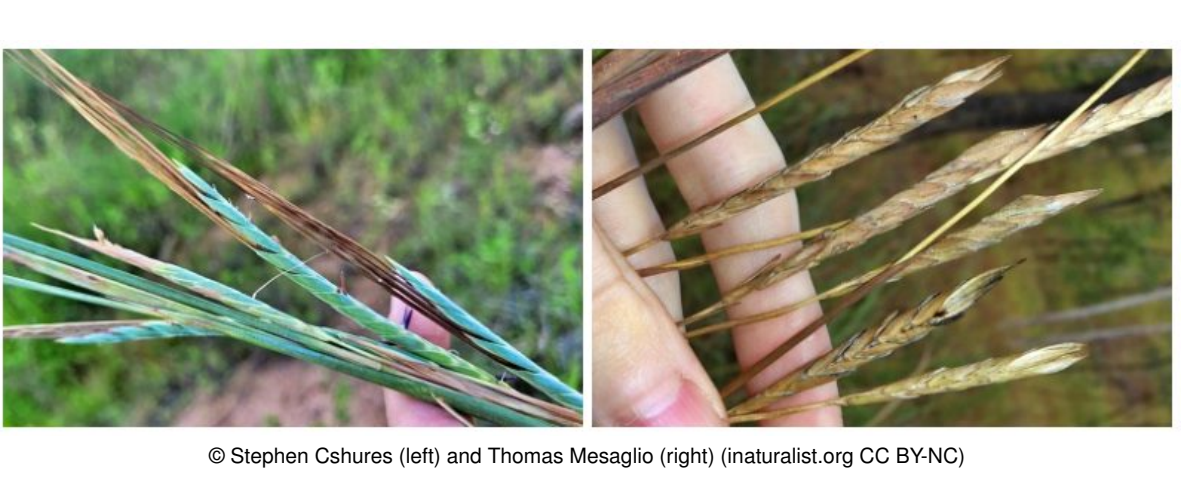
Native perennial. Large tussocks (100-160cm). Leaves (20-80cm x 3-16mm) with an obvious mid-vein. Seed head (9-15cm) stem extends well above tussock, with long black bristles that tangle somewhat as they age. Prefers eucalypt forests and woodland.

Look for these features in the field.

- Seed heads on stems extending well above other foliage (above). Stems of young plants with a white waxy coating that sticks to a finger dragged up stem.
- Seed head (9-15cm) is two rows of seed husks with long black spear-like awns on seeds (left). Mature seed heads persist after seed fall and largely maintain their shape less the spears (right).



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Similar Species

Superficially similar to related Black spear grass (*H. contortus*) which is shorter, lacks the long seed head stems and has a shorter seed head (<6 vs >9 cm not including spears).

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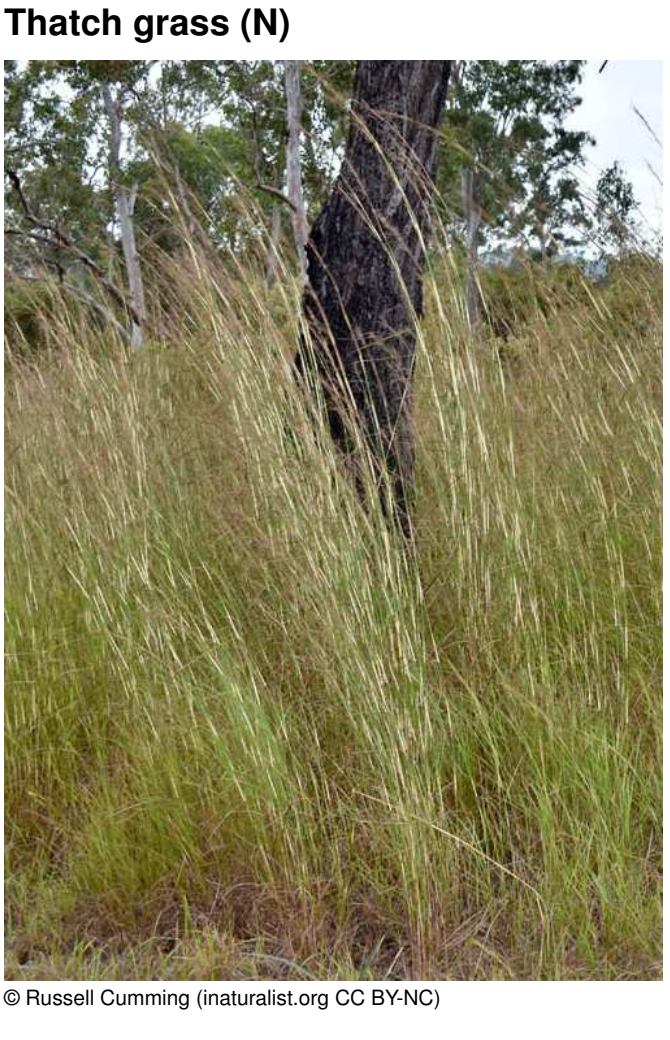
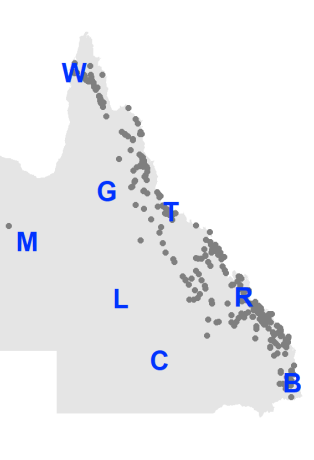
Hyparrhenia rufa

Thatch grass (N)





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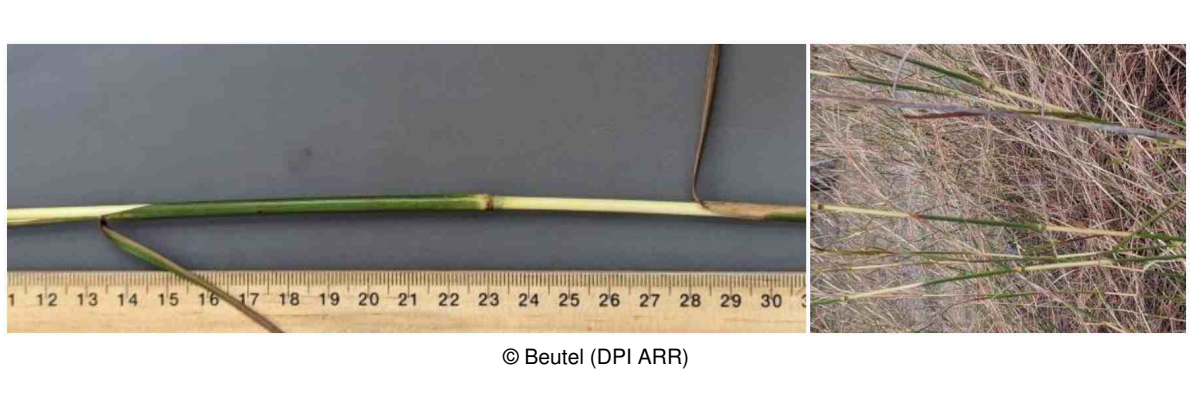
Introduced perennial. Erect, stemmy, tussocks (1-3 m). Rarely invades paddocks, strongly affiliated with road sides. Leaves (10-60cm x 2-8mm) distributed up the stems, creating the characteristic alternating light/dark green stem colouration. Seed head a series of sheathed branches that emerge along the top (30-60cm) of the plant stem and terminate in pairs of (2-3cm) seed arms with reddish-brown, darkly bristled seeds.

Look for these features in the field.

- Plant stems are alternately dark and light green along their length where leaf sheaths do and do not cover the stem.



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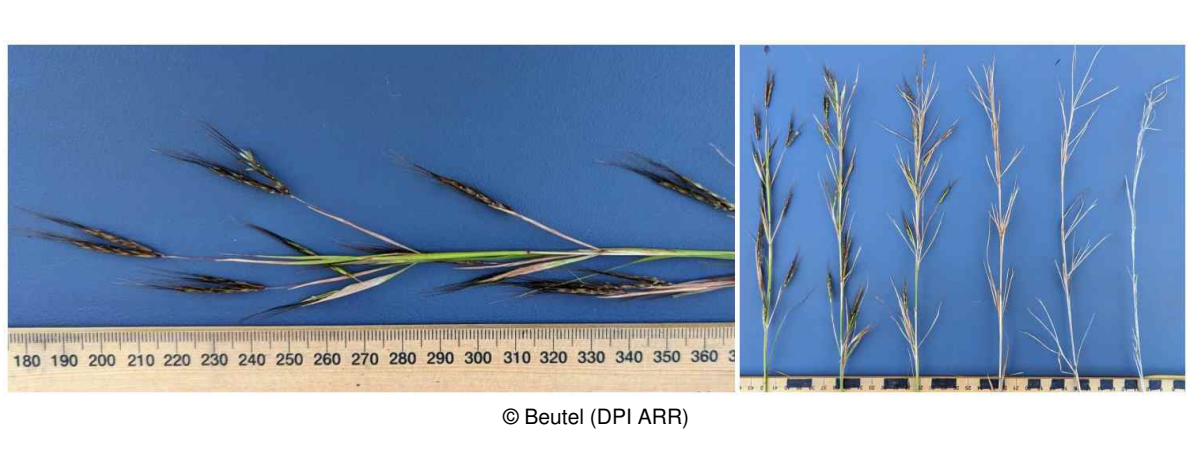
- Typically associated with road side reserves where it forms dense stands. Where it does invade paddocks, it can completely exclude all other grasses.
- The sheaths (spathes) on the branches of the seed head are a useful identifier and are typically retained long after seed fall (above right).



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Similar Species

Themeda quadrivalvis (Grader grass) also forms dense roadside stands but has a distinctly different seed head and lacks alternating stem colouration. *H. filipendula* (Tambookie grass) lack the alternating stem colouration, and the finer seed head branches have distinctive white hairs (below).

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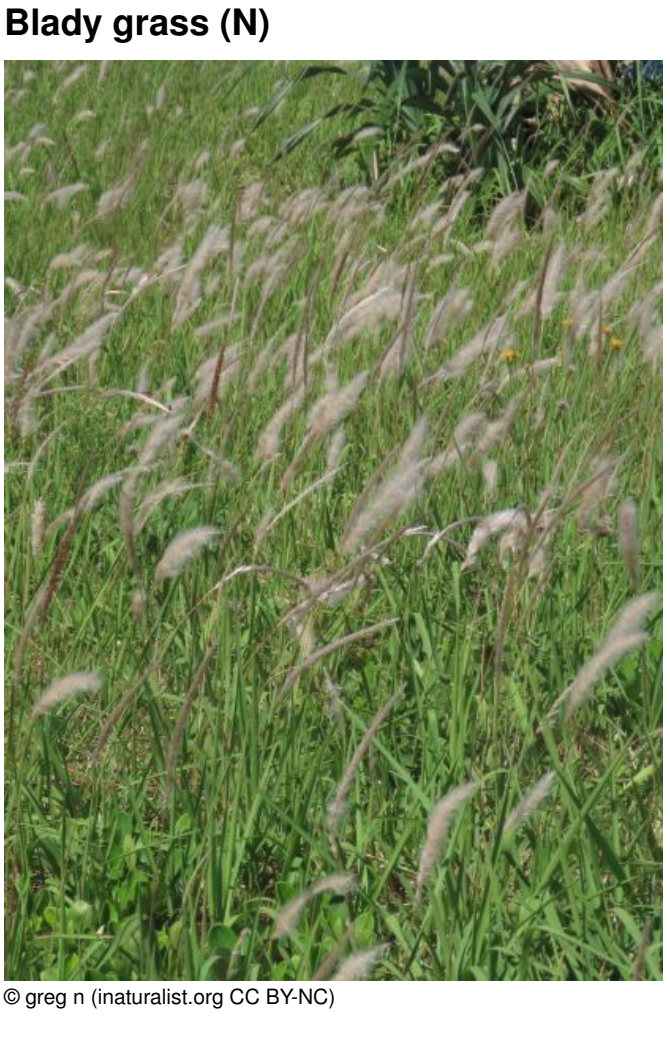
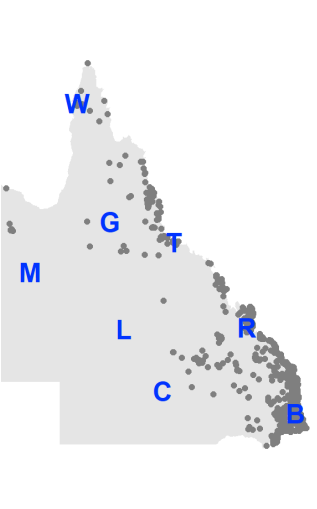
Imperata cylindrica

Blady grass (N)





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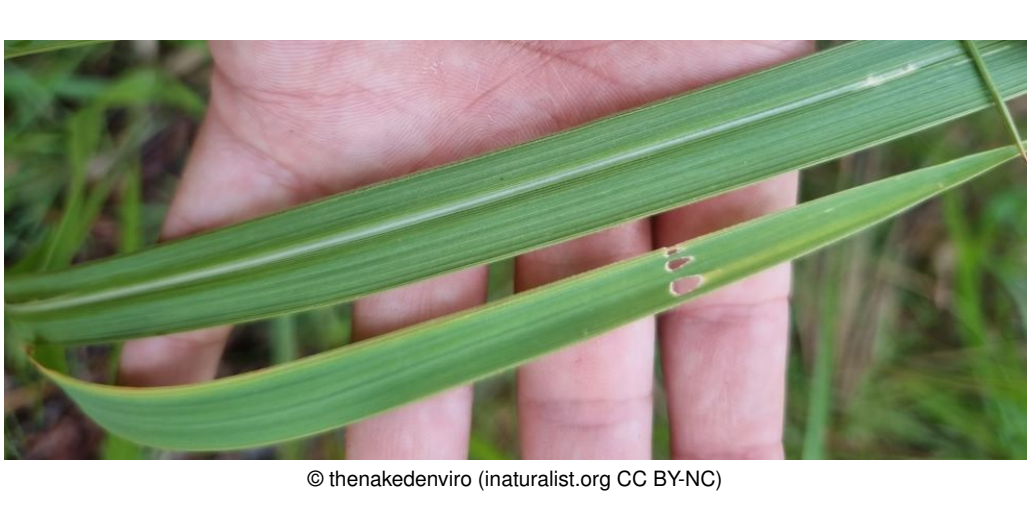
Perennial native. Tussocks erect, up to 1.5m with often sharp, upturned underground runners (rhizomes). Seed head is a fluffy white cylindrical spike 5-20cm long. Leaves mostly at base and up to 100cm x 20mm, sharp edged. Favours wet areas and depleted soils, resilient to fire.

Look for these features in the field.

- Leaves are long and rigid with a sharp tip and finely serrated edges that can cut skin. The prominent mid vein is often off-centre.



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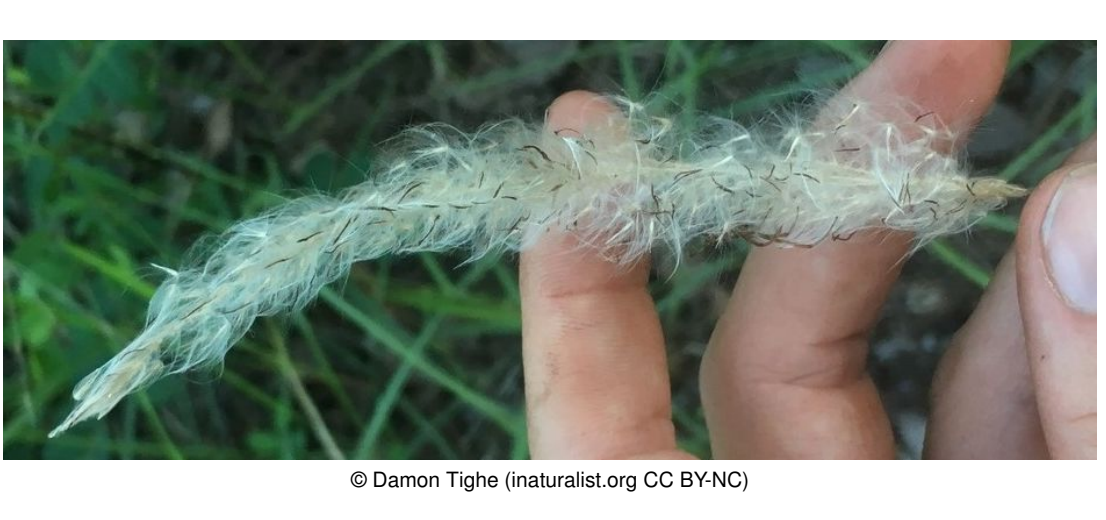
- The seed head is a delicate white fluffy cylinder (5-20cm long) with elongate brown flecks throughout.



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- The species often forms dense monocultural stands.

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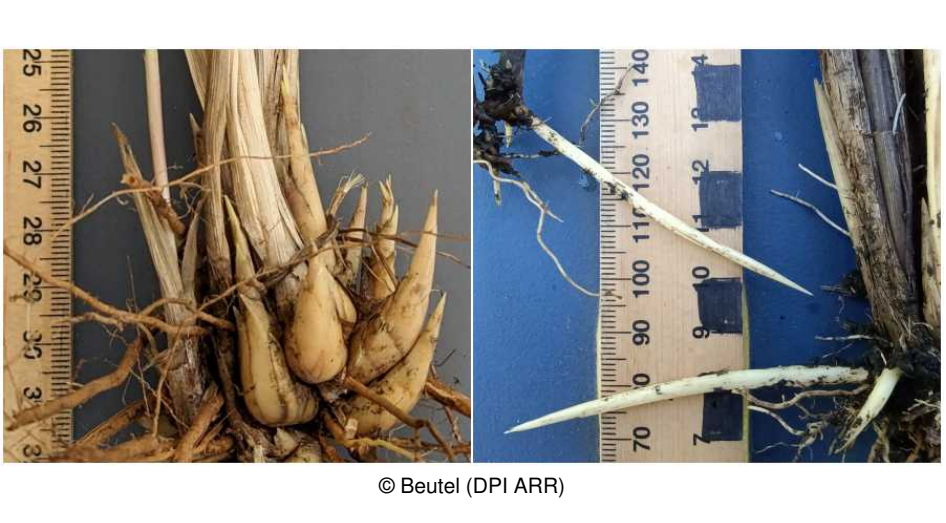
- Hard and pointed rhizomes (underground runners) are often present on uprooted tussocks.



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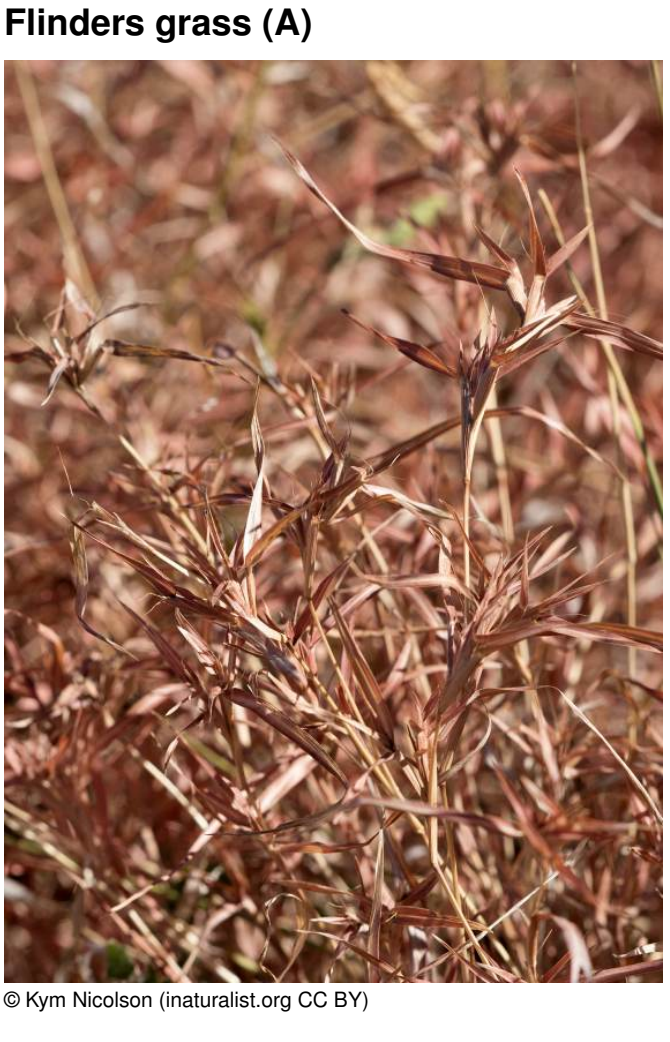
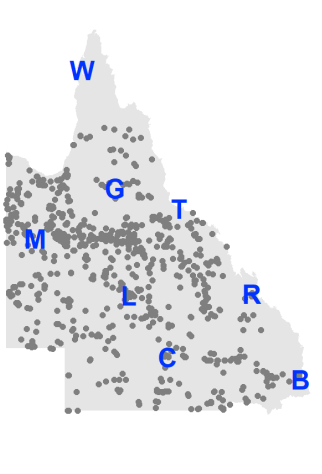
Iseilema

Flinders grass (A)





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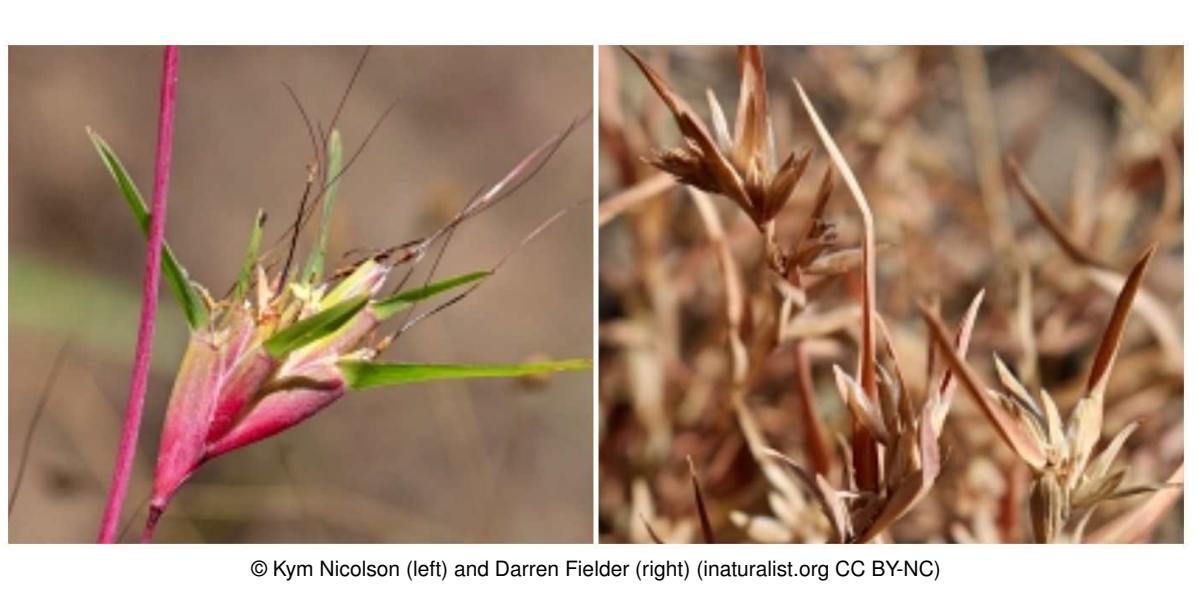
Ten species in Queensland, all annual natives. Short (typically < 50cm) fragile tussocks. Seed heads typically with a characteristic flattened, leafy appearance. Leaves flat or folded along midrib, mostly 2-25cm x 3-6mm, can take a range of colours depending on species and maturity. Most species strongly prefer cracking clays and associate closely with Mitchell grasses (*Astrebla* species).

Look for these features in the field.

- Seed head is a distinctive, flattened leafy cluster often with dark awns (bristles) extending from the cluster.



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- Loosely rooted and fragile, disintegrating quickly after seed fall.
- Uncommon away from cracking clays, often associated with Mitchell grass.

