

# A new species of *Aristida* L. (Poaceae: Aristidoideae: Aristideae) from northern Australia

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## Abstract

*Aristida jacobsiana* is described as a new species from the north of the Northern Territory and north Queensland. It belongs to section *Macrocladae* B.K.Simon and is morphologically similar to both *Aristida longicollis* (Domin) Henrard and *Aristida psammophila* Henrard. It differs from the former by the lemma apex being smooth or scabrous only on the keel and from the latter by having a shorter column of only half a twist.

## Introduction

The existence of a possible new species of *Aristida* from the Nitmiluk National Park, Northern Territory, Australia was brought to the attention of the first author by the second in late 2009 and material of a few gatherings was sent to the Queensland Herbarium (BRI) to be checked with the DELTA character set of *Aristida* maintained by BKS. It was found to be similar to two existing species of this genus, *A. longicollis* (Domin) Henrard and *A. psammophila* Henrard, but differed from them in a few morphological features that deemed it necessary to describe this entity formally as a new species. Two other specimens of this taxon were found in the Queensland Herbarium, filed under *A. longicollis*. In addition to the two Queensland specimens and Northern Territory material from the Nitmiluk National Park, another Northern Territory specimen of this taxon has also been collected from the Adelaide River.

***Aristida jacobsiana*** B.K.Simