

# *Thaumastochloa major* S.T.Blake

(Thaw-mass-toe-klo-a; major)

A small, usually compact, annual (or biennial) grass, up to 40 cm high, with stems and leaves held erect or trailing along the ground. Although common and widespread across northern Australia this species is easily overlooked in the field unless paying close attention to the ground layer. The leaves and stems are generally more prominent than the flowering spikes. The foliage is green when young and often reddish brown when mature (Fig. 1). The flowering stems or spikes in this species are variable, the stems can give rise to a stout cylindrical spike comprised of 4-10 segments or a slender cylindrical spike comprised of only 1 or 2 (occasionally 3) segments (Fig. 2 a & b). The basic flowering units or spikelets are arranged

singly along the spike, with one spikelet embedded into the individual segments of the flowering stem (Fig. 3). Each segment is asymmetrical, particularly in the robust form, with both ends truncated at an oblique angle, the segments stacked on top of each other with the position of the spikelet alternating from one side of the spike to the other. The spike will usually break apart between each segment as the plant matures. The lower glume of the spikelet is the only exposed structure visible without dissection, it is hardened and in this species more or less smooth (Fig. 3). The spikelet contains 1 fertile floret (modified grass flowers) and 1 sterile floret.



Fig. 1. Image of *Thaumastochloa major* plant showing reddish brown colouring, elongated flowering stalk and embedded spikelet. PHOTO: R J Cummings



Fig. 2a. Sheet of pressed herbarium specimen of robust form of *Thaumastochloa major*.

## > BOTANICAL DESCRIPTION

Annual. Culms erect or decumbent, to 40 cm tall. Leaf-blades, 1-12 cm long, 1.5-5.5 mm wide. Leaf-blade linear, flat or involute, glabrous or indumented. Inflorescence a spike, 1.5-3 cm long, with up to 10 segments (Fig. 3). Rhachis fragile at the nodes. Spikelets heteromorphous or homomorphous, some 1.5-3 cm long, with 4-10 robust segments, each segment between 4-5.5 mm long and 2-3.5 mm across; others 0.35-1.6 cm long, with 1-2 (3) narrow segments, 3.5-10 and 1-1.5 mm across. Spikelets 2.3-4 mm long, smooth, rarely rugulose (Fig. 3).



Fig. 2b. Sheet of pressed herbarium specimen of robust form of *Thaumastochloa major*.

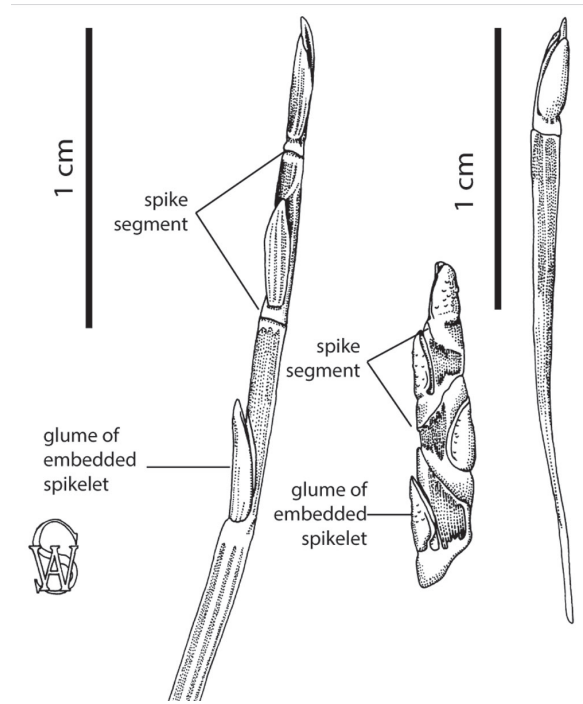


Fig 3. Line drawings of the slender and robust inflorescence forms of *Thaumastochloa major*. CC By: WSmith BRI Herbarium.