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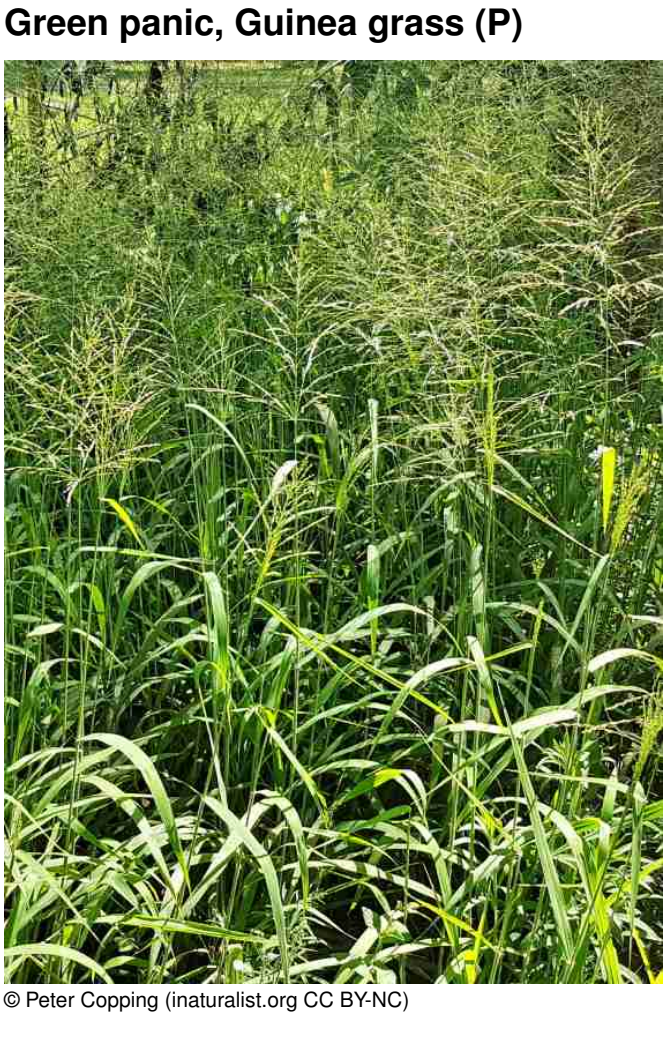
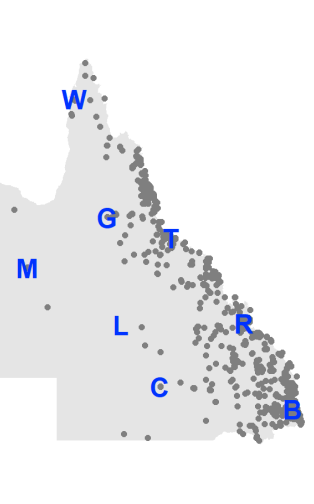
Megathyrsus maximus

Green panic, Guinea grass (P)





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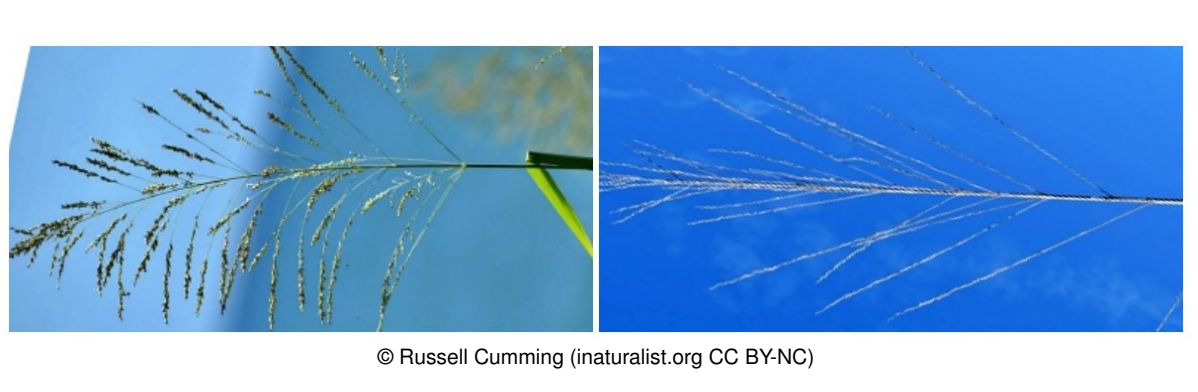
Introduced perennial. Variable, but generally large, very robust and mostly erect tussocks (75-300cm). Leaves (12- 40cm x 10-35mm) yellow-green with pronounced mid vein and very high leaf to stem ratio. Seed head is a large densely seeded panicle (12-60cm). Prefers wide range of habitats in higher rainfall areas, shade tolerant, avoids very heavy cracking clays and sands.

Look for these features in the field.

- Large (1-3 m), robust, very leafy grass with conspicuous large panicle (seed head with branched branches) (left). The main branches remain for some time after seedfall (right).



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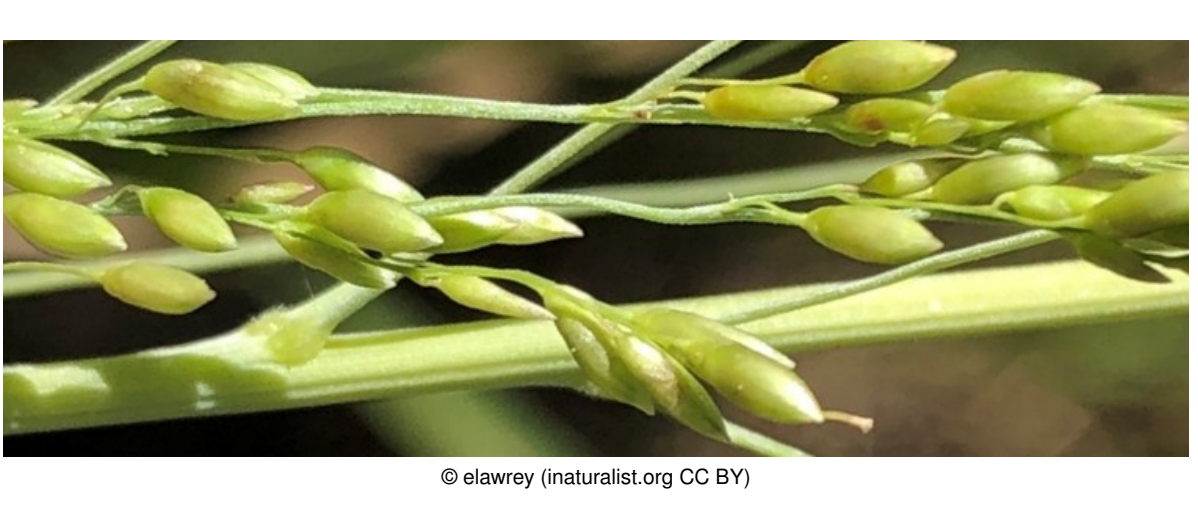
- Seeds are oval/egg shaped, green or purplish and with/without hairs.



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Similar Species

Two subspecies exist; Green panic (*M. maximus maximus*) and the larger Guinea grass (*M. maximus pubiglumis*). Green panic is shorter (mostly <1.5m vs mostly >1.8m) often has shorter leaves (15-40 cm vs 5-100cm) and slightly hairy seeds compared to Guinea grass.

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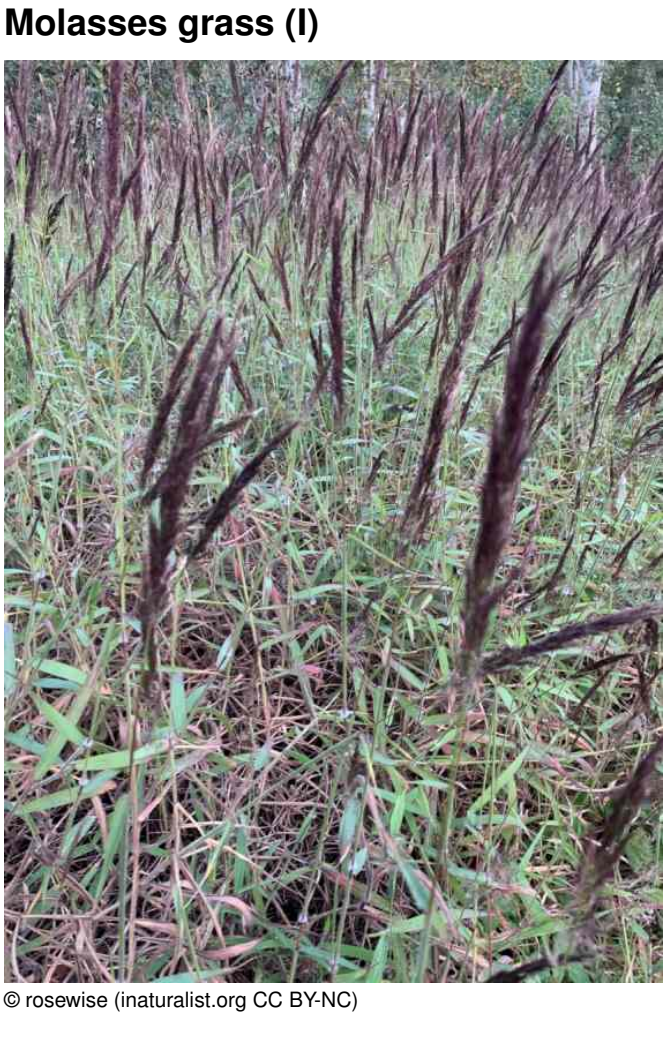
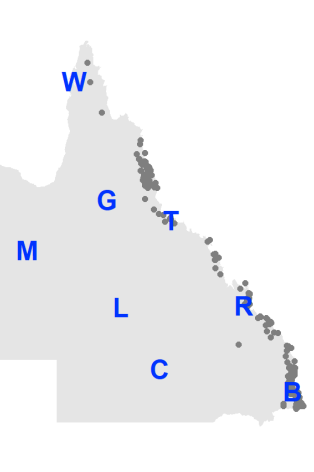
Melinis minutiflora

Molasses grass (I)





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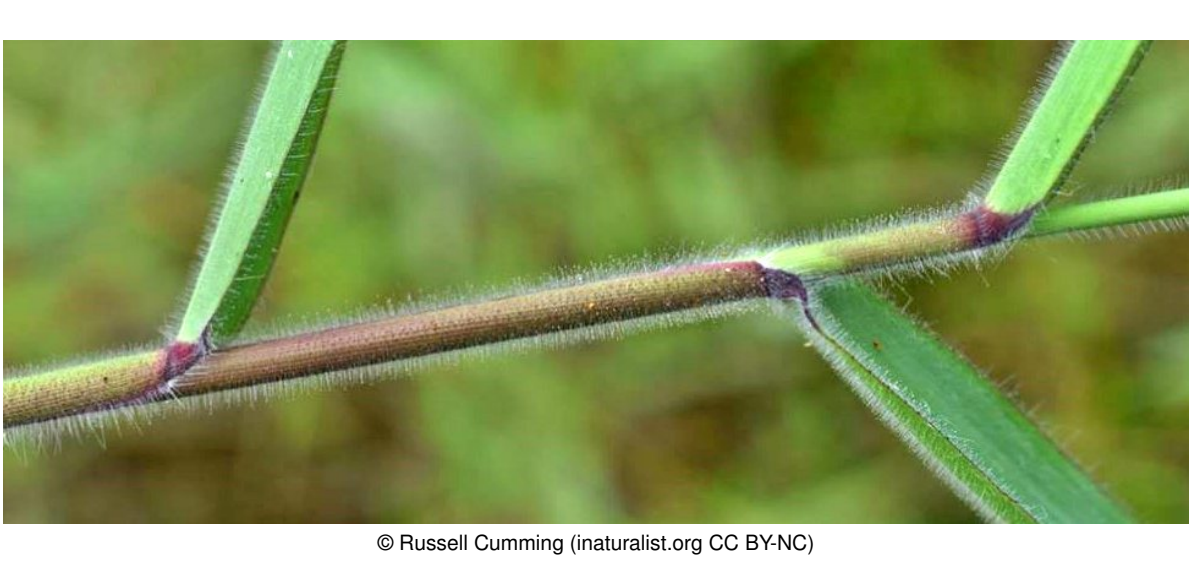
Introduced perennial. Plants (30-120cm tall) have hairy rooting runners up to 2m long. Leaves (5-20cm x 3-11mm) have a characteristic smell and feel (below). Seed head (6-30cm) initially a narrow pink / red / purple branched spike that transitions in both shape and colour as it matures (below). Tolerant of a wide range of soils, slopes and disturbance, but largely limited in Queensland to within 100 km of the east coast.

Look for these features in the field.

- Leaves are covered in soft sticky hairs and have a molasses or cumin fragrance.



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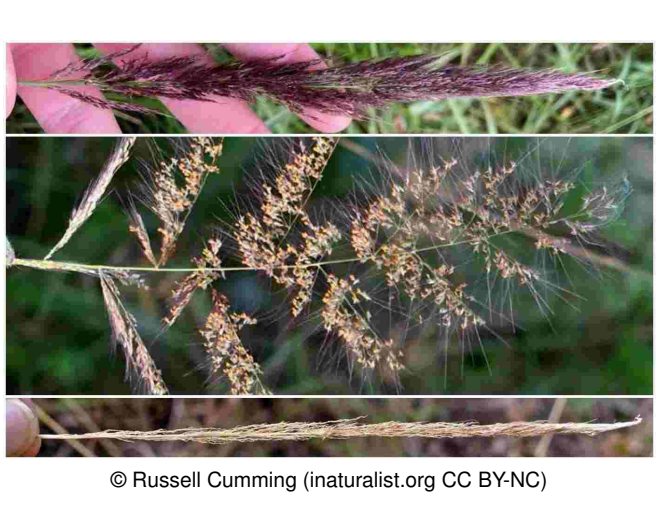
- Seed head is red/purple/pink initially in a narrow branched spike (top). The branches spread around seed fall (middle) then retract toward the main stem again as the seed head loses its vivid colouring (bottom).



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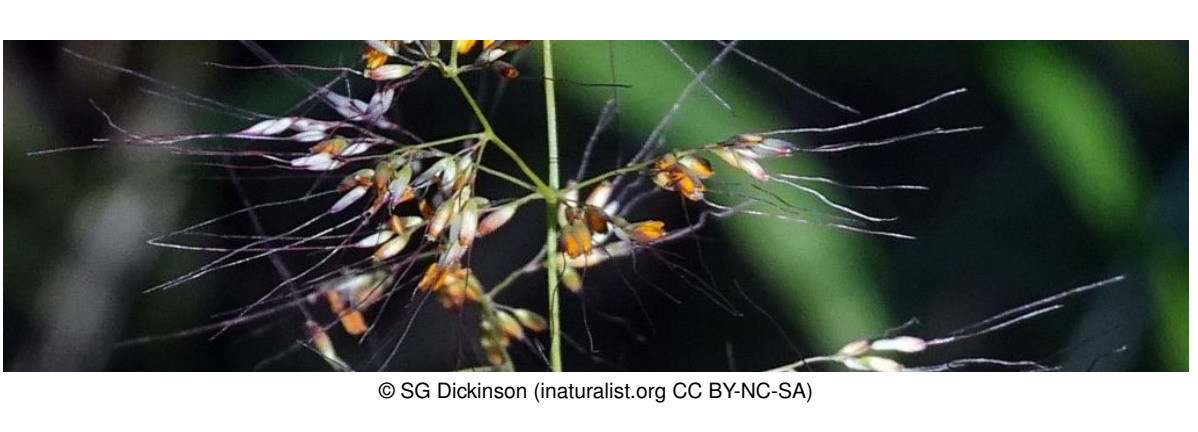
- Seeds have characteristic reddish awns up to 15mm long.



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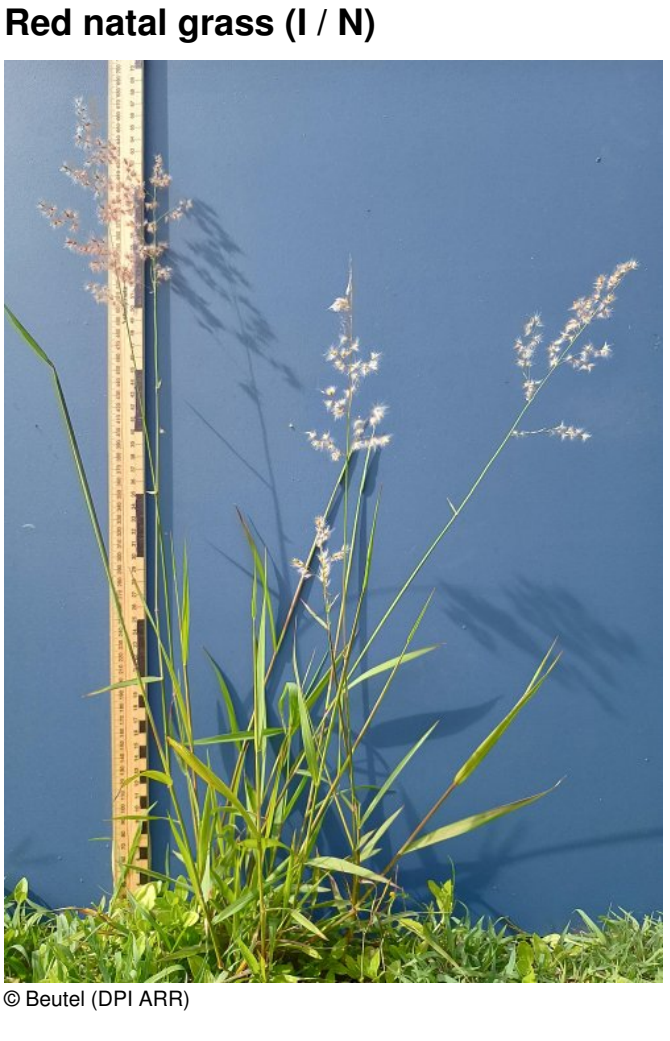
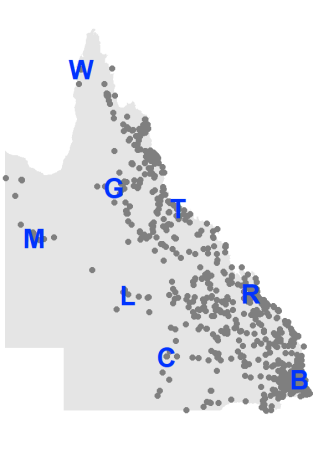
Melinis repens

Red natal grass (I / N)



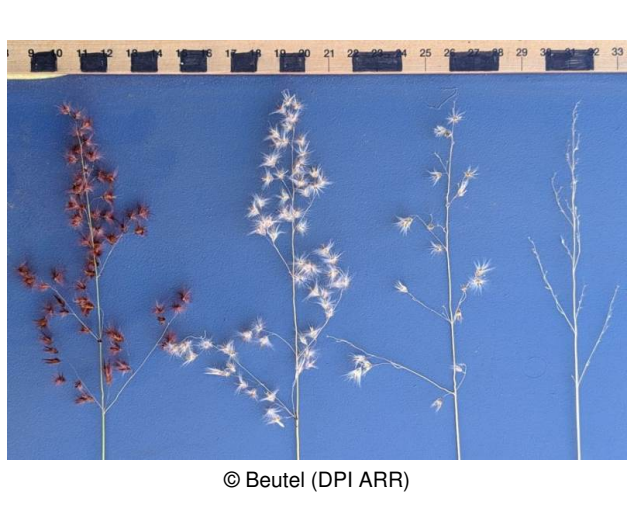


© Beutel (DPI ARR)

Annual or weakly perennial introduced species. Fairly erect tussocks (50-150cm). Leaves (3-30cm x 2-10mm) at both plant base and along stem. Seed head is a distinctive 10-25 x 3-5cm fluffy, red to white panicle. Prefers disturbed areas and lighter soils, less common in arid areas. Intermediate / non-preferred rating depends on land type.

Look for these features in the field.

- The seed head has numerous fluffy red seeds in a cloud like panicle. The hairs on the seed change to almost white before seedfall.



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- The branches of the seed head are highly resilient and maintained long after seedfall, making post seed fall identification easy (above right).

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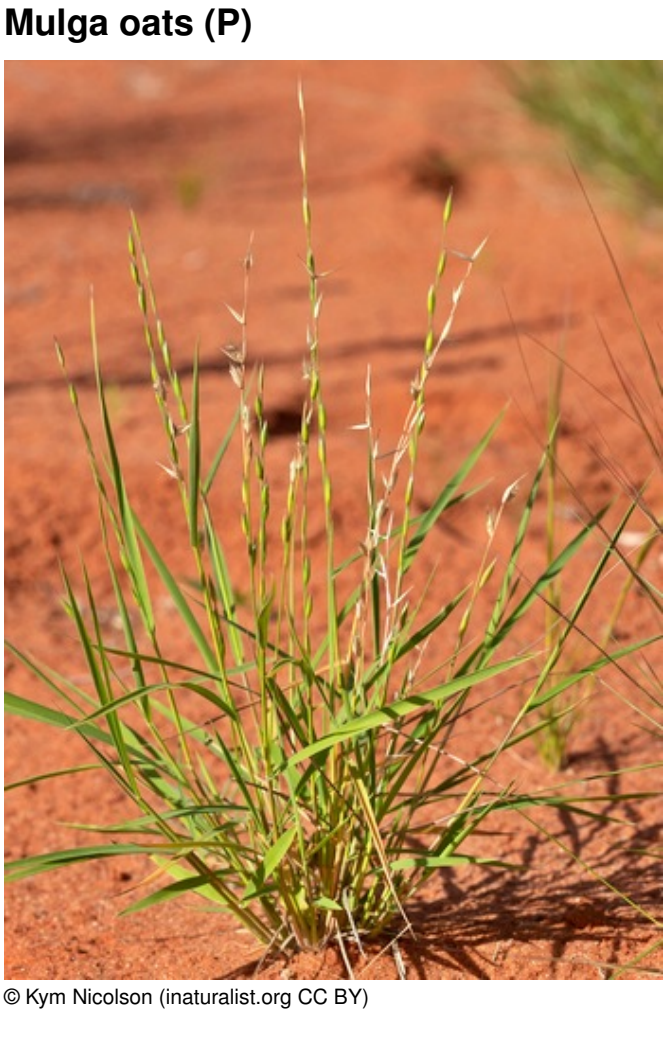
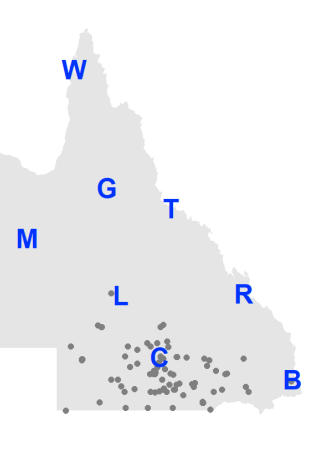
Monachather paradoxa

Mulga oats (P)





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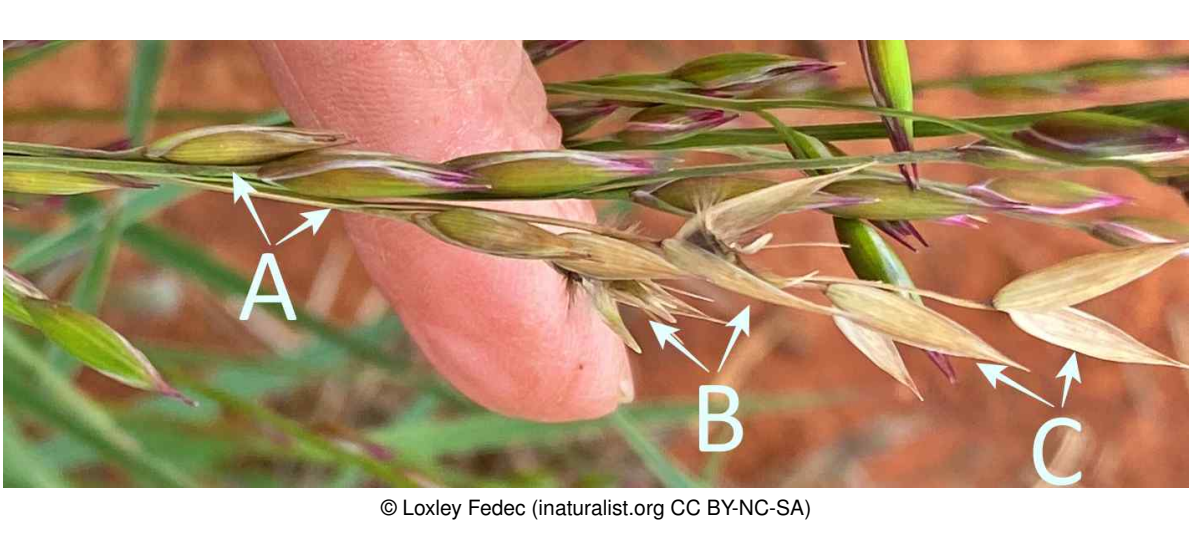
Native perennial. Fairly erect tussock (30-50cm). Large tussocks (up to 18cm diameter) die from inside out with swollen nodes on stems. Leaves (10-25cm x 5-9mm) deep green with some long surface hairs, and emerging mostly from plant base. Seed head is branched spike, with fairly distinctive oat-like seeds that open to leave two pointed white papery husks (below). Prefers red earths and sands, frequently associated with mulga.

Look for these features in the field.

- Seed husks (8-12mm) initially green and pointed like oats (A). These open to release the hairy seed (B) and mature into pairs of white papery husks after seed fall (C).



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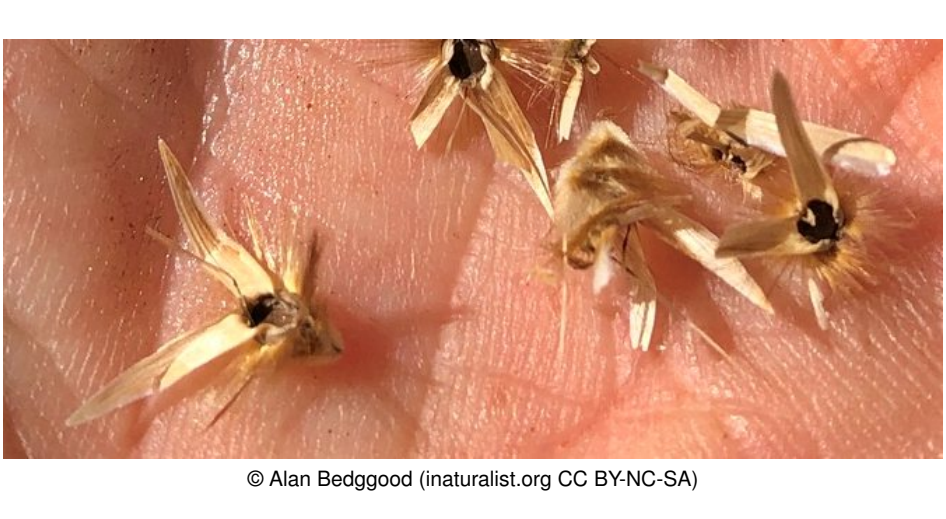
- Leaves are deep green and soft with a moderate covering of long white hairs on the leaf surface and emerge mostly from plant base.

- Seeds distinctively fluffy with a black centre, two papery wings and a bent, dark bristle.



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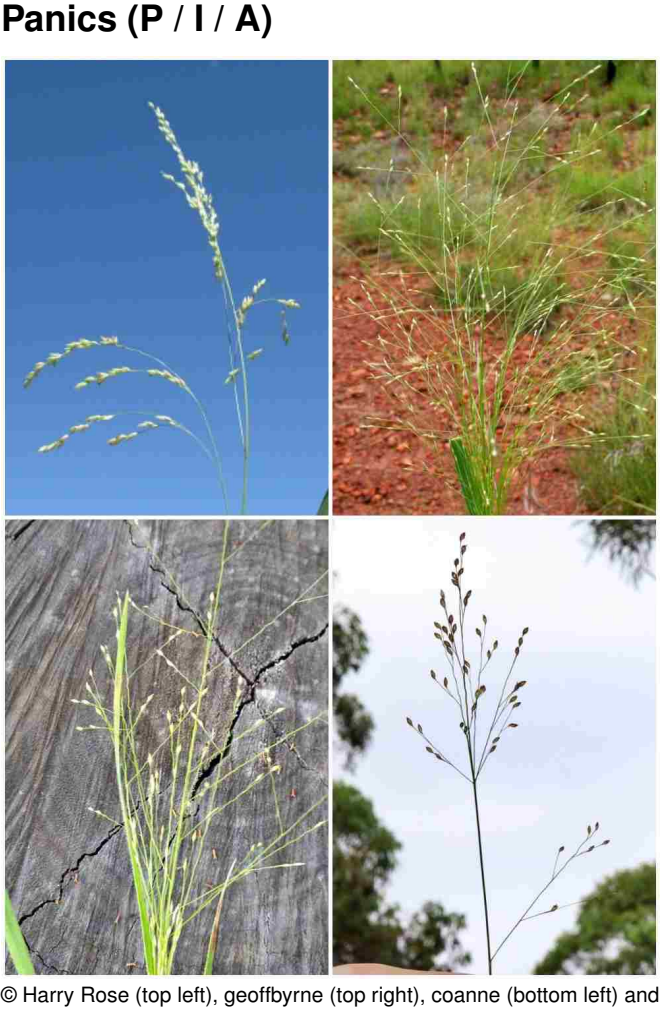
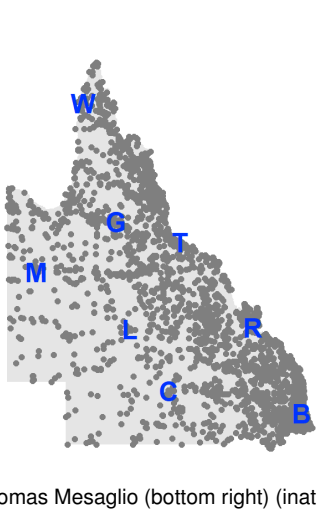
Panicum

Panics (P / I / A)





© Harry Rose (top left), geoffbyrne (top right), coanne (bottom left) and Thomas Mesaglio (bottom right) (inaturalist.org CC BY-NC)

29 mostly native and perennial species in Queensland. Predominantly tussock grasses, size variable but some quite large (10-300cm). Leaf size variable. Seed head is a distinctive panicle (see below). Panicum prefer a wide range of soils and habitats.

Look for these features in the field.

- Seed head in a panicle (a seed head with branched branches) with reasonably large, round or oblong seeds spread along these branches in varying densities (above).

Species in this guide:

- Native millet (*Panicum decompositum*)
- Hairy panic (*Panicum effusum*)
- Yabila grass (*Panicum queenslandicum*)

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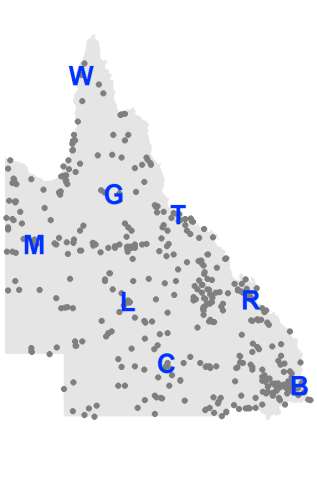
Panicum decompositum

Native millet (P)



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Native perennial. Coarse tussock (40-100cm) with thick, often hollow stems. Leaves (7-50cm x 3-12mm) light blue-green with distinct pale mid-vein when young. Seed head 20- 50cm long with primary branches up to 35cm. Prefers heavier clay soils.

Look for these features in the field.

- Large panicle, often with hollow stem.

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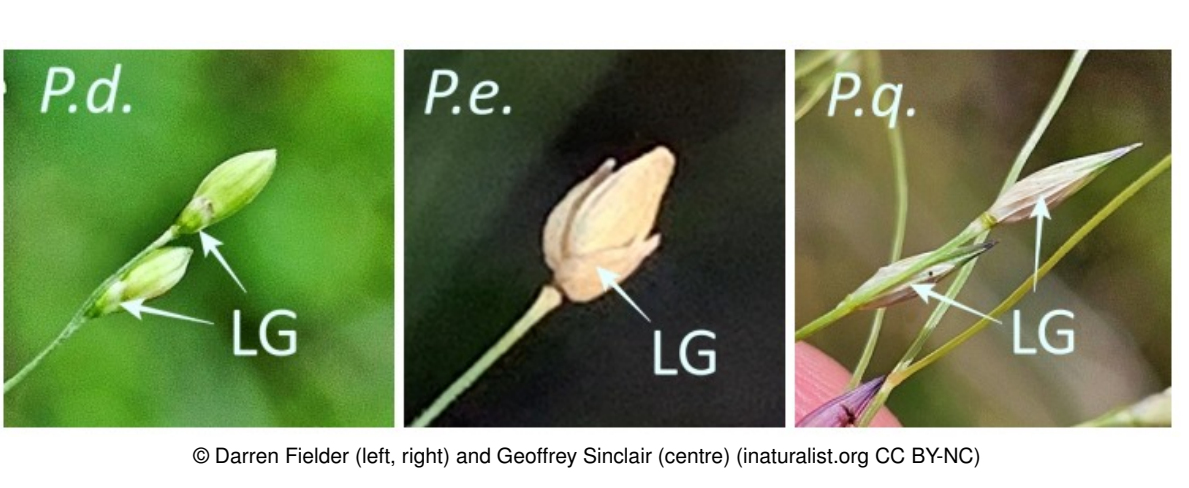
- Leaves bluish-green, sometimes with conspicuous pale mid vein
- The lower glume of the seed (lowest outer husk) is shorter that 1/3 of the length of the full floret (seed) (below left, also see similar species).



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Similar Species

P. decompositum (Native millet), *P. effusum* (Hairy panic) and *P. queenslandicum* (Yabilla grass) are all similar. Hairy panic is an intermediate value species while the other two are preferred. Hairy panic has a conspicuously hairy base stems and leaves (absent in the other two) so is easy to distinguish. The lower husk (glume) of Native millet is <1/3 the length of the seed (above left) and greater than 1/3 in the other two species (above (centre and left)). Yabilla grass also has more pointed seeds than Native millet (above).

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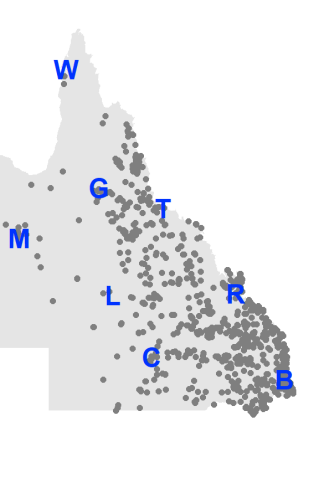
Panicum effusum

Hairy panic (I)

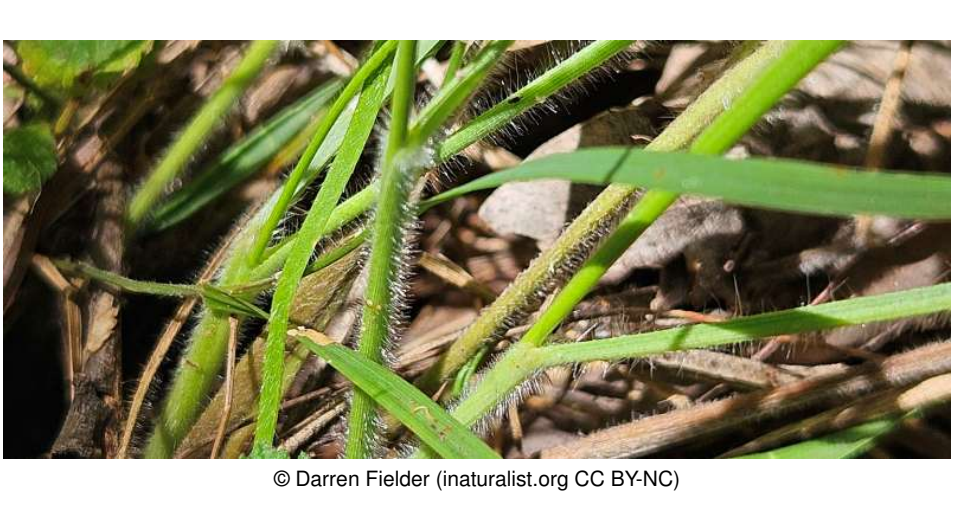


© Juliet (inaturalist.org CC BY-NC)

Native perennial. Tussocks mostly < 60 cm with hairy nodes. Dull green leaves (5-25cm x 2-6mm) and leaf sheaths around stem are noticeably hairy to touch. Seed head panicle large (5-25cm x 2-6mm) but often without an obvious stem rising above foliage. Prefers a range of habitats.

Look for these features in the field.

- Tussock base, lower leaves and nodes of stem are conspicuously hairy to the touch.



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- Relatively large panicle with seeds concentrated at ends of seed head branches.

Similar Species

See *P. decompositum* (Native millet).

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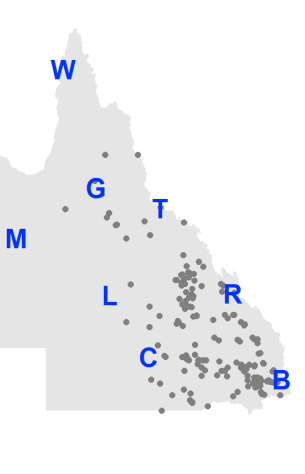
Panicum queenslandicum

Yabila grass (P)



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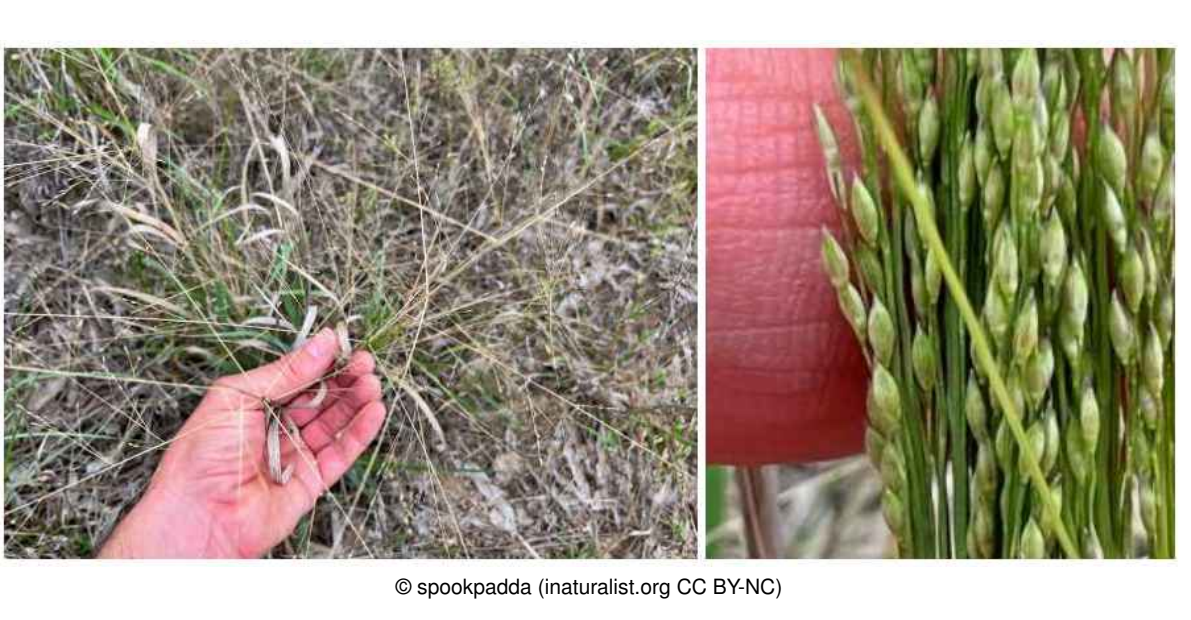
Native perennial. Tussock (40-80cm) with smooth hairless stems. Leaves (10-35cm x 1-4mm) blue-green with distinct pale mid-vein and rough undersides. Seed head 10-40cm long with relatively pointed seeds. Prefers heavier clay soils.

Look for these features in the field.

- Leaves rough on underside, often with conspicuous pale mid vein
- Large panicle with seeds that are quite pointed when young



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Similar Species

See *P. decompositum* (Native millet).

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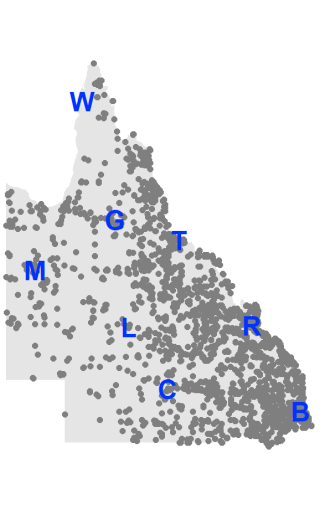
Paspalidium

Summer grass (I)



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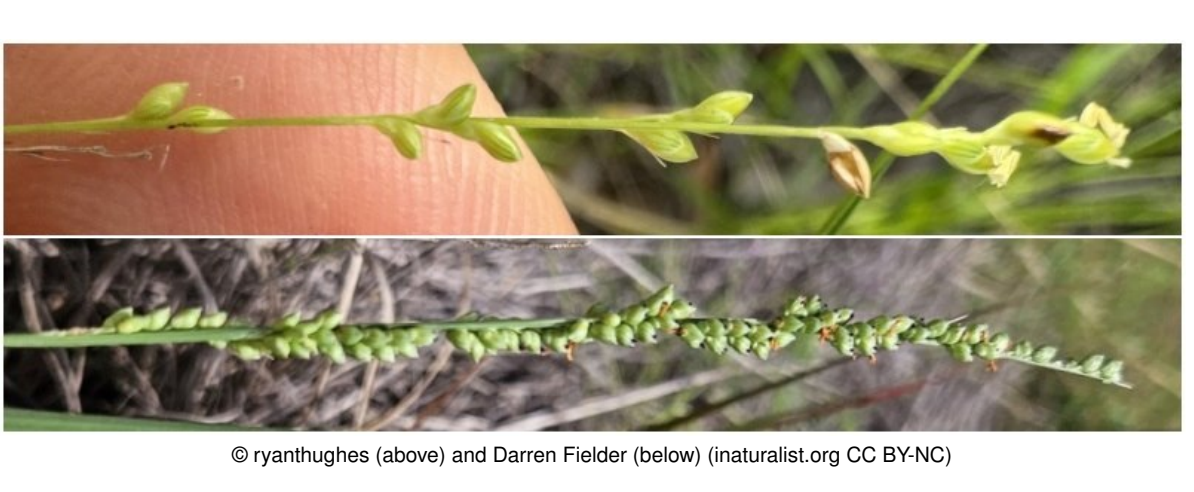
About 20 perennial and annual species, all native in Queensland. Tussock grasses (mostly 20-100cm) though some root at the lower nodes. The genus is distributed across the state and prefers a wide range of habitats.

Look for these features in the field.

- Seed heads have short seed bearing branches that lay along the seed head stem. The relatively round seeds are borne on only one side of each branch.



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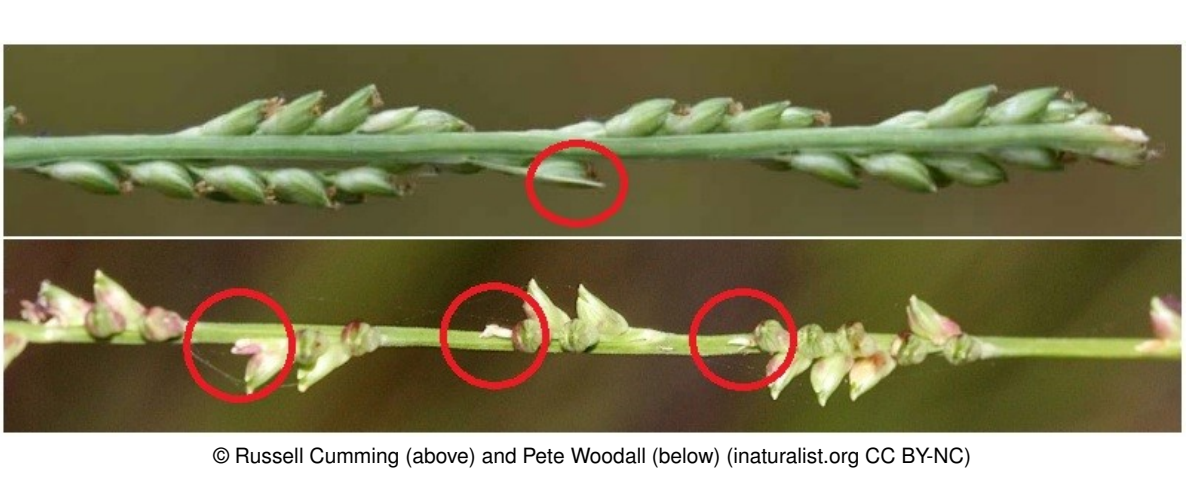
- Each branch also ends in bristle up to 4mm long (circled) though this can be hard to see without magnification.



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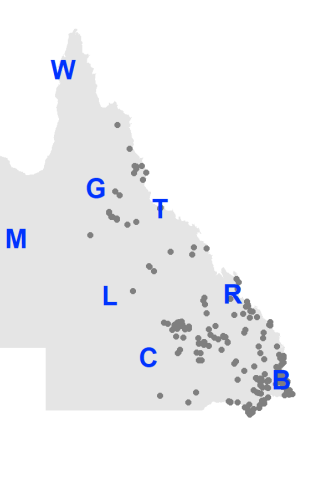
Paspalum dilatum

Paspalum (N)



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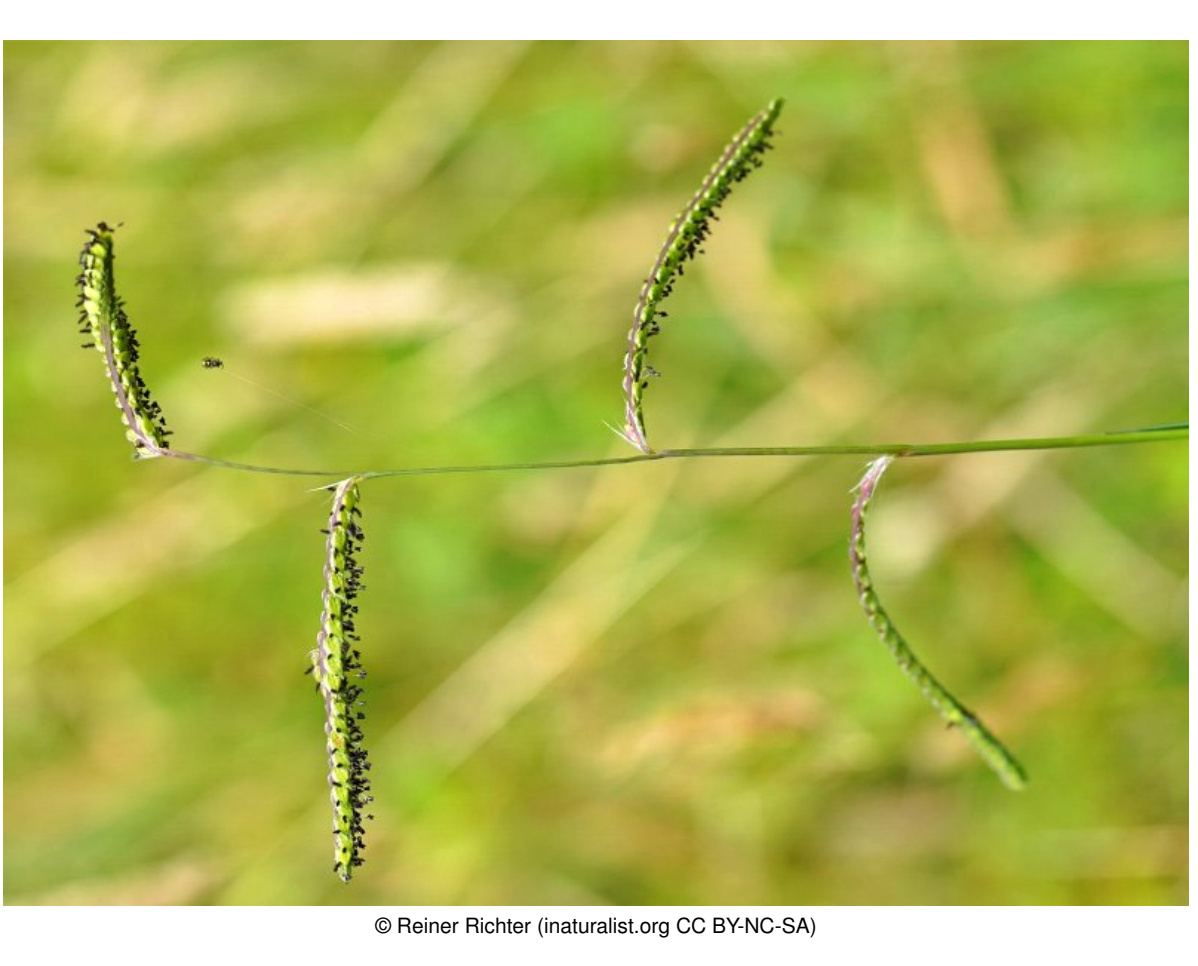
Introduced perennial. Creeping grass (to 180cm tall) spreading by underground runners . Leaves (6-45cm x 4-12mm) slightly folded at base. Seed head has 2-11 branches (3-11cm) arranged alternately along 2-20cm central axis and densely packed with 2-4 rows of flat round seeds with silky marginal hairs. Prefers damp areas with fertile clay and loam soils.