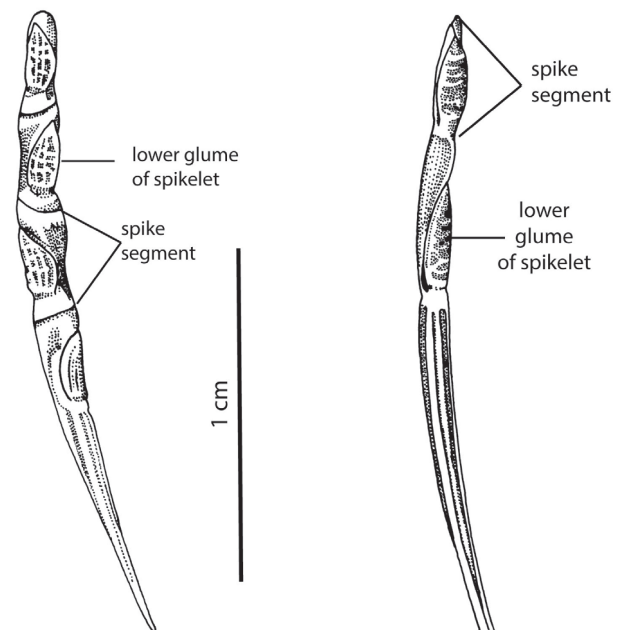


Fig 4. Line drawings of the inflorescence of *Thaumastochloa pubescens*. CC By: WSmith BRI Herbarium.

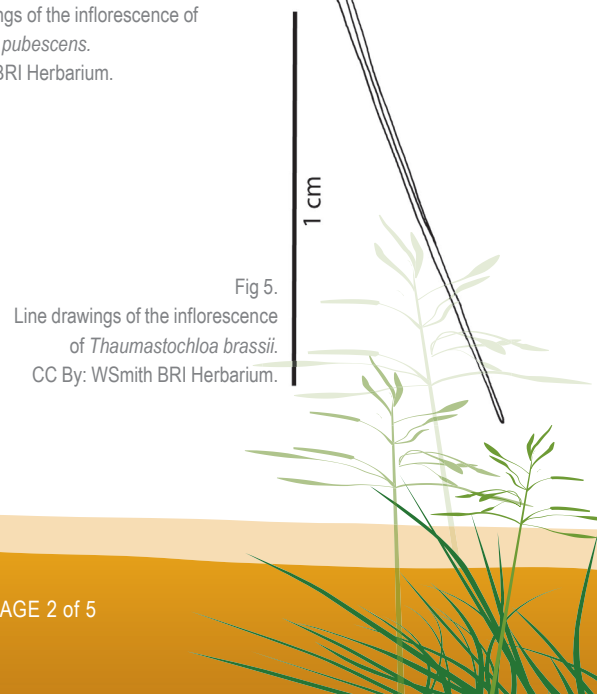


Fig 5. Line drawings of the inflorescence of *Thaumastochloa brassii*. CC By: WSmith BRI Herbarium.

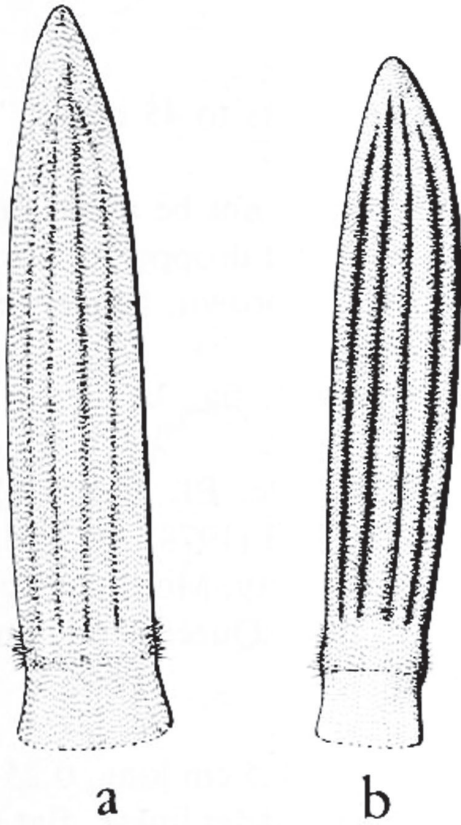


Fig 6. Line drawings of the lower glumes of a) *Thaumastochloa rubra* and b) *Thaumastochloa striata*.  
 CC BY: Naturalis Biodiversity Center, Leiden, The Netherlands.