Look for these features in the field.

- Seed head with up to 11 slightly drooping branches placed mostly alternatively along the upper stalk.



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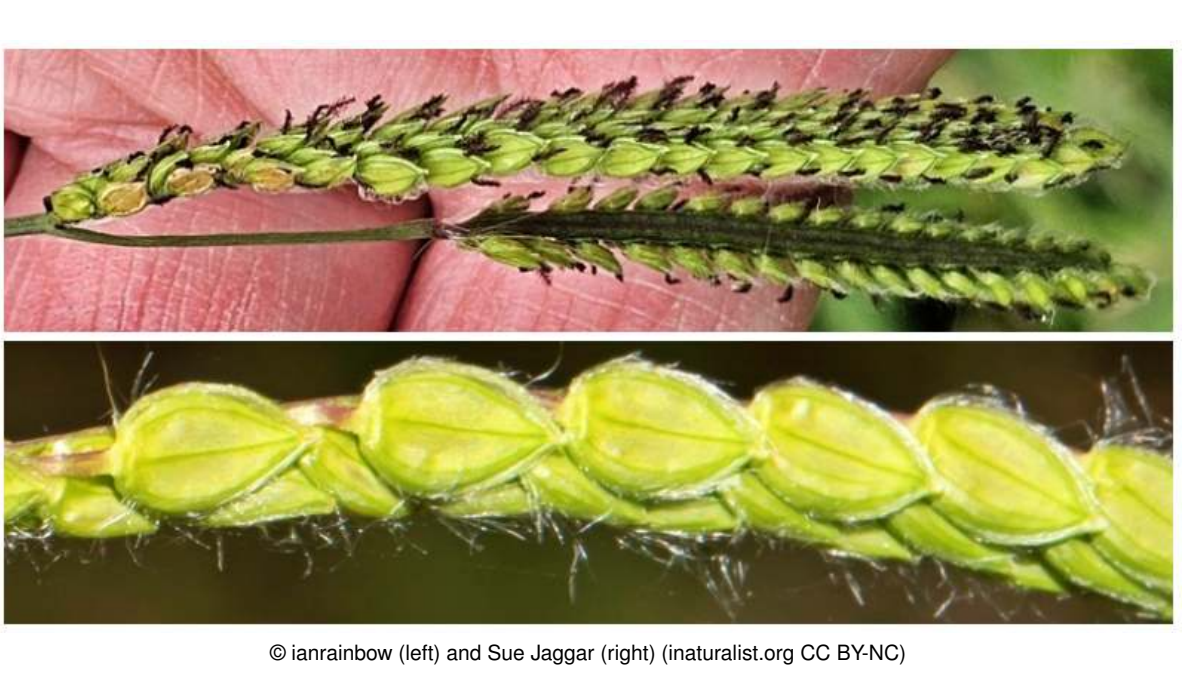
- Flattened seeds with silky marginal hairs packed along one side of seed head branches in two or four rows.



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Similar Species

Bahia grass (*P. notatum*) and Water couch (*P. notatum*) seed heads have only two branches in a V formation. Vasey grass (*P. urvillei*) is generally larger (1-2.5 m) and has more seed head branches (10-20).

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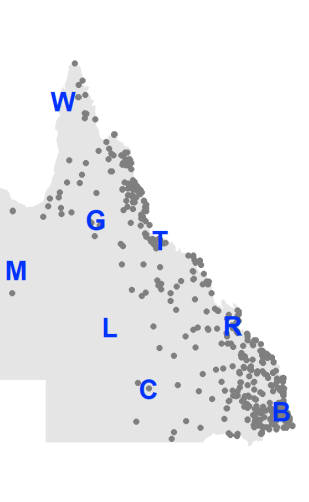
Paspalum distichum

Water couch (N)



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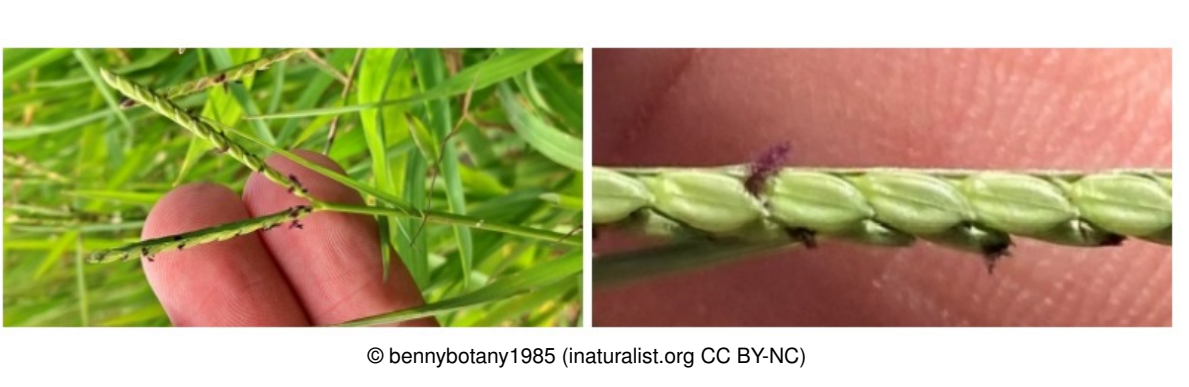
Native perennial. Creeping grass (8-60cm) with runners, erect or laid over. Leaves (2-22cm x 2-7mm). Seed head has 2 branches (2-8cm) in a V-shaped arrangement each with two rows of dome shaped seeds. Prefers very damp areas and fresh water aquatic habitats.

Look for these features in the field.

- Seed head has 2 branches (2-8cm) in a V-shaped arrangement each with two rows of elliptic-shaped seeds



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- Very strongly associated with wet environments including streams and drainage channels

Similar Species

See Bahia grass (*P. notatum*).

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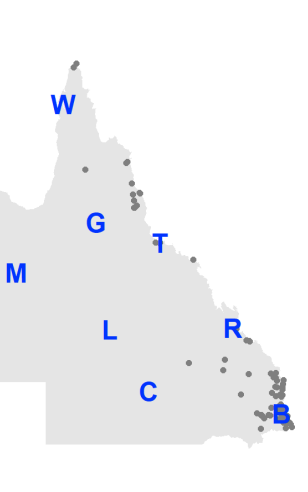
Paspalum notatum

Bahia grass (N)



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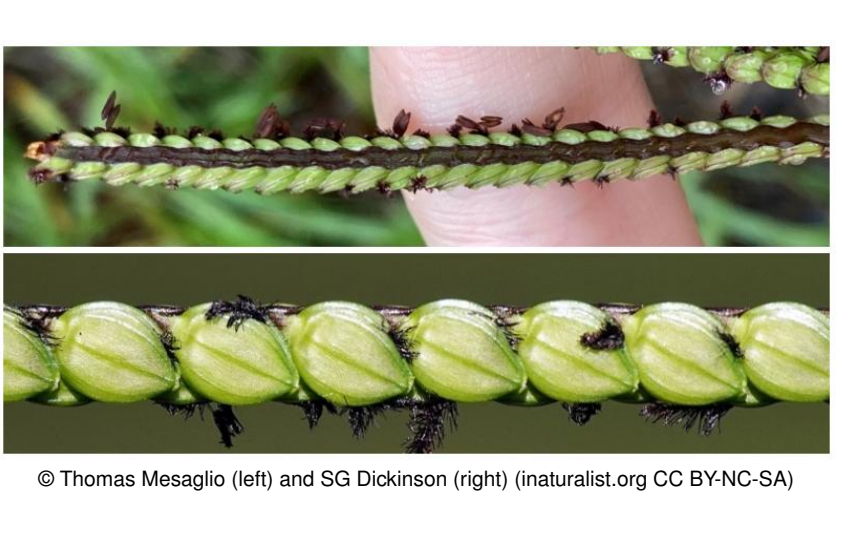
Introduced perennial. Creeping grass (15-75 cm), erect or laid over, spreading by underground runners. Leaves (2-30cm x 3-10mm). Seed head has 2 (rarely 3) branches (2-13cm) in a V-shaped arrangement each packed with two dense rows of sticky, hairless, dome shaped seeds. Most common in subtropics and disturbed areas.

Look for these features in the field.

- Seed head is almost always a V-shaped pair of branches held well above foliage (above).
- Each seed head branch has two rows of sticky, hairless, dome shaped seeds along one side of the branch.



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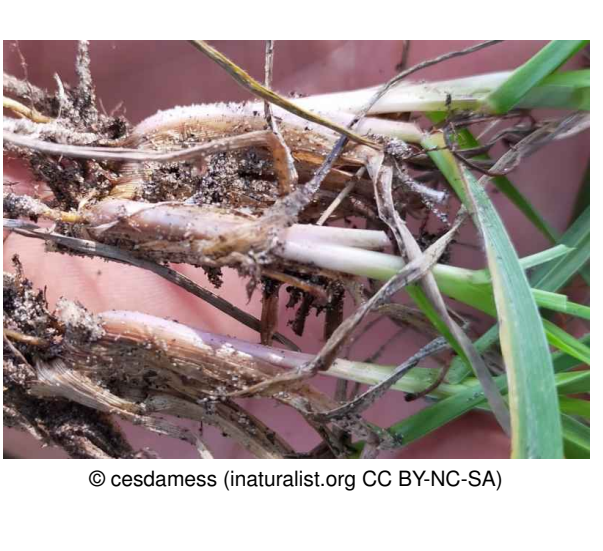
- The sheaths of lower leaves are white, but with a distinctive purple hue. Stem nodes can also be purple.



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Similar Species

Water couch (*P. distichum*) is almost always associated with freshwater or very damp areas and has more oval shaped seed compared to Bahia grass.

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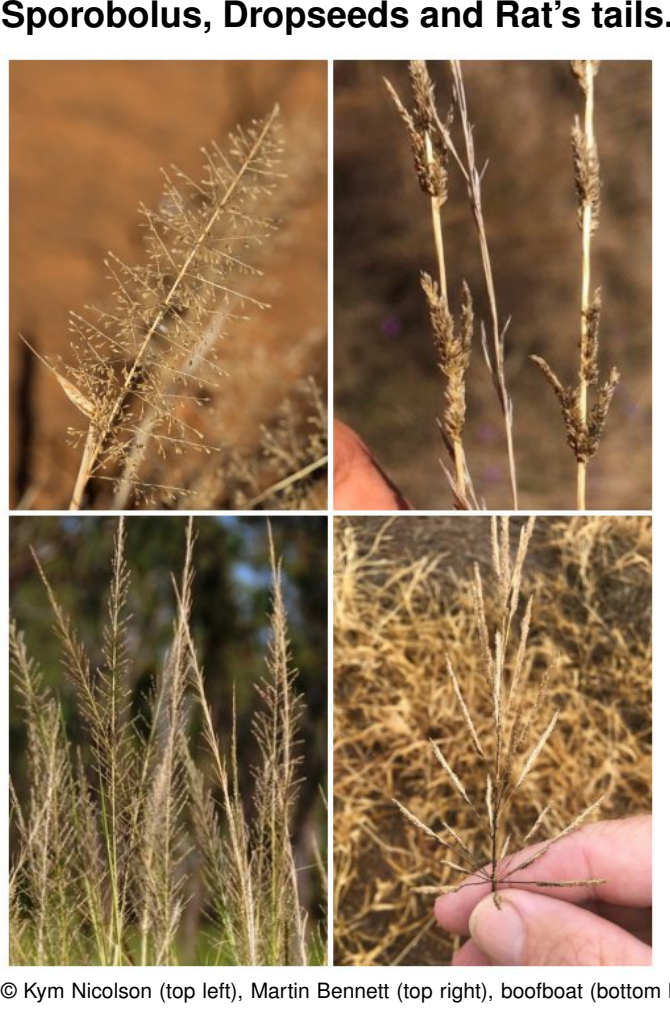
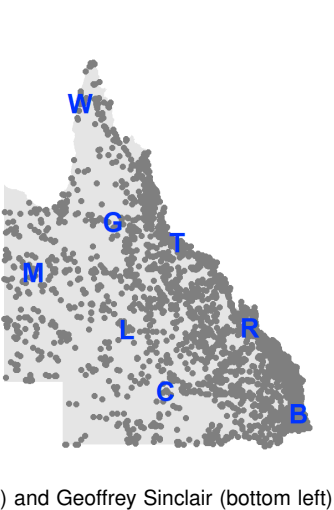
Sporobolus

Sporobolus, Dropseeds and Rat's tails. (I / N / A)





© Kym Nicolson (top left), Martin Bennett (top right), boofboat (bottom left) and Geoffrey Sinclair (bottom left). (inaturalist.org CC BY-NC)

A group of 23 mostly native, annual and perennial species in Queensland. Mostly tussock grasses (two species have runners), highly variable in height (10-200cm). Field identification within this group is difficult except for a small number of charismatic species. Seed head shape (below) is a useful starting point for identification. Species of this genus are found in a very wide range of habitats.

Look for these features in the field.

- Rat's tail grasses are the best known *Sporobolus* grasses and include four weedy species. Seed heads tend to be relatively long compared to their width (above top right and bottom left). All are defined as non preferred in LCAT and *S. pyramidalis*, *S. jacquemontii* and *S. creber* has more information of discriminating the weedy species.
- The other *Sporobolus* tend to have a relatively wide mature seed head (above top left and bottom right) with branches set away from the central axis. These species vary in their grazing value and include *S. actinocladus*, *S. caroli* and *S. australasicus*.

Similar Species

See *Thellungia advena* (Coolibah grass).

Species in this guide:

- Katoora, Ray grass (*Sporobolus actinocladus*)
- Australian dropseed (*Sporobolus australasicus*)
- Fairy grass (*Sporobolus caroli*)
- Western rat's tail grass (*Sporobolus creber*)
- American rat's tail grass (*Sporobolus jacquemontii*)
- Rat's tails. (*Sporobolus pyramidalis*)

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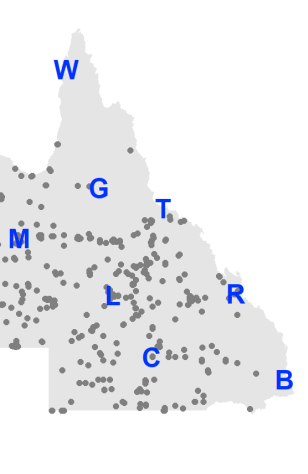
Sporobolus actinocladus

Katoora, Ray grass (I)



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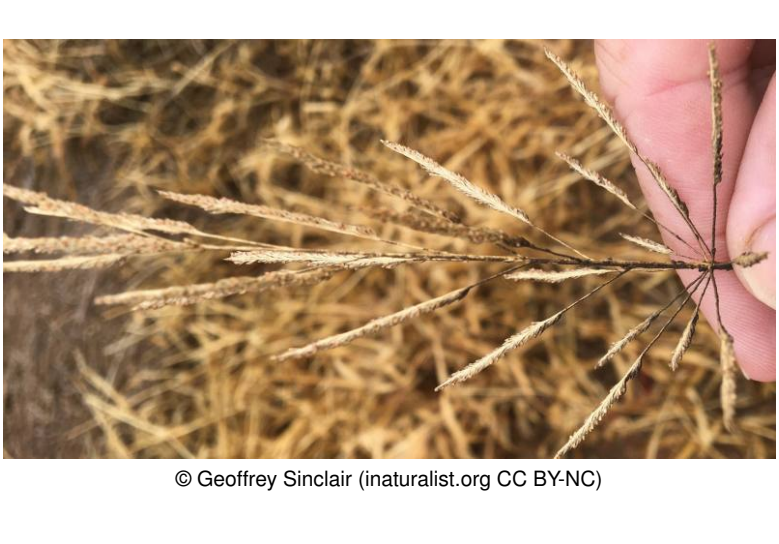
Native annual/perennial. Erect tussock grass (15-80cm). Leaves (2-20cm x 3-6mm) and rough. Seed head (5-18cm x 3-8cm) with a distinctive shape and form (below). Common on claypans, scalds, roadsides, and on clay soils where water ponds.

Look for these features in the field.

- Branches of the lower seed head are whorled (>2 emerging at same point on stem) and perpendicular to the stem. Shorter, higher branches on the seed head tend to lay closer to the stem.



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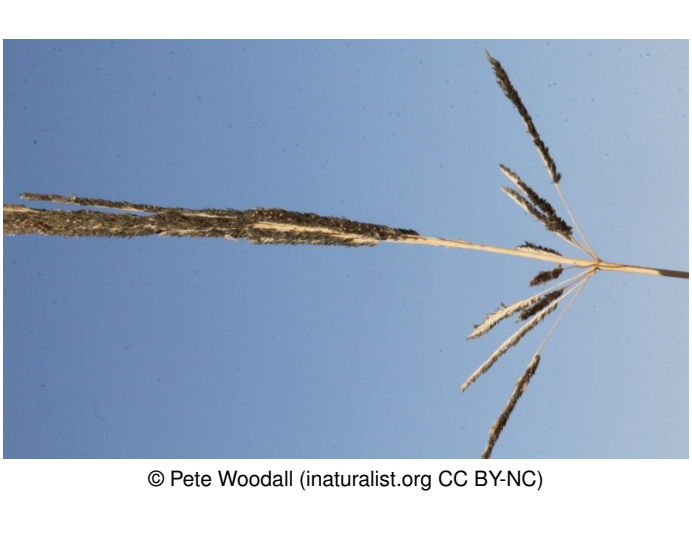
- In young seed heads, all branches lay close to the central stem then open from the bottom as the seed head matures.



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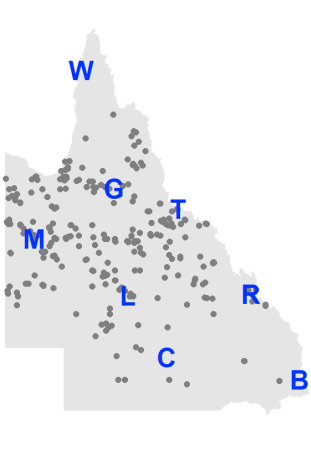
Sporobolus australasicus

Australian dropseed (A)



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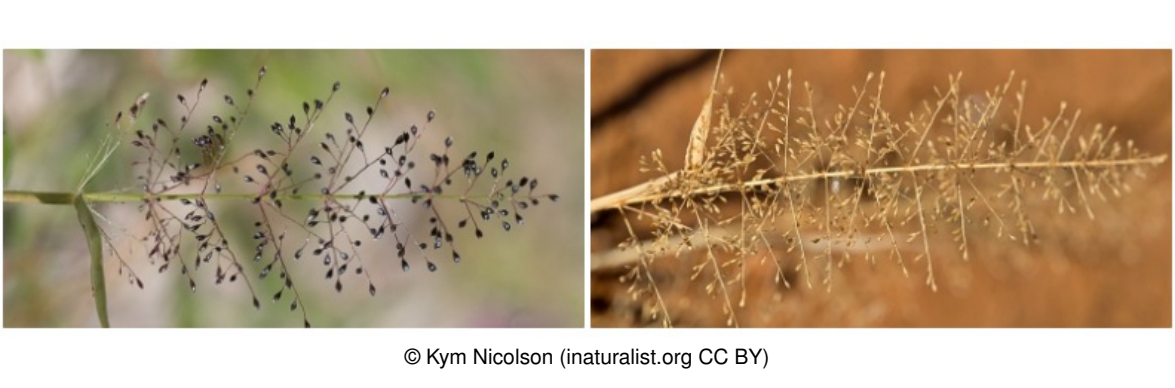
Native annual. Small, weakly rooted, sprawling tussocks to 30cm tall. Leaves tapered (2-20cm x 3-4mm), crinkled / papery when hayed off. Seed head purple (5-13cm x 4-6cm) with upcurved stems and branches arranged in characteristic whorls. Favours open, disturbed and overgrazed areas.

Look for these features in the field.

- Distinctive seed head is green-purple with numerous branches arranged in multiple whorls (multiple branches emerging at one point of the stem) (left). Maintains shape but turns hay colour with maturity (right).



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- Leaves mostly at base of plant, crinkly and papery when aged with stiff hairs along their edges.

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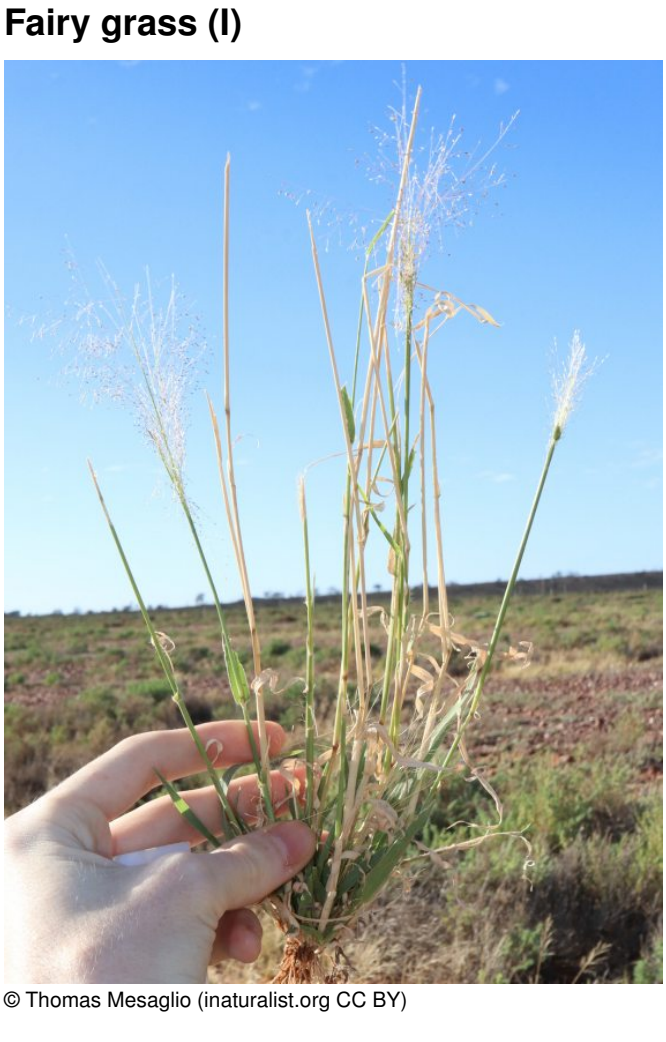
Sporobolus caroli

Fairy grass (I)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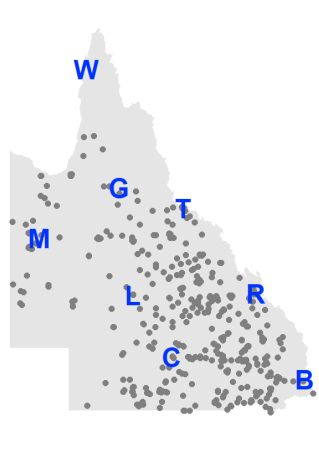
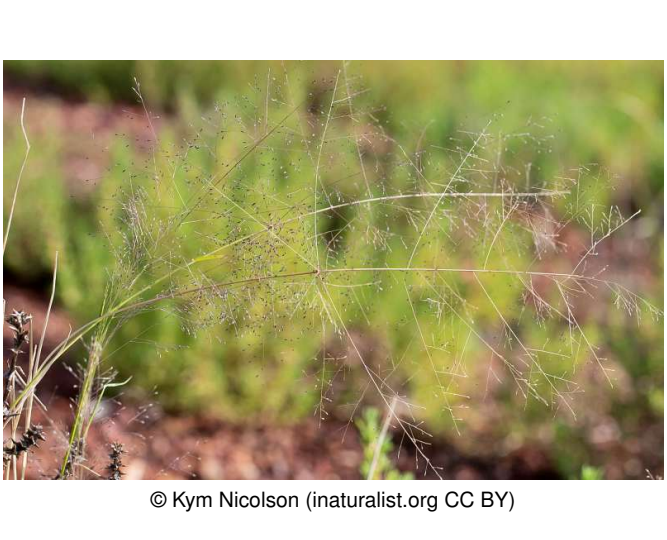


Native annual / perennial. Erect to spreading tussock grass (20-75cm). Leaves (3-20cm x 3-5mm) and rough. Seed head (8-15cm) with a distinctive shape and form (below). Good colonizer of disturbed and over grazed sites with better clay and loam soils.