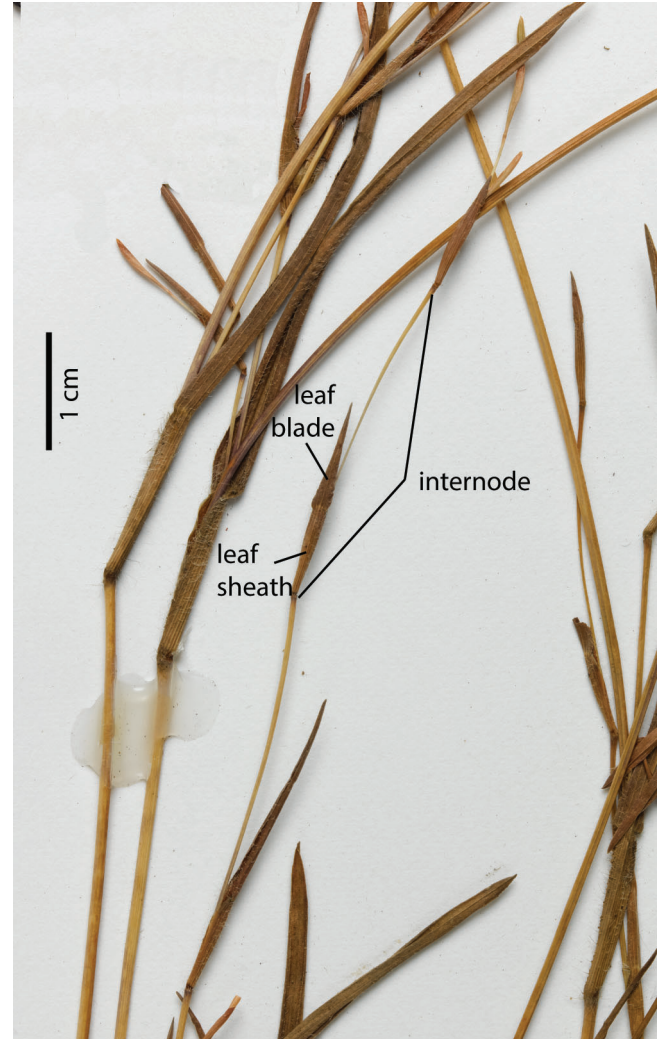


Fig. 8. Sheet of pressed herbarium specimen of *Thaumastochloa rariflora* showing leaf sheaths < 1/3 internode.