Look for these features in the field.

- Seed head is a very fine, approximately pyramid shaped panicle, on relatively long stems, usually held well above the foliage, though may droop over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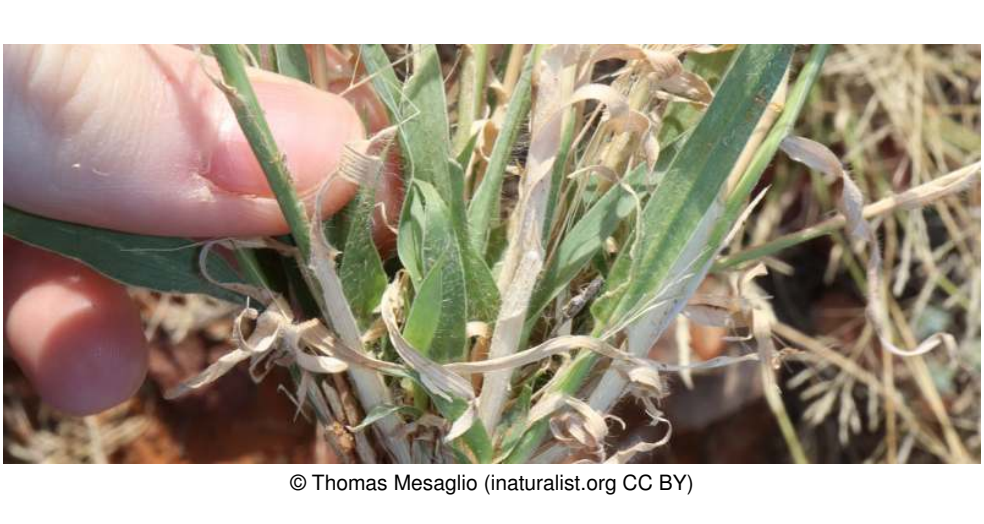
- Leaves with fine hairs.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Similar Species

Structurally similar to some more delicate *Eragrostis* species, but lacks the herring bone seed-packing of *Eragrostis*.

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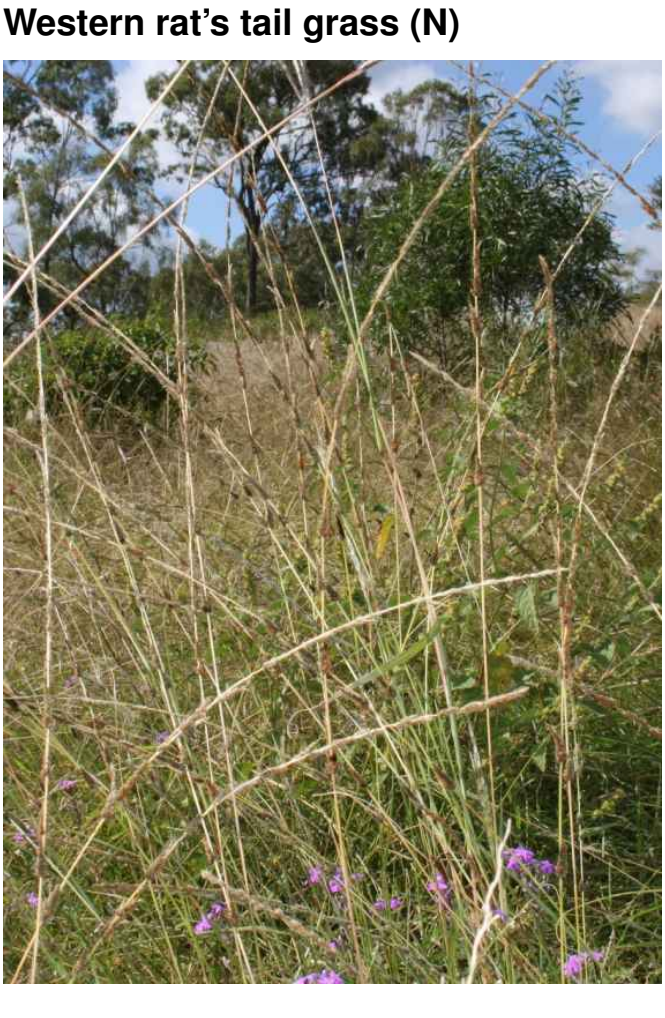
Sporobolus creber

Western rat's tail grass (N)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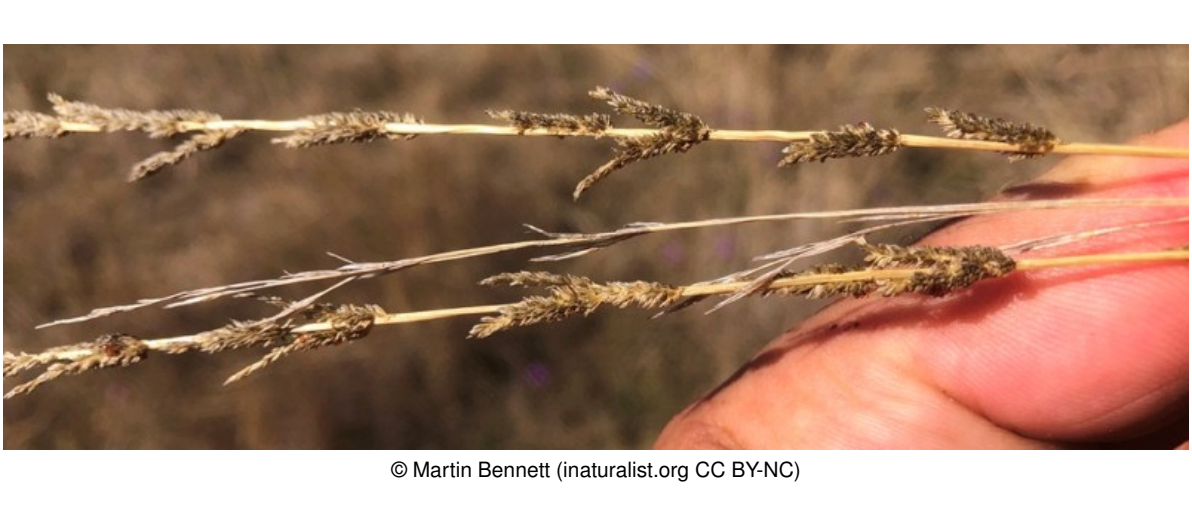
Native perennial. Erect tussock (15-140cm) with wide (10-50cm) base. Leaves 7-45cm x 2-3mm). Seed heads are a characteristic spike (below) 18-60cm long with 2-6cm cone-shaped branches spaced along and generally pressed against the stem. Grows in a range of woodlands and grasslands.

Look for these features in the field.

- Seed head branches are cone (not rod) shaped and lay against the stem, generally leaving significant areas of the stem visible. This arrangement rules out the possibility that the grass is a weedy *Sporobolus*.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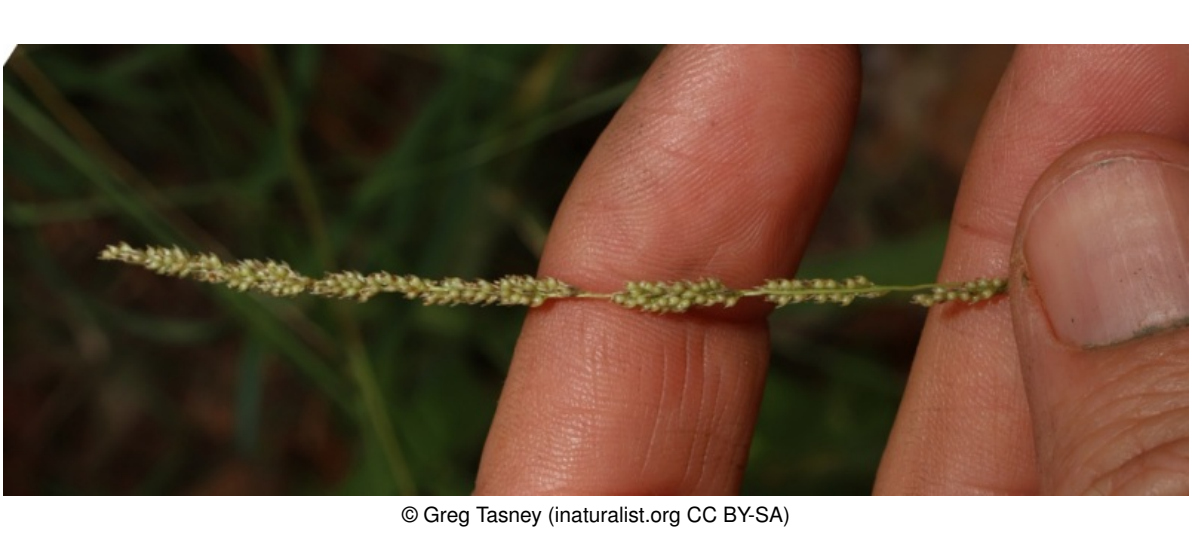
- In mature (but not necessarily young or senescent) seed heads the branches 2/3 of the way up the seed head are $<$1cm long and the seed head is $<$3mm wide.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Similar Species

Similar seed head to native *Sporobolus elongatus*. In *S. elongatus* the lowest seed head branches are longer than the average distance between the bases of neighbouring branches whereas in *S. creber* the branches are shorter than this distance.

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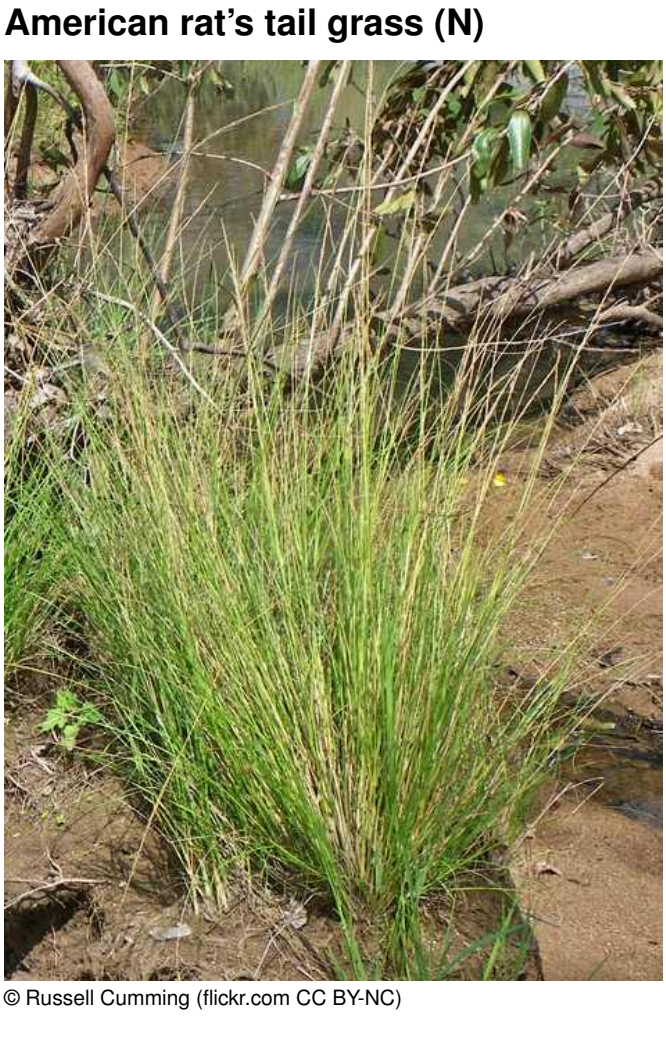
Sporobolus jacquemontii

American rat's tail grass (N)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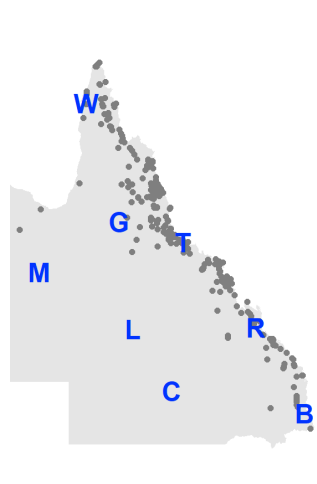
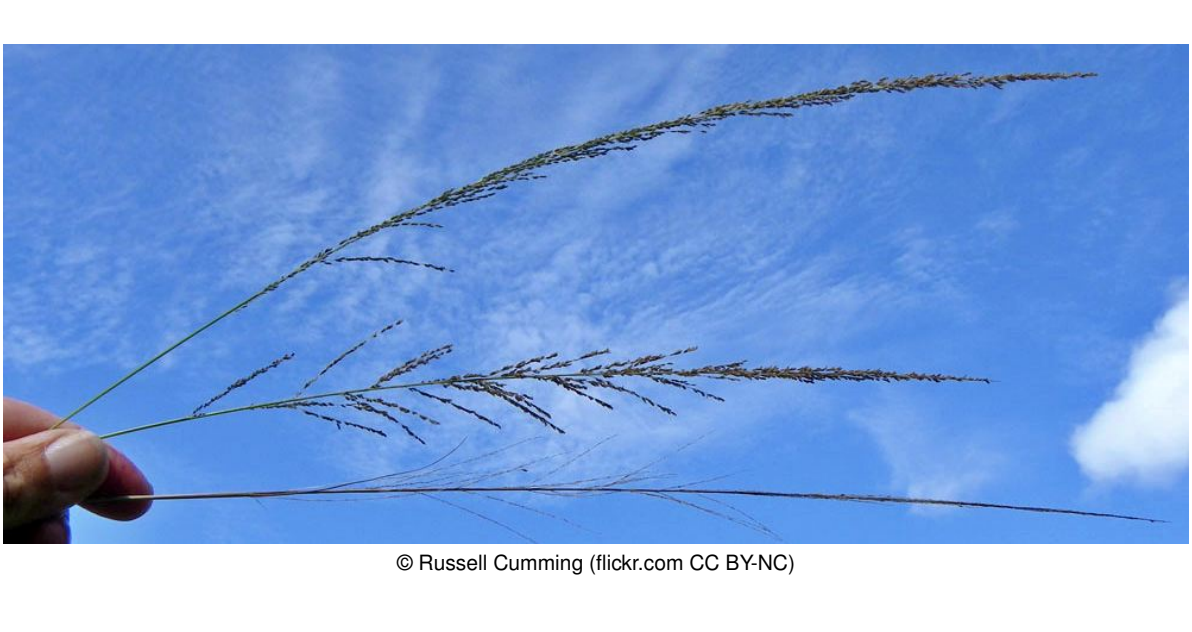


Smallest of four weedy rat's tail grasses listed as pests in LCAT. Introduced perennial. Moderate sized tussocks (50-75cm). Leaves (40cm x 2.5-3.5mm). Seed head (8-25cm x .5-3cm) with branches (5-10cm) in a reasonably tight rat's tail formation. Fairly common in coastal districts of Queensland across a range of habitats.

Look for these features in the field.

- Medium sized *Sporobolus* ($<$75cm) with fairly short (8-25cm) slightly spread rat's tail seed head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- Seed head branches wiry and 5-10cm long at base of seed head (above).

Similar Species

See *Thellungia advena* (Coolibah grass). Also similar to a number of other moderate sized rat's tail *Sporobolus*, but this is the only one listed as a pest in LCAT. Similar sized native *Sporobolus* mostly have softer leaves and stems and shorter, sparser seed head branches that leave sections of the branch exposed.

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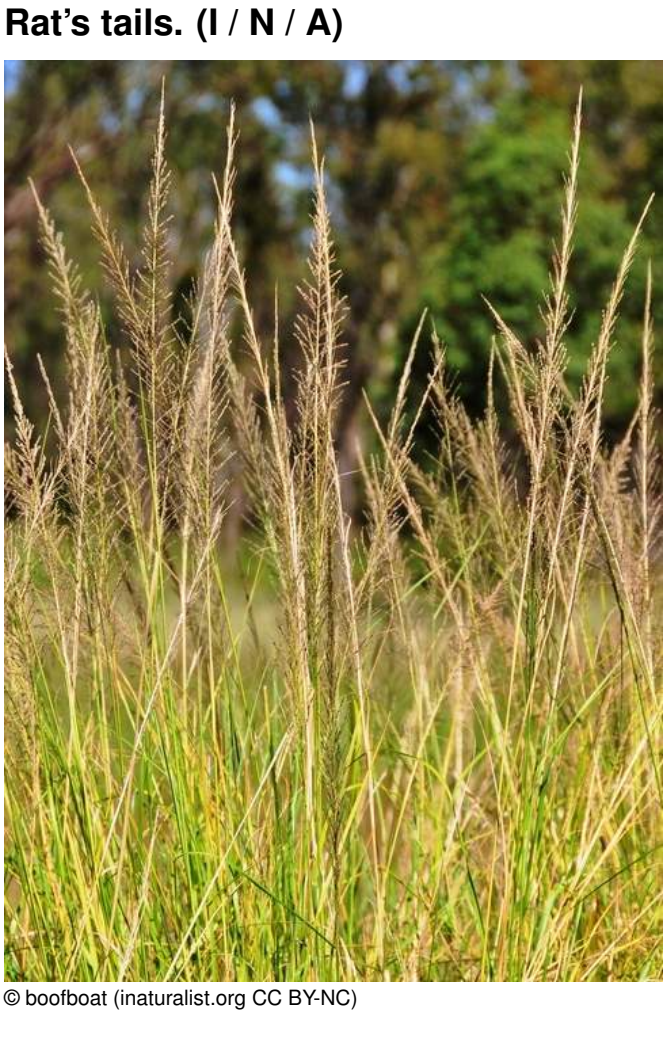
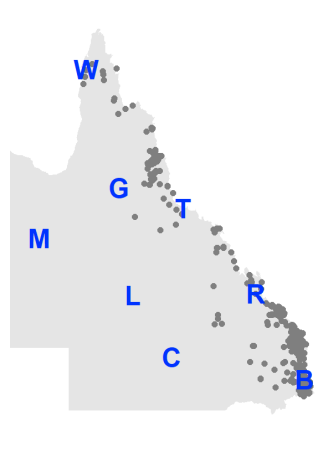
Sporobolus pyramidalis

Rat's tails. (I / N / A)

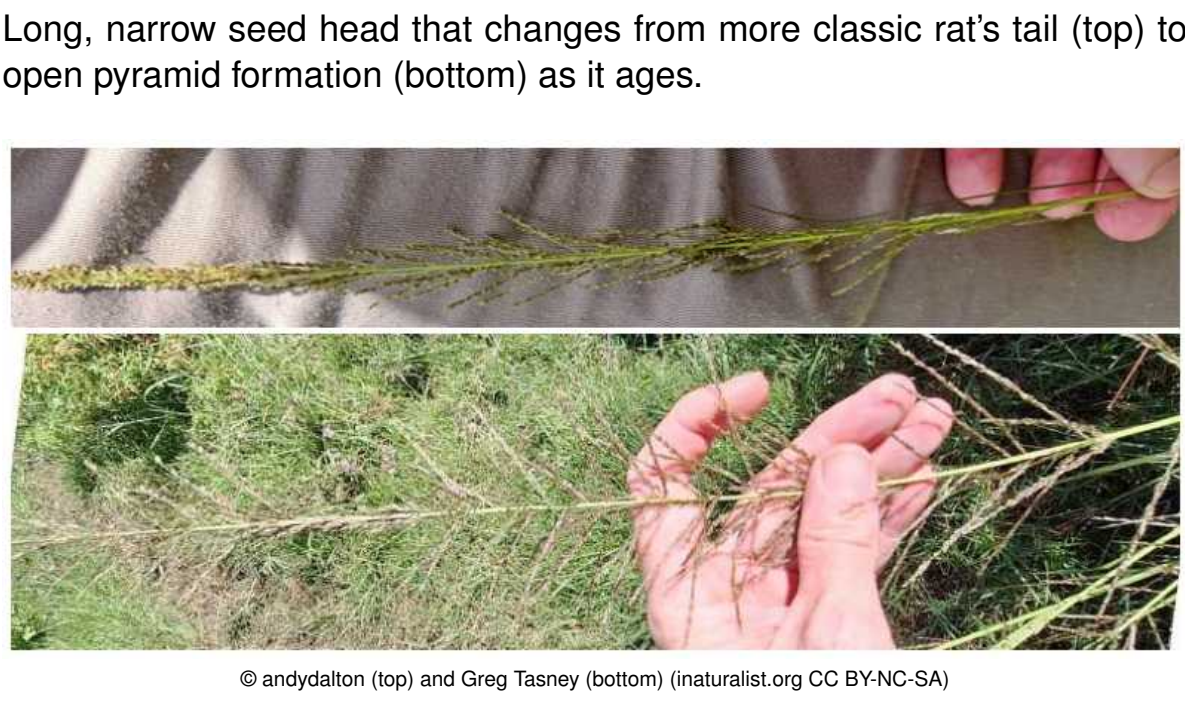

© boofboat (inaturalist.org CC BY-NC)



One of four rat's tail grasses listed as pests in LCAT. Introduced perennial. Large tough tussocks (90-170cm). Leaves (20-70cm x 3-10mm). Seed head (20-45cm x 3cm) with stiff branches (5-10cm) morphs from closed "rat's tail" to more open pyramid shape with age. Fairly common in coastal districts of Queensland across a range of habitats.

Look for these features in the field.

- Large, robust grass with very tough leaves and stems with leaves that arch in a fountain arrangement mostly from the base of the plant (above). Stems are very difficult to pull off compared to similar species.
- Long, narrow seed head that changes from more classic rat's tail (top) to open pyramid formation (bottom) as it ages.


© andydalton (top) and Greg Tasney (bottom) (inaturalist.org CC BY-NC-SA)

- Seed head branches wiry and 5-10cm long at base of seed head.

Similar Species

See *Thellungia advena* (Coolibah grass). There are two similarly large ($>$150cm) pest rat's tail species. *S. natalensis* (also called Giant Rat's tail grass) has shorter seed head branches (3-7 cm) and *S. fertilis* (Giant Parramatta grass) has shorter (2-4 cm) seed head branches that lie relatively flat along the central stem. The only other *Sporobolus* taller than 150cm is the native *S. laxus* and its seeds are more sparse and more clustered to the outer ends of the seed head branch (below top) than in the weedy species (below bottom).

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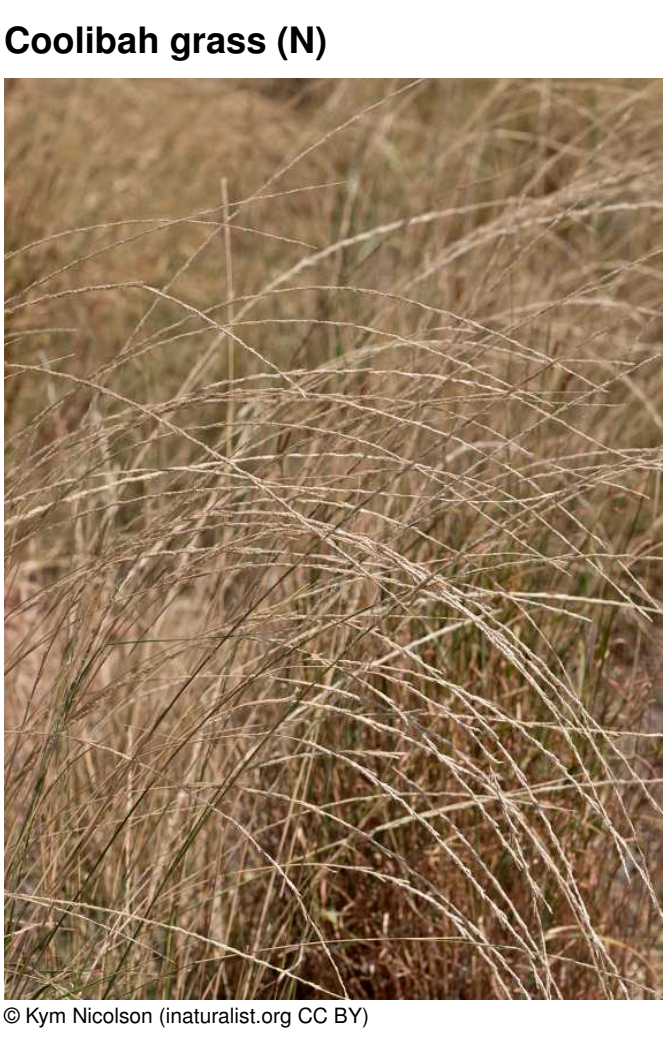
Thellungia advena

Coolibah grass (N)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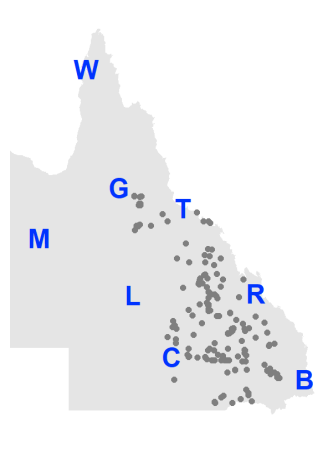
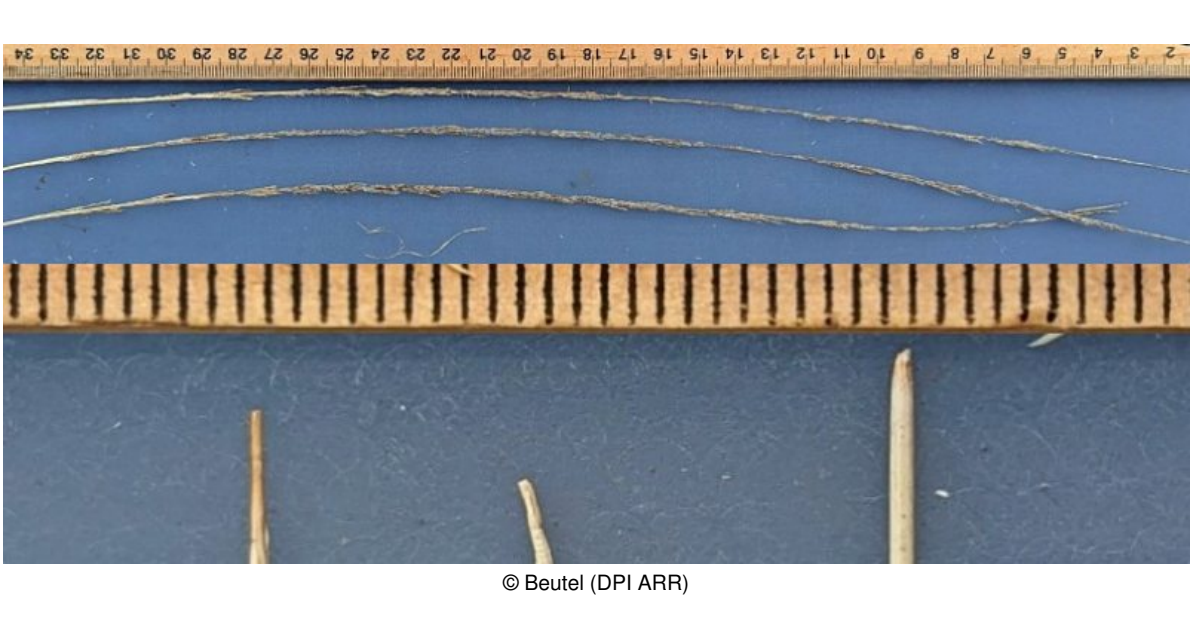


Perennial native. A tussock grass (60-150cm). Leaves (10-30cm x 2-5mm) slightly rough upper surface. Seed head (20-50cm long) is narrow and spike-like with short branches that lay close to the central stem. Strongly prefers heavy clay soils, particularly downs country swamps and disturbed alluvial flats.

Look for these features in the field.

- Long rat's tail type seed head (above).


© Beutel (DPI ARR)

- Many seed heads are easily removed by gently grasping the stalk just below the seed head and pulling upward. This is due to a narrow, weaker section in the seed head stem that is susceptible to breakage (above).
- The species is closely associated with heavier clay soils including Mitchell and Blue grass downs.

Similar Species

Similar to some of the rat's tail grasses and hard to differentiate without a microscope, but Coolibah grass's often weakly attached seed head (test a few) and restriction largely to clay soils can set it apart somewhat from the rat's tail grasses.

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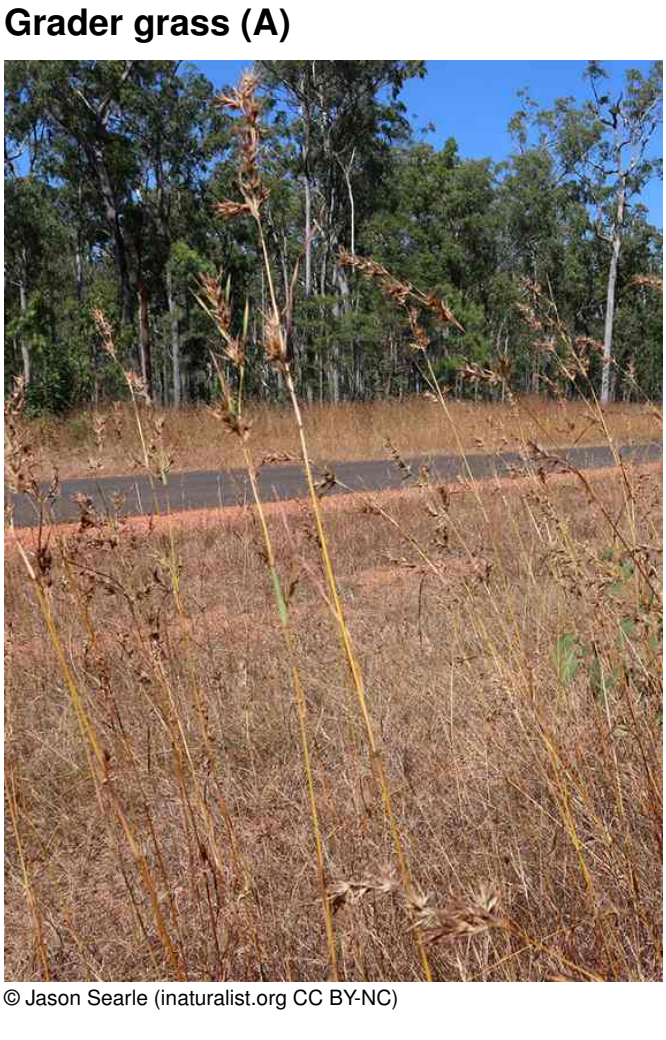
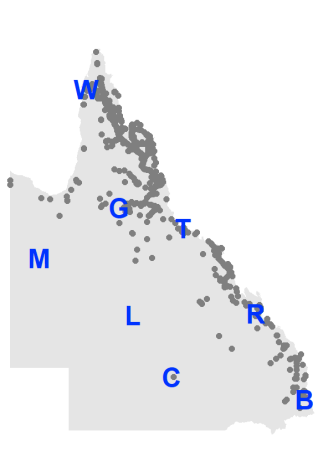
Themeda quadrivalvis

Grader grass (A)

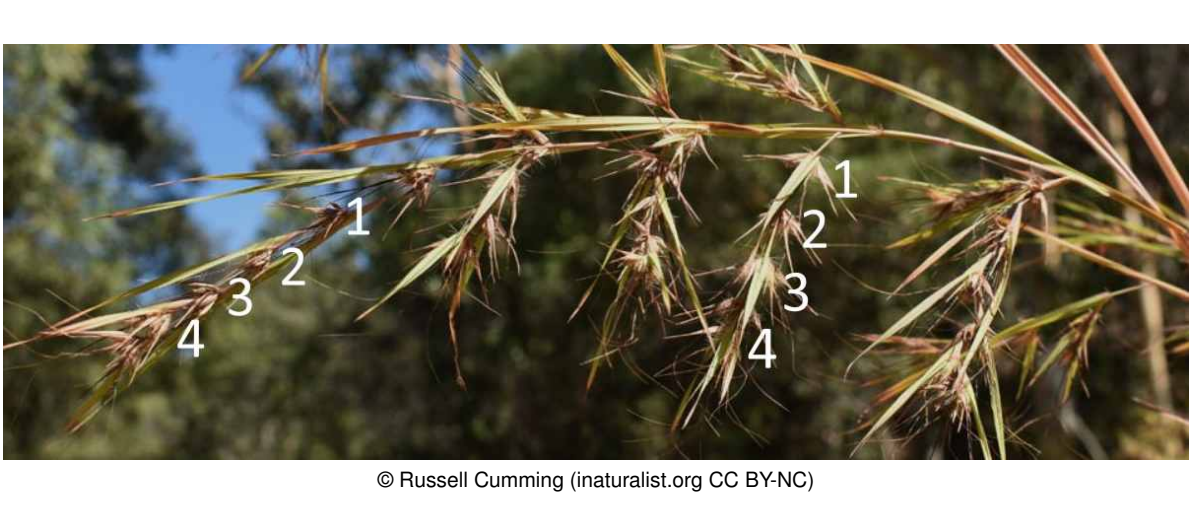

© Jason Searle (inaturalist.org CC BY-NC)



Introduced annual. Robust, mostly erect tussock (30-200cm). Leaves (7-60cm x 1-6mm) are folded along their midrib. Seed heads to 50cm long consist of multiple leafy clumps with characteristically hairy seeds (below). Prefers disturbed loamy soils.

Look for these features in the field.

- Seed head is a long often drooping collection of leafy seed clusters (above). Four or more of these clusters can stack along a single branch of the seed head.



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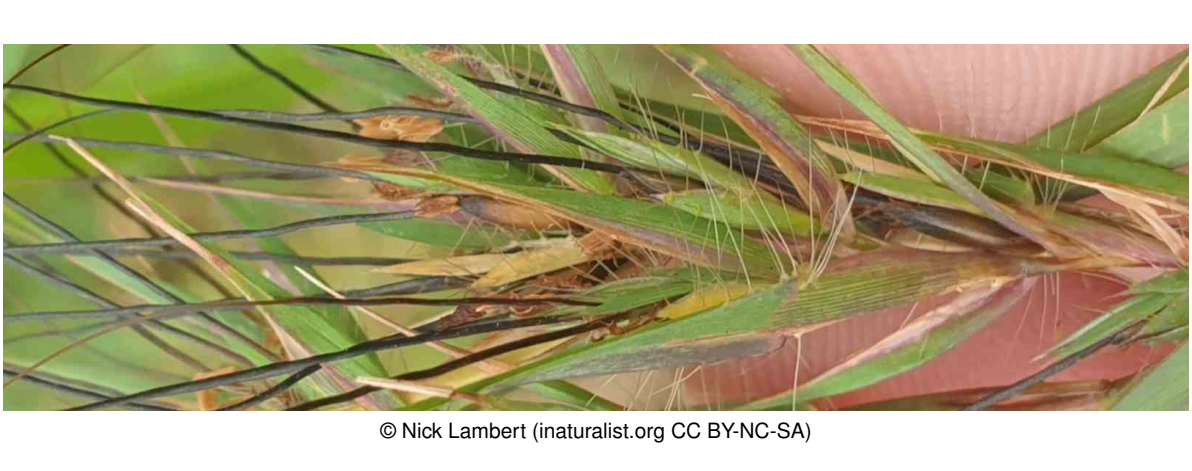
- Outer edges of the inner seed husks have course hairs emerging from lump-like glands.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- Leaves often strongly folded along their length, sometimes to the point they don't appear folded, but check at base of leaf where the two halves come together around the stem.

Similar Species

The presence of the hairy glands on Grader grass seeds (above) easily distinguishes it from Kangaroo grass. Grader grass also tends to stack more leafy seed clusters (up to 4) along seed head branches compared to Kangaroo grass (rarely $>$2).

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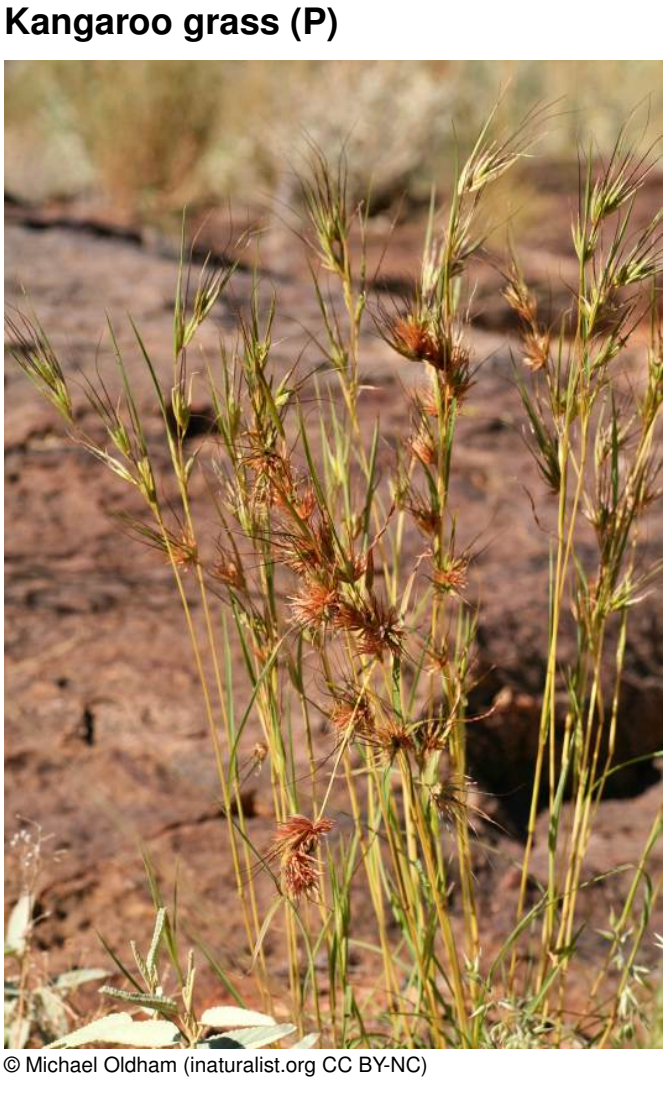
Themeda triandra

Kangaroo grass (P)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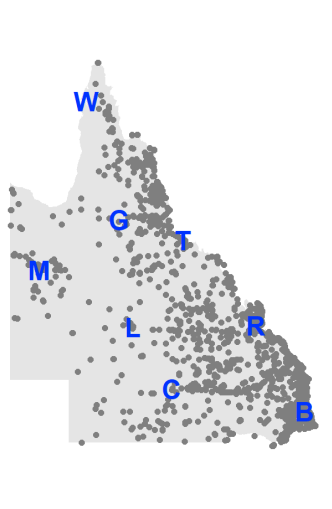
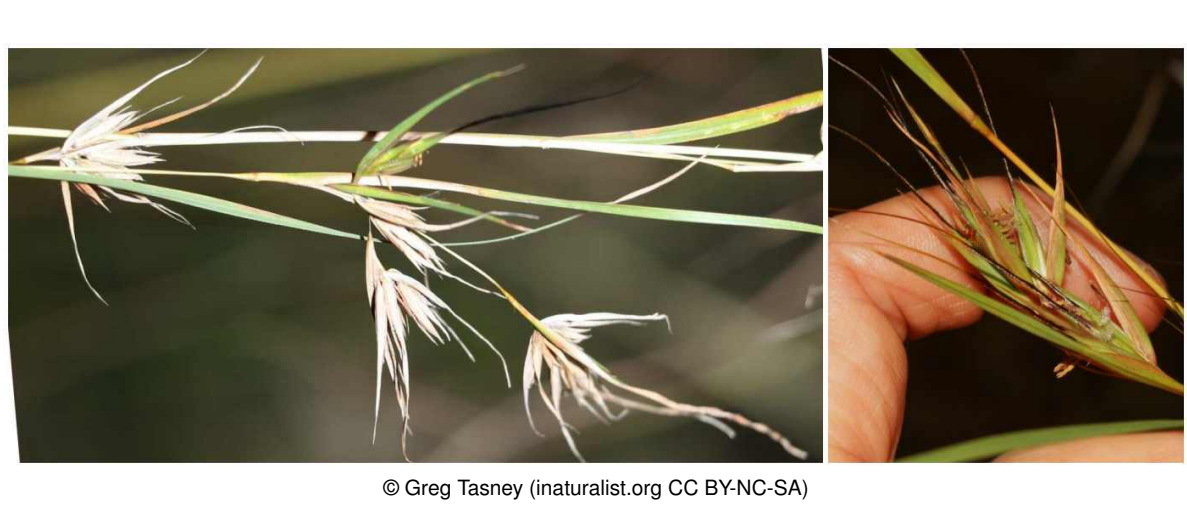


Perennial native. Erect tussock (30-200cm). Leaves (10-30cm x 1-8mm) are flat and distributed over the stem and tussock base. Seed heads to 50cm long consist of multiple leafy clumps that aren't obviously hairy and can droop noticeably. Grows in a wide range of soils and habitats.

Look for these features in the field.

- Seed head is a long often drooping collection of leafy clumps (above). These clumps stack but rarely in $>$2 clusters (see *T. quadrivalvis*)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- Soft long leaves give tussocks a soft weeping appearance, especially when seed heads are not present.

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- Leaves are generally flat rather than fully folded along midline.

Similar Species

Native oatgrass (*T. avenacea*) looks similar but the outer sterile leafy structure of the flower are longer (18-28 mm) than in either Grader grass (4-7 mm) or Kangaroo grass (8-14 mm) (below). See also *T. quadrivalvis.*

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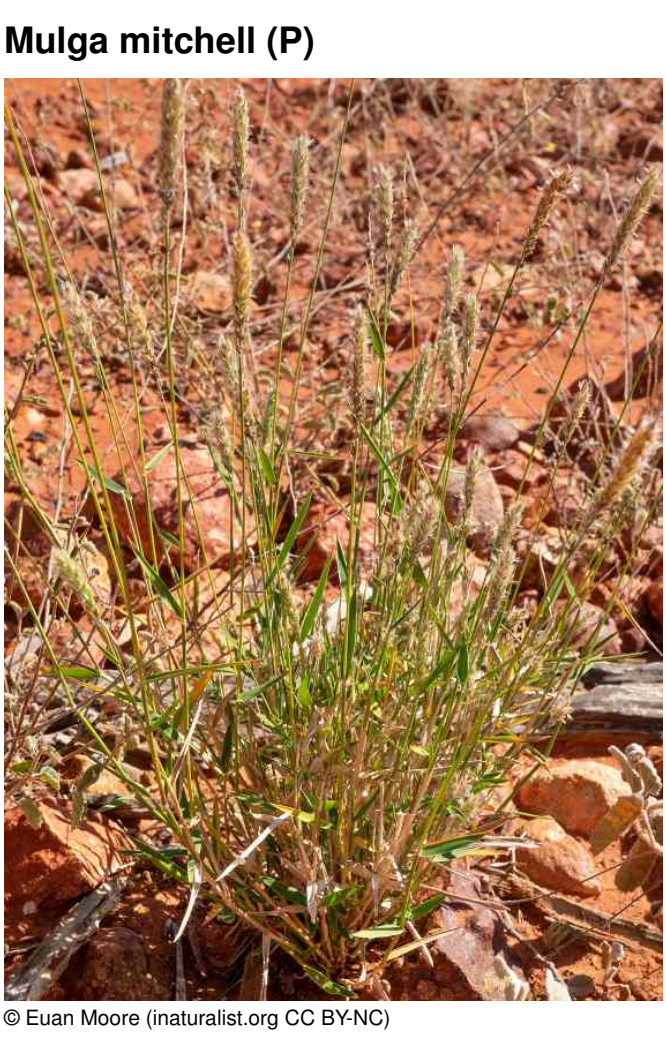
Thyridolepis mitchelliana

Mulga mitchell (P)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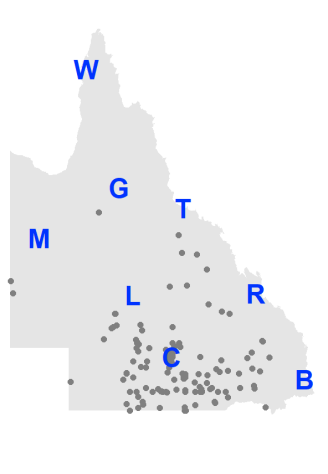
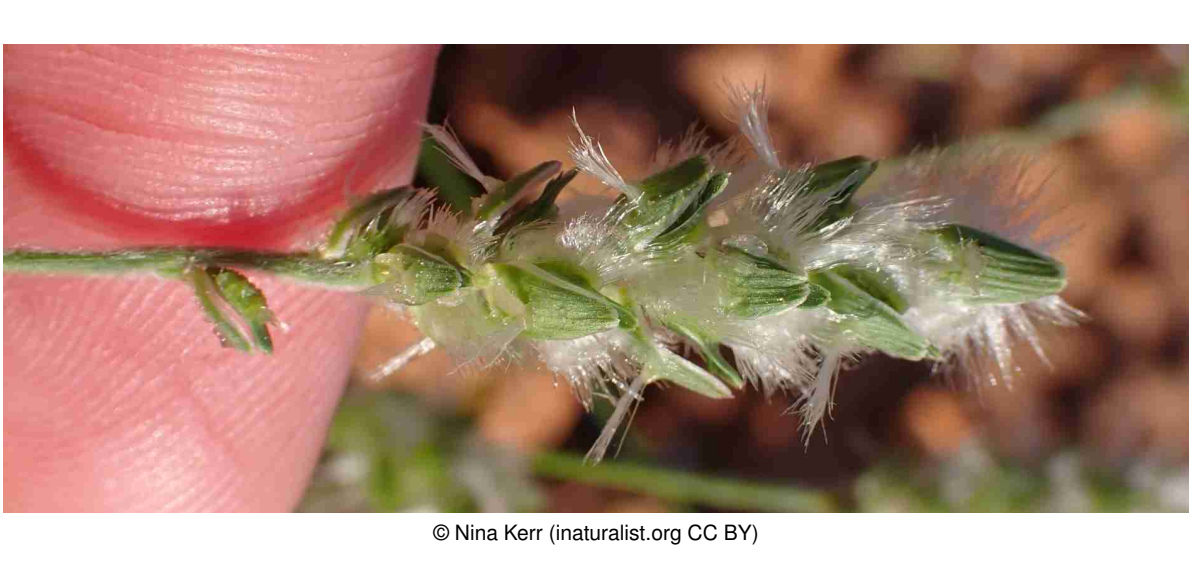


Perennial native. Small tussocks (20-60cm) with hairy stems and nodes. Rigid deep green leaves (2-10cm x 5-8mm) are characteristic (below). Seed head (2-4cm long) a distinctive spike (below). Present mostly on sandy and stony soils and generally associated with Mulga.

Look for these features in the field.