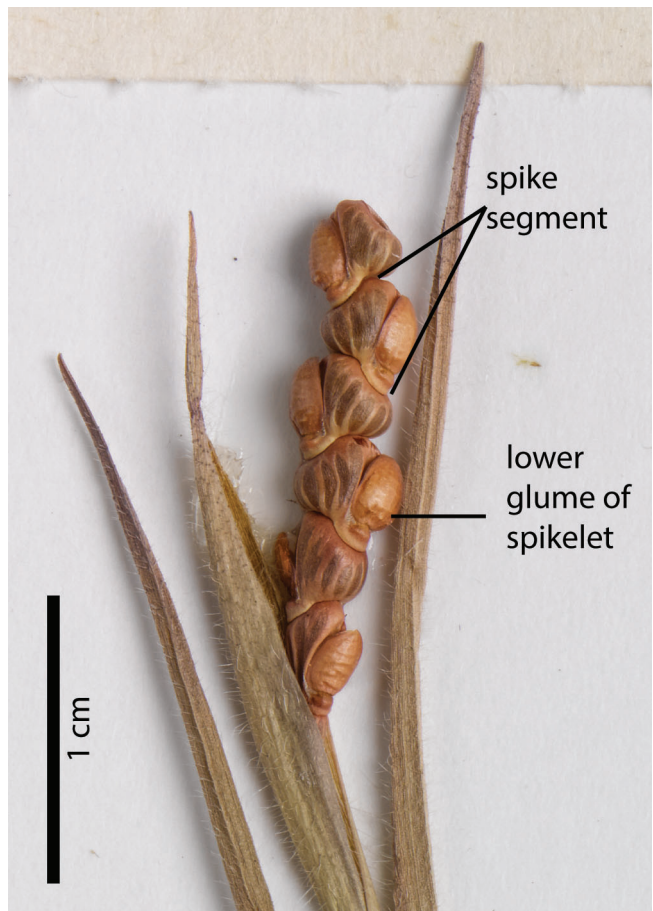


Fig. 7. Inflorescence of pressed herbarium specimen of *Thaumastochloa monilifera* showing inflated spike segments.



Fig. 9. *Thaumastochloa major* plants in situ. PHOTO: R J Cumming



## > DIAGNOSTIC FEATURES

This genus is distinguished by the small annual stature and the solitary flowering spike, in which the spikelets are embedded in segments. Flowering spikes are not easily observed without close examination. Species of *Thaumastochloa* are not generally confused with other grasses, however, it can be difficult to distinguish between them. *Thaumastochloa major* is a common and widespread species and has two types of flowering spikes which can lead to confusion (Fig. 3). Of the nine *Thaumastochloa* recognised for Australia seven are found on Cape York Peninsula. From *Thaumastochloa pubescens* (Fig. 4), *Thaumastochloa brassii* (Fig. 5), *Thaumastochloa rubra* (Fig. 6a), and *Thaumastochloa striata* (Fig. 6b), *T. major* can be distinguished by the more or less smooth lower glume of the spikelets. Although some of these species may have the lowermost spikelet with a smooth lower glume the lower glume of all the other spikelets on the spike are textured. *Thaumastochloa rubra* and *Thaumastochloa striata* are only found in the Northern Territory. The robust form of *T. major* can be confused with *Thaumastochloa monilifera*, however, the spikelets of *T. monilifera* have constrictions between the segments of the spike and the segments appear inflated (Fig. 7). The slender form of *Thaumastochloa major* is often misidentified as *Thaumastochloa rariflora*. *Thaumastochloa rariflora* plants have much shorter leaf sheaths  $\leq 1/3$  the internode length (Fig. 8) compared to at least  $1/2$  or more in *T. major*; have joints 2.5-3 mm long compared to 3-6 mm long in *T. major*; and have typically smaller peduncles, 0.5-3 cm in *T. rariflora* and 1.5-18 cm in *T. major*. *Thaumastochloa x heteromorpha* is considered a hybrid between *T. major* and *T. pubescens* (CHAH 2009) and is distinguished from *T. major* by the combination of 4 or more segments per inflorescence and segments 2-3.5 mm wide.

Identification keys to the species in the area can be found at Simon & Alfonso (2011) or Koning *et al* (1983)

## > NATURAL VALUES

The species in this genus are collectively referred to as snake grass in Crowley *et al* (2004) and are considered a significant food source for the golden shouldered parrot. *Thaumastochloa* species produce large amounts of seed which fall to the ground and persist through the dry season. As storms begin and *Schizachyrium* seed begin to germinate the parrots switch to species of *Thaumastochloa* (Crowley *et al* 2004).

## > HABITAT

Fairly common annual on sandy soil in damp situations in northern Australia extending to Malesia (Simon & Alfonso 2011) (Fig. 9). Widely distributed throughout Cape York Peninsula (Fig. 10).