- Seed head is a spike of white-haired beak-shaped seeds.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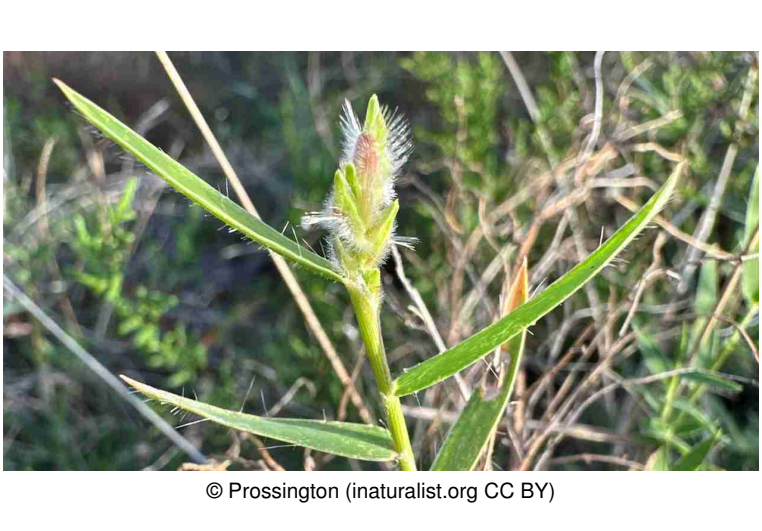
- Leaves with hairs scattered along edges, lack a distinct mid-vein, often at right angle to stem.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- Lower stems and nodes hairy.

Similar Species

The related species *T. xerophila* is smaller and has stolons (runners).

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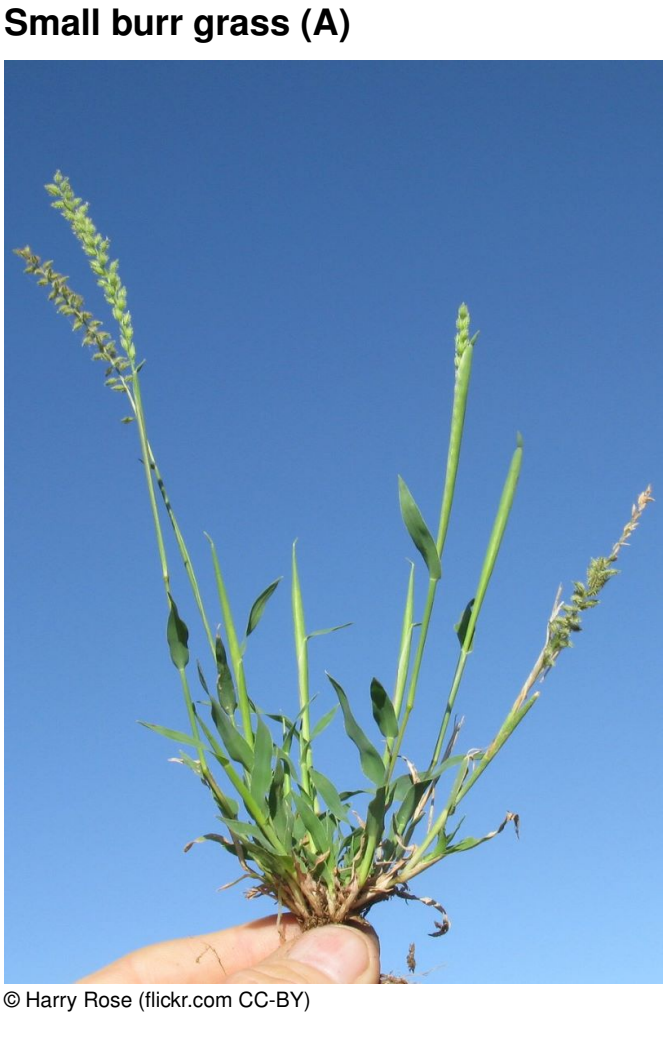
Tragus australianus

Small burr grass (A)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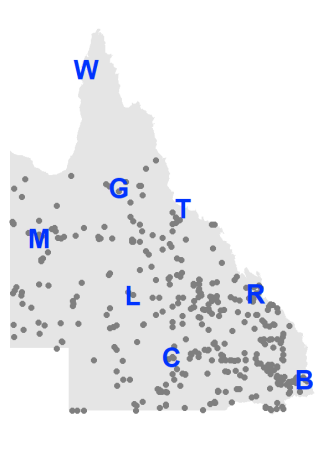
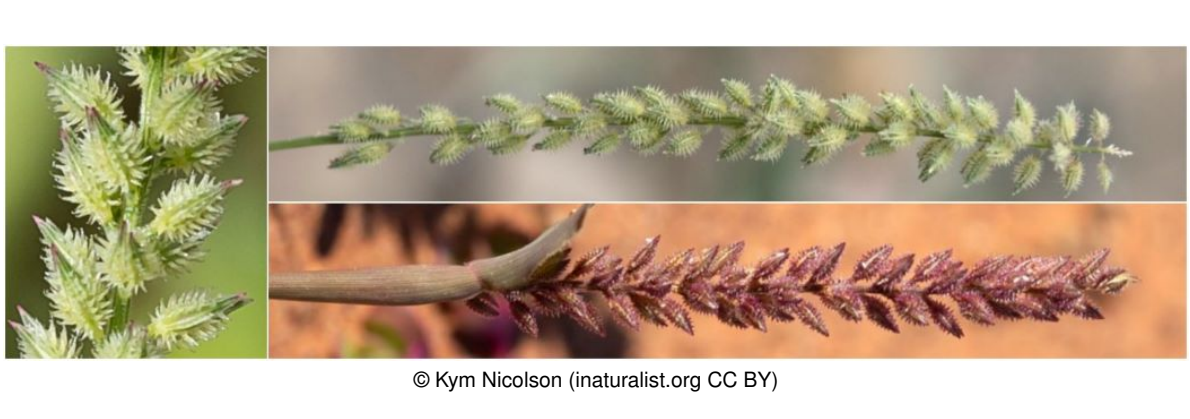


Annual native. Small (10-40cm) tussock grass with a flattened rosette of leaves with a few upright seed heads. Leaves (3-8cm x 5mm) often crinkled and with hairy/spiny edges. Seed head a distinctive single spike 5-10cm long with small hard burrs. Very widespread, prefers disturbed over grazed and open areas.

Look for these features in the field.

- Seed head is a distinctive spike of small oval burrs (3mm long) directly attached to a fine erect stem.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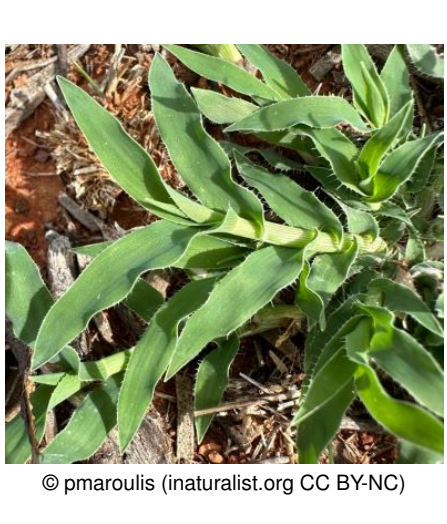
- Tussock is a small rosette of mostly prostrate leaves. Leaves often have crinkled / wavy edges with spiny hairs along their margins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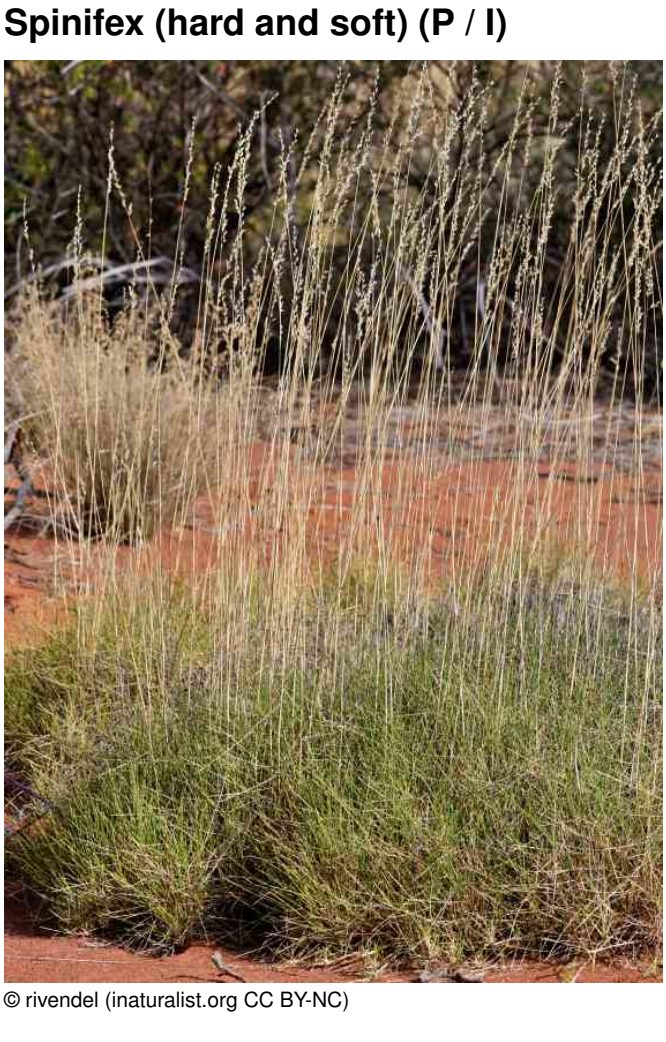
Triodia

Spinifex (hard and soft) (P / I)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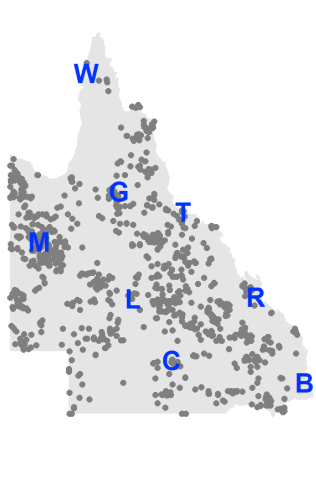

Group of 15 native perennials in Queensland. Stiff, dense tussock grasses, often $>$1 m across at base and 20-200cm high. Leaves (5-50cm x 1-5mm) are stiff, pointed, perennially green, and in some species covered in a sticky resin. Seed heads (10-60 x 2-10cm) typically on erect stems well above foliage. Found in a variety of arid and semi-arid habitats including rocky outcrops and sandy plains.

Look for these features in the field.

- Tussocks form coarse clumps up to several metres in diameter (above). In some species the clumps form rings as the they die from the centre outward.

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- Leaves are thin, stiff, and perennially green with sharp tips.
- Seed heads in most species are on erect stems held well above the stiff foliage (above). In many species, seeds are arranged similar to the herringbone pattern of *Eragrostis* (top), though after seedfall this is reduced to a pair of boat shaped husks (bottom).

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Similar Species

Many soft *Triodia* species were previously in the genus *Plectrachne*. LCAT delineates hard (Intermediate) and soft (Preferred) spinifex. Soft spinifex has softer (though still relatively stiff) leaves that are generally sticky due to a resin they exude. Hard spinifex leaves are stiffer and lack the sticky resin feel.

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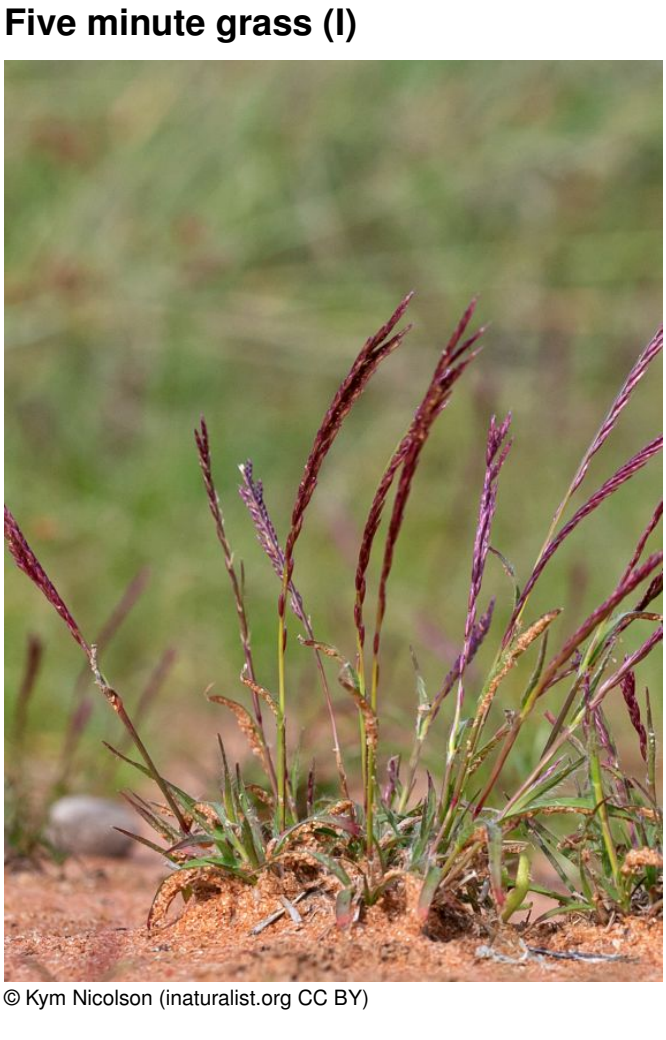
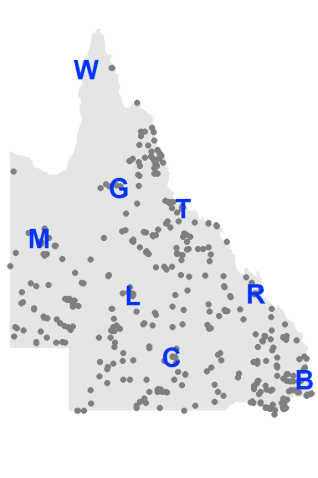
Tripogon loliiformis

Five minute grass (I)

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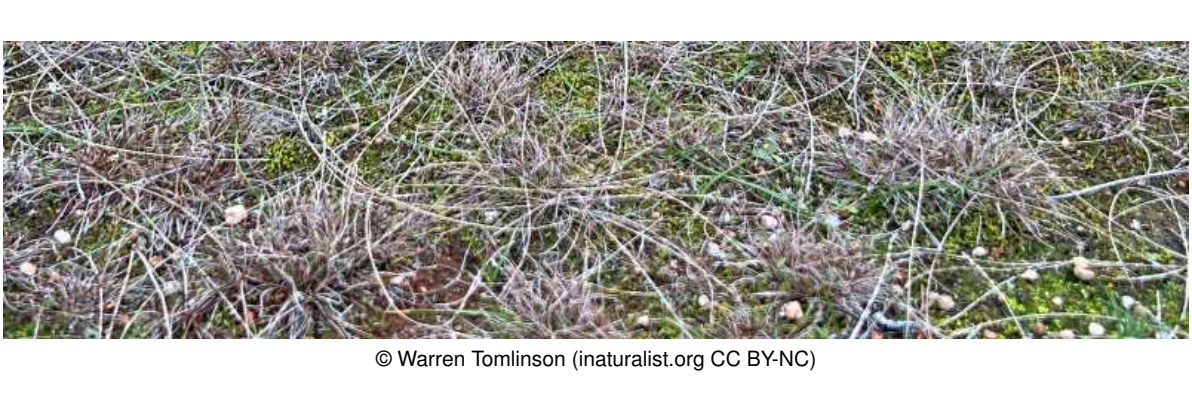
Annual or perennial native. Small tussocks (5-50cm) with leaves (1-8cm x 1mm). Seed head to 10cm long, an erect shaft that curves with age and generally held well above foliage. Prefers a wide range of habitats but responds very quickly to rainfall at any time of the year.

Look for these features in the field.

- Very small tussock with minimal narrow leaves mostly emerging at the plant base (above).
- Old tussocks, still capable of resprouting are low (<1cm) round brown hummocks with wispy dead residual leaf with or without a residual seed head.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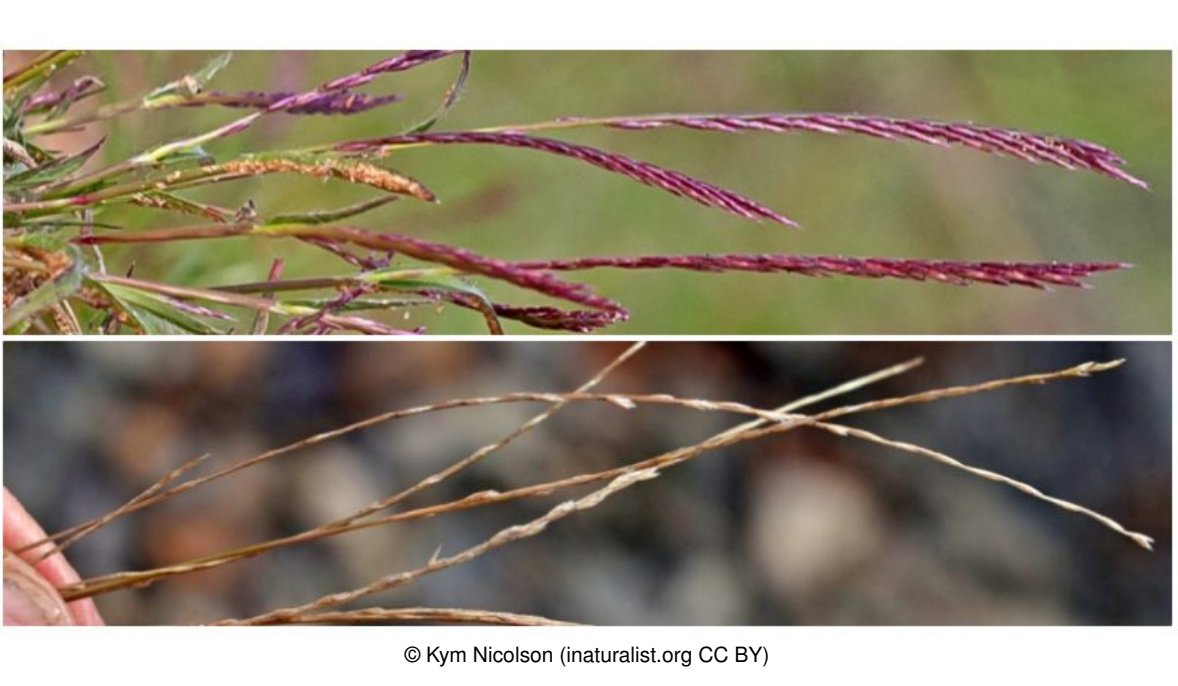
- Seed head is a spike with dark seeds packed along it (top). Curves and pales after seed fall (bottom).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Similar Species

Can be confused with *Fimbristylis* species, but Five minute grass seeds are held close to the central stem, while *Fimbristylis* seeds are in cone shaped clusters on stems that branch from the central stem.

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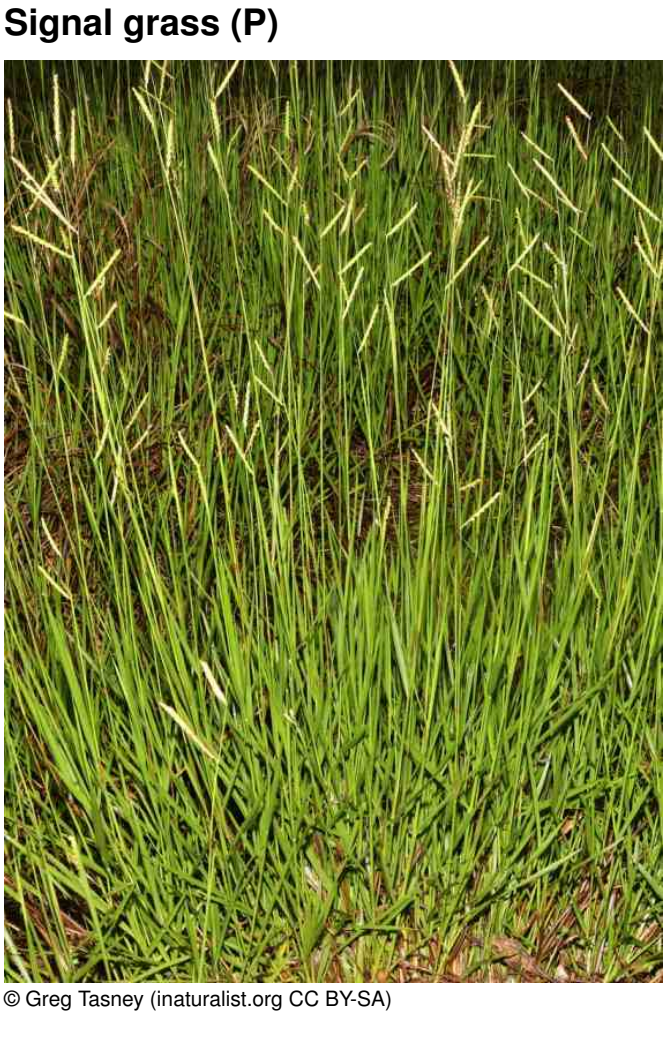
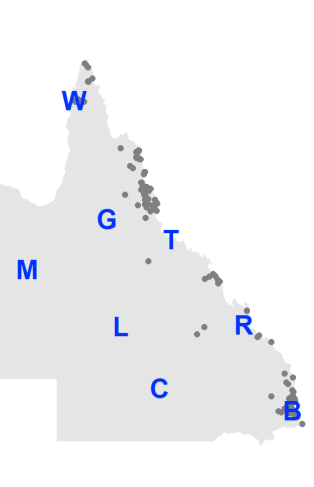
Urochloa decumbens

Signal grass (P)

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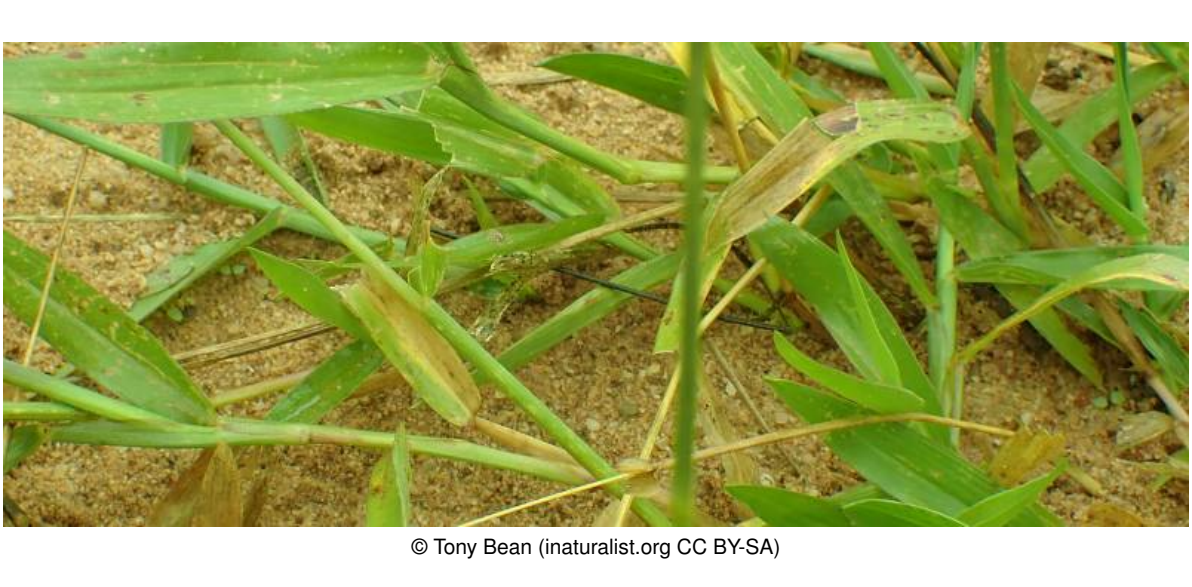
Introduced perennial. Often sprawling grass (50-150cm). Leaves 5-20cm x 7-15mm. Seed head of 2-7 linear branches (1-6cm long) emerging from top 1-8cm of stalk, each with two rows of seeds. Prefers rainfall >1200mm/year and soils not subject to water logging.

Look for these features in the field.

- Sprawling grass with upturned seed head stems that root at lower nodes.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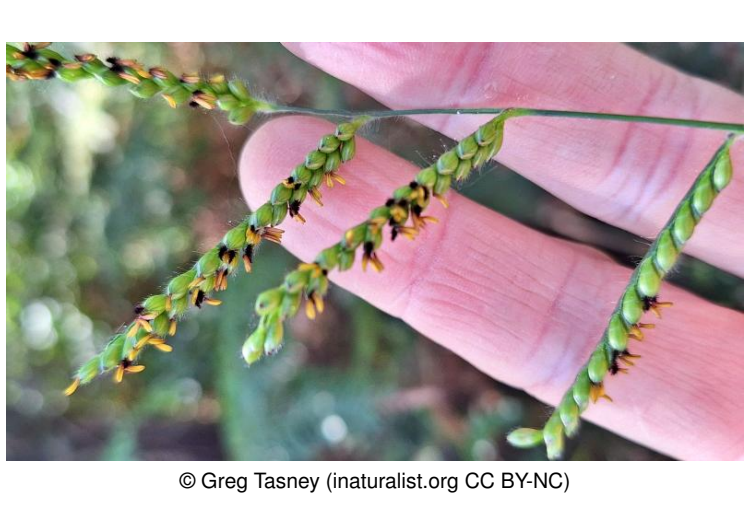
- 2-7 linear seed head branches (1-6cm) generally extend from one side of the top 1-8cm of the stem at right angles.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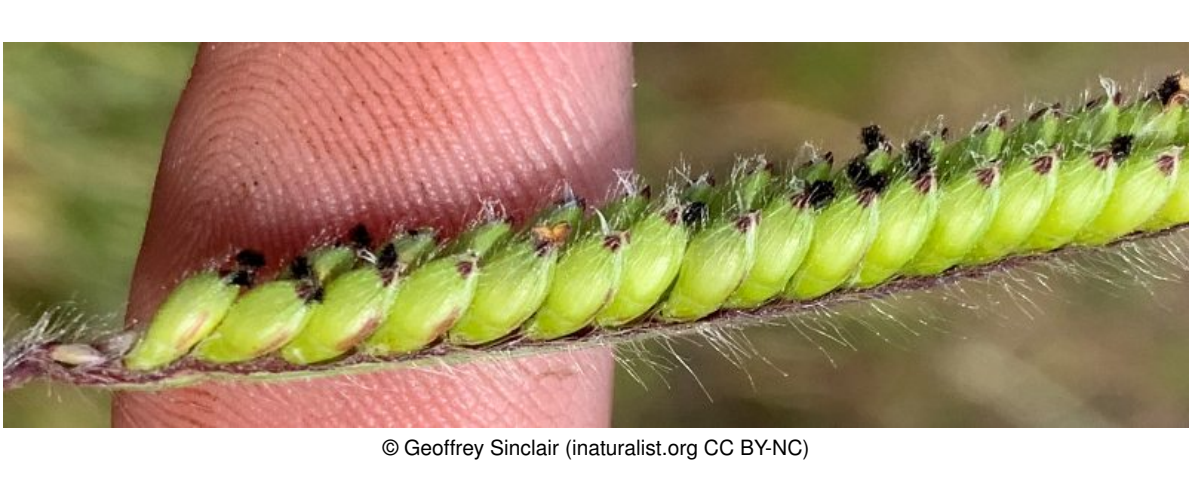
- Seed head branches generally hairy with two neat alternating rows of egg shaped seeds (4x2mm) along only one side of the branch.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Similar Species

Formerly known as *Brachiaria decumbens*. See *Urochloa mosambicensis*.

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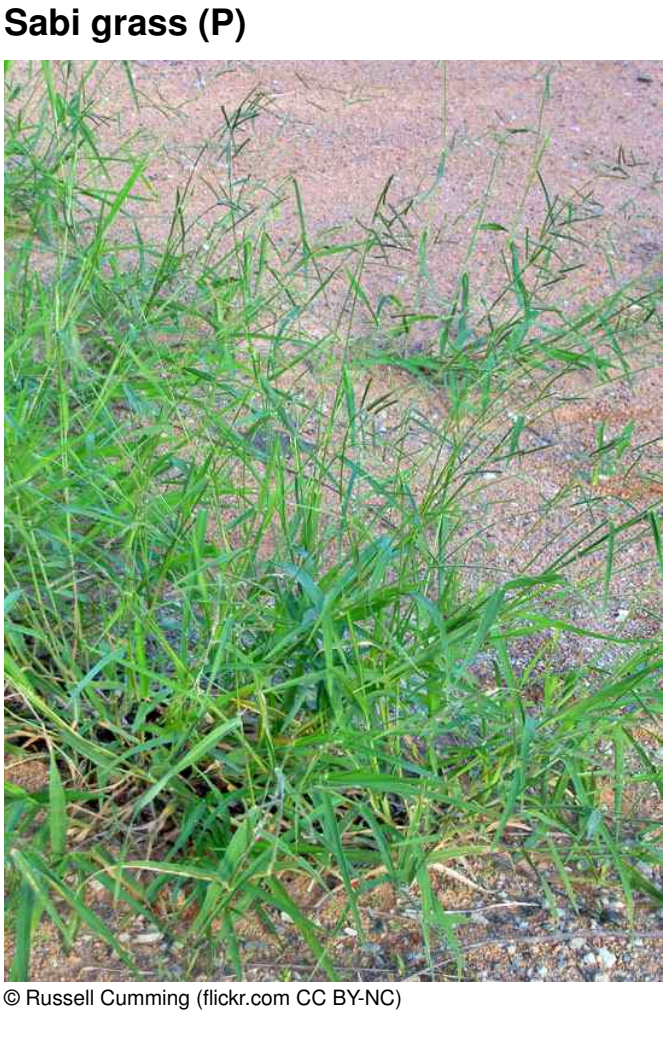
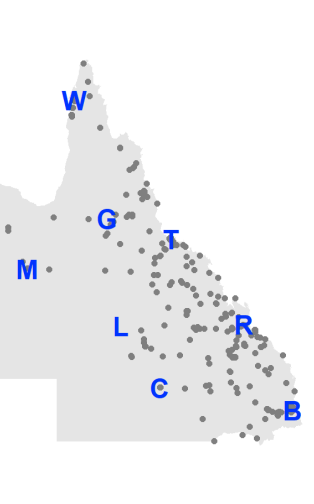
Urochloa mosambicensis

Sabi grass (P)

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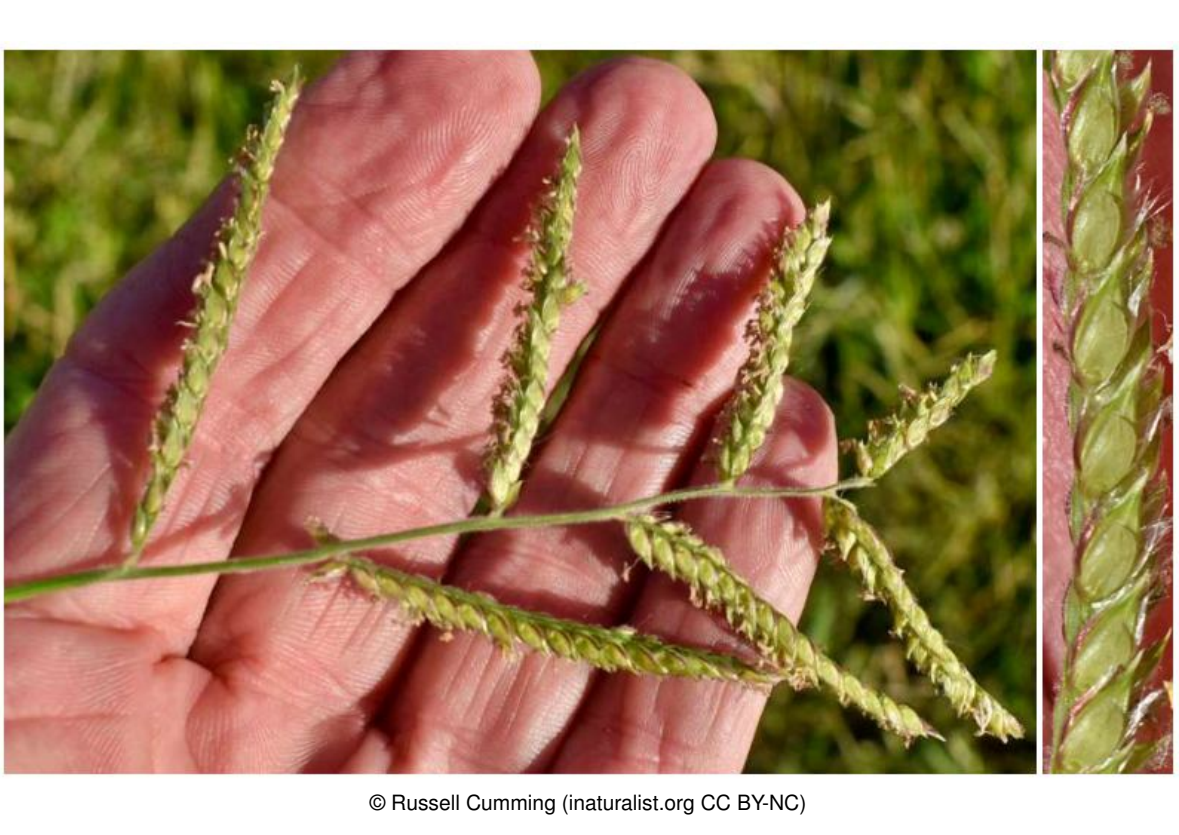
Introduced perennial. Tussock (20-150cm) though tends to be prostrate under grazing. May have runners and mid-stem nodes hairy. Leaves generally hairy and 2-30cm x 3-20mm. Seed head 2-12cm long with 3-15 linear branches 2-10cm long with hairy seeds. Suits a range of soils >500mm annual rain but avoids poorly drained areas.

Look for these features in the field.

- Seed head branches well spaced alternately on opposite sides of stems with 3-15 ranches carrying two rows of flat, pointed seeds.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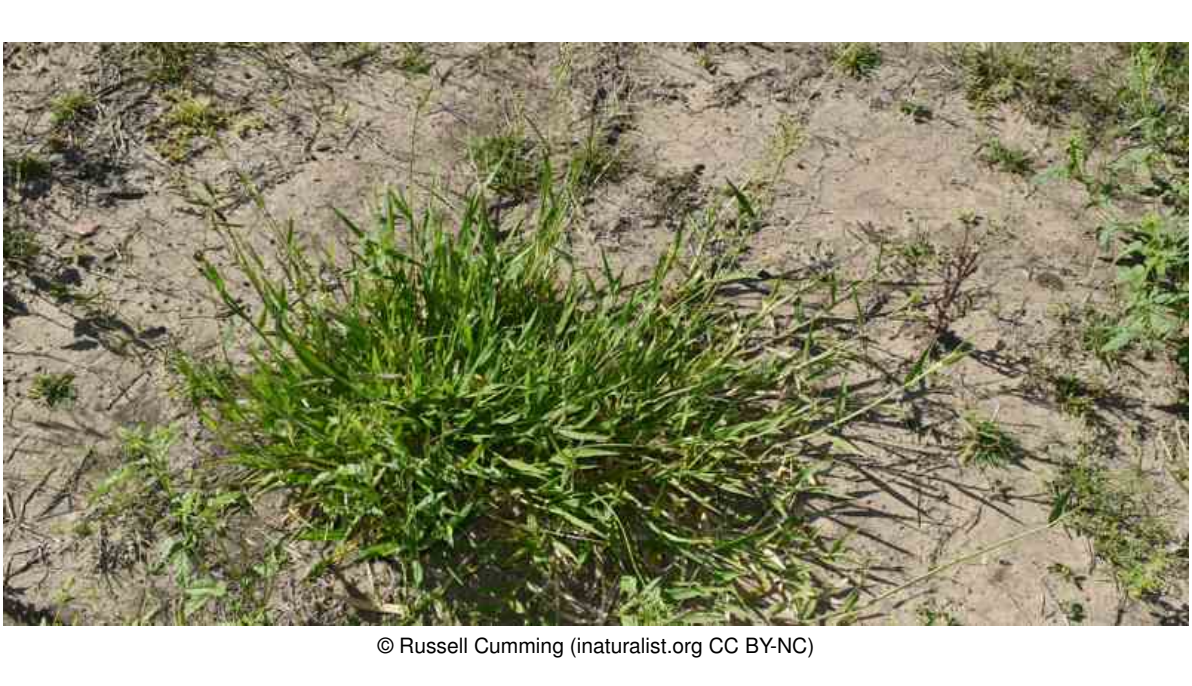
- Tussocks sometimes sprawling, with or without runners, seed heads erect or leaning.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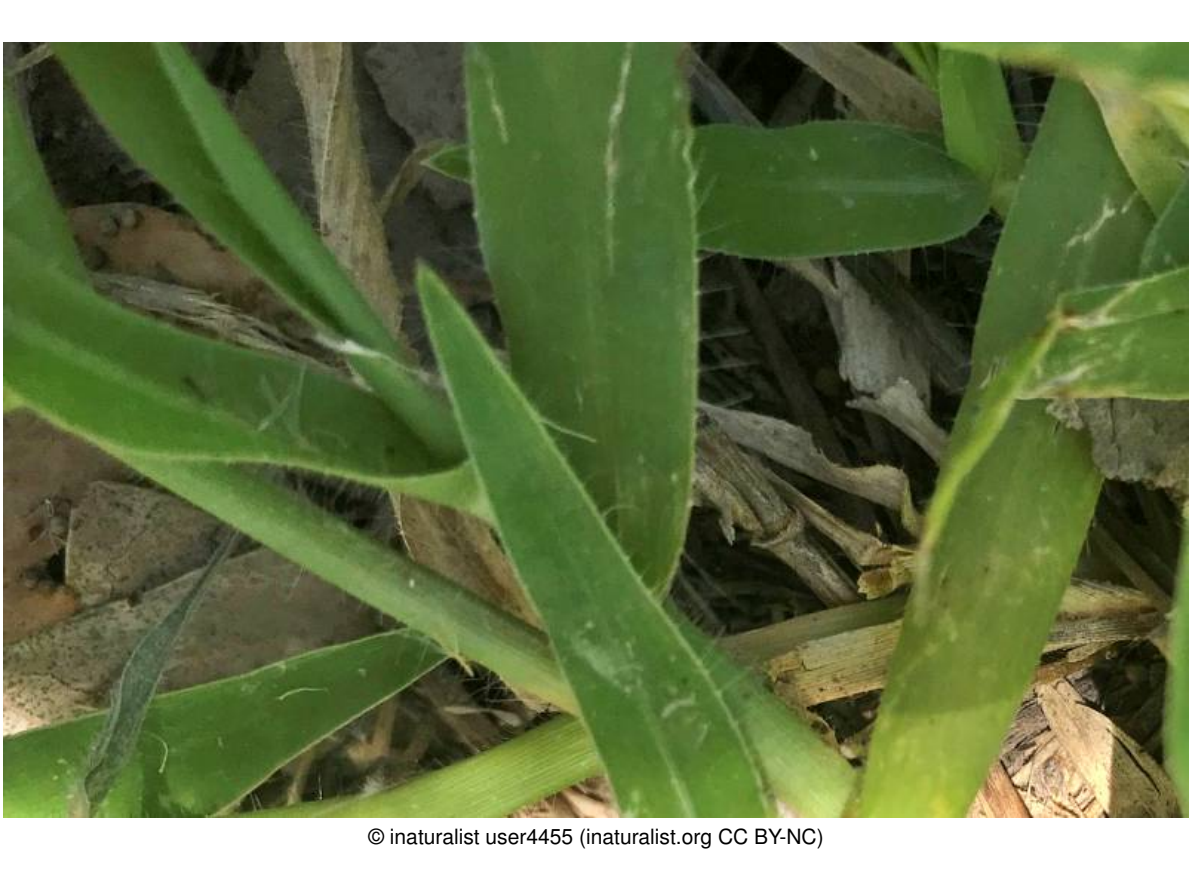
- Leaves are relatively wide and hairy with a prominent midvein.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- Old tussocks are easily recognized by the pale papery leaves and seed heads retaining the empty branches.

Similar Species

Urochloa mosambicensis is the name used in LCAT. The current accepted name is *Urochloa trichopus*. Similar to *Urochloa decumbens* (Signal grass). Signal grass is more coastally restricted and has much rounder and less pointed seeds compared to Sabi grass.

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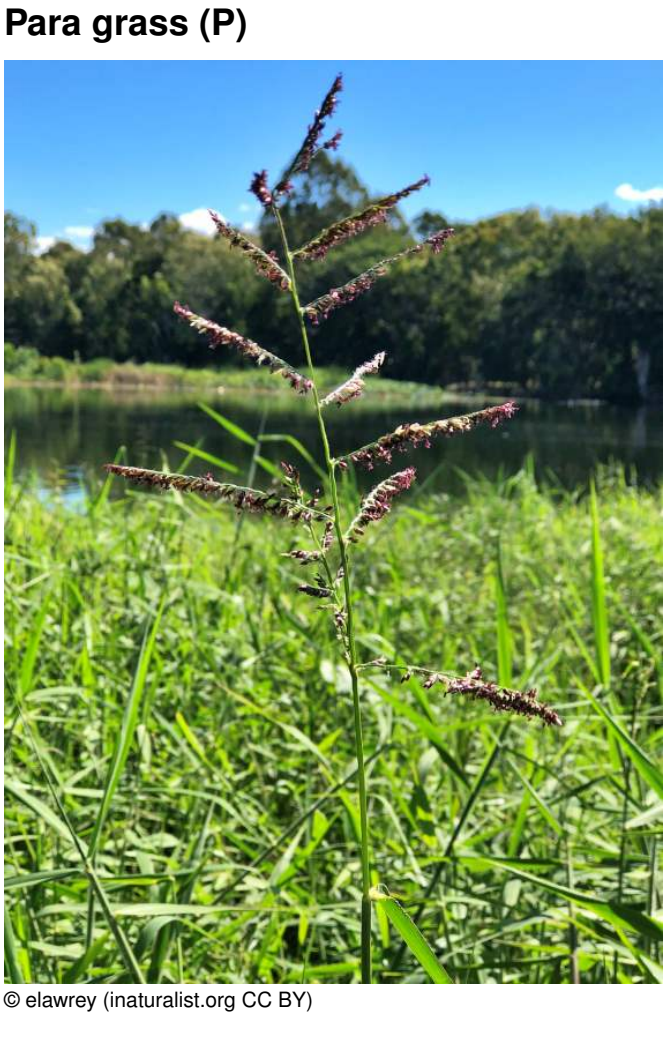
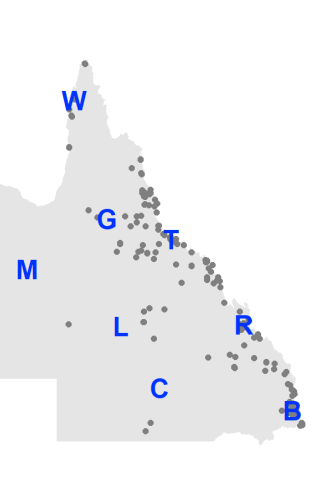
Urochloa mutica

Para grass (P)

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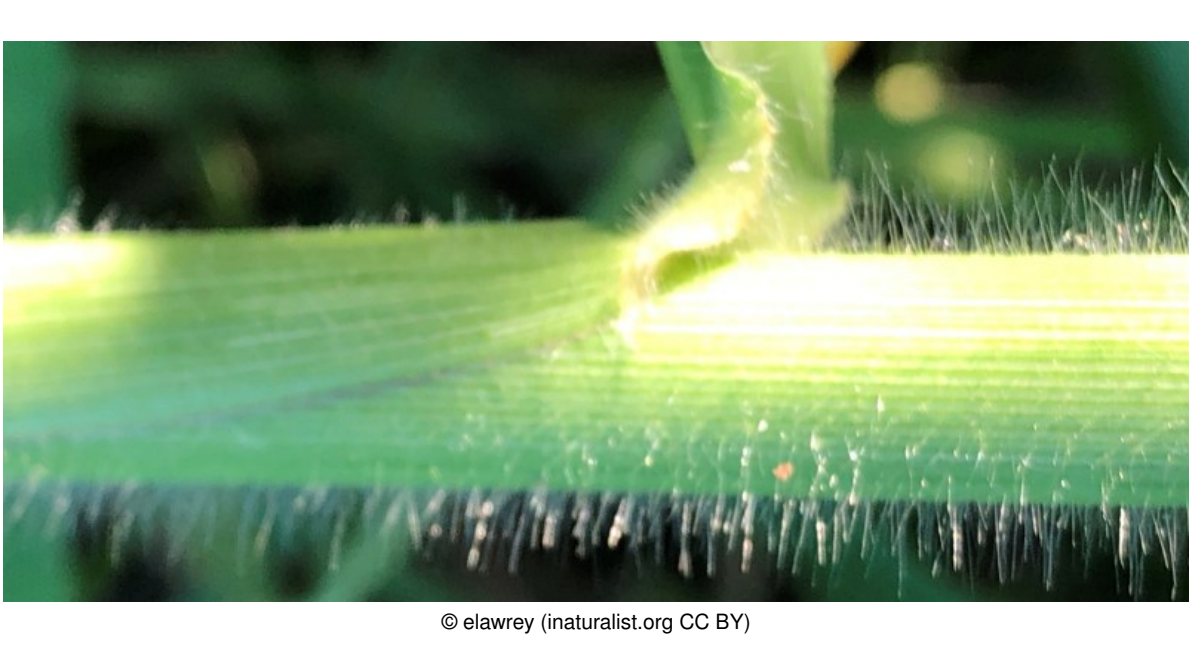
Introduced perennial to 1.5m tall with runners to 5m long that float on water. Leaves 8-35cm x 4-20mm and relatively hairless. Seed head (10-25cm long) with 10-30 branches 2-8cm long arranged in pyramid shape. Prefers freshwater wetland habitats in coastal and subcoastal Queensland.

Look for these features in the field.

- Forms dense monocultures in and around fresh water (above) with long runners that root from the nodes.
- Stems are hollow but strong. Leaf sheaths on lower part of plant hairy (below).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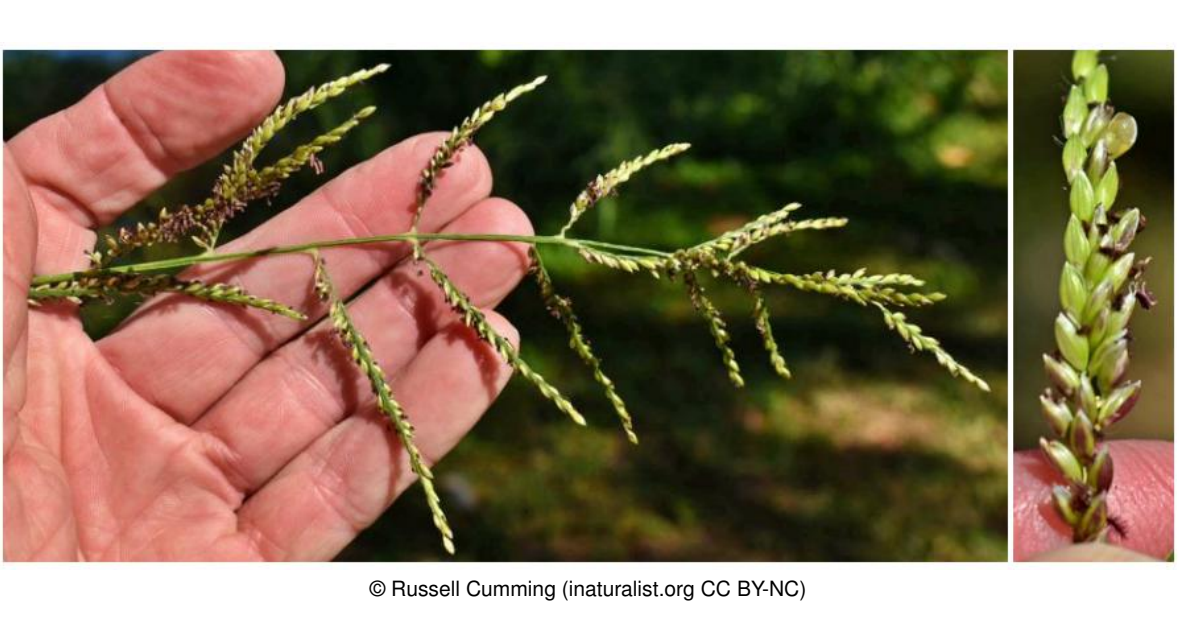
- Seed head with 10-30 branches 2-8cm long arranged in pyramid shape.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Similar Species

Previously known as *Brachiaria mutica*

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