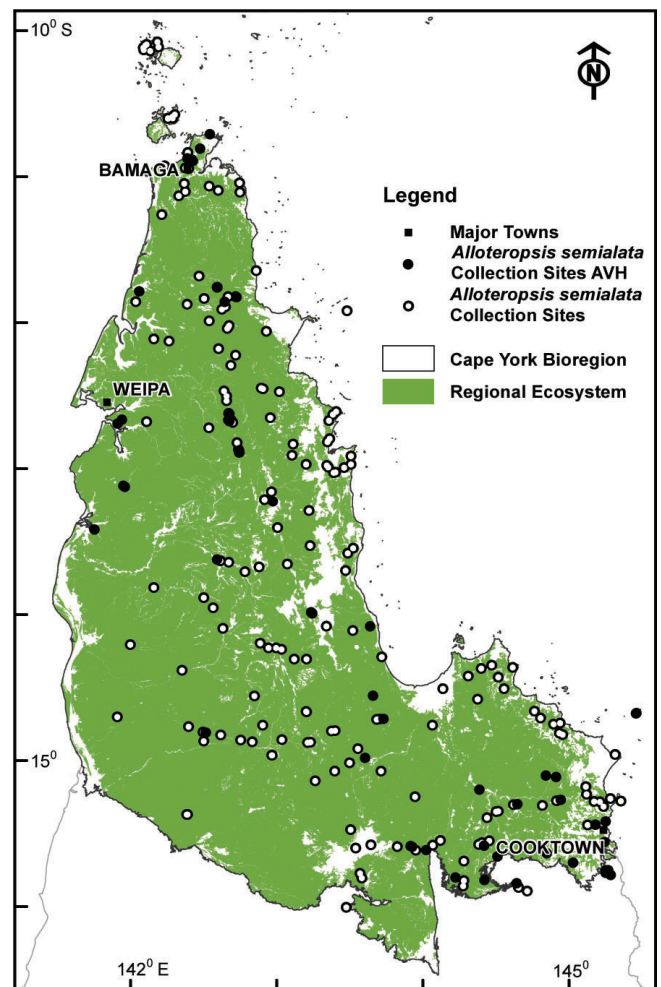


Fig 10. Map of CYP bioregion showing actual herbarium collections (from BRI and CNS) (solid circle) and site records (open circle) of *Thaumastochloa major*. The green shading indicates areas where this species might also be found, based on similarity of habitat to locations where the species has been recorded. (Mapping supplied by P. Bannink, DES). Data attribution: Environment and Science, Queensland Government, Biodiversity status of pre-clearing and 2015 remnant regional ecosystems series - version 10.0 licensed under Creative Commons Attribution.

## RESOURCES:

AVH (2017) Australia's Virtual Herbarium, Council of Heads of Australasian Herbaria, <<http://avh.chah.org.au>>, accessed 30 May 2017.

Crowley, G.M., Garnett, S.T. and Shephard, S. (2004). *Management guidelines for golden-shouldered parrot conservation*. Queensland Parks and Wildlife Service, Brisbane.

Crowley, G. M., & Garnett, S. T. (2001). Growth, seed production and effect of defoliation in an early flowering perennial grass, *Alloteropsis semialata* (Poaceae), on Cape York Peninsula, Australia. *Australian Journal of Botany*, 49, 735-743. <https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1442-9993.1999.00964.x>

Crowley, Gabriel (2008) *Cockatoo Grass Alloteropsis semialata as a keystone species in northern Australia*. *Northern Territory Naturalist*, 20. pp. 58-63.  
[https://www.researchgate.net/publication/257527478\\_Cockatoo\\_Grass\\_Alloteropsis\\_semialata\\_as\\_a\\_keystone\\_s  
pecies\\_in\\_northern\\_Australia](https://www.researchgate.net/publication/257527478_Cockatoo_Grass_Alloteropsis_semialata_as_a_keystone_species_in_northern_Australia)

Lazarides, M. (2002). Economic attributes of Australian grasses. *Flora of Australia* 43: 213-245.

Rolfe, J., Golding, T. and Cowan, D. (1997). Is your pasture past it? The glove box guide to native pasture identification in north Queensland. Information Series Q197083. Queensland Department of Primary Industries.

Simon, B.K. & Alfonso, Y. (2011) AusGrass2, <http://ausgrass2.myspecies.info/> accessed on [date 29 March 2017].

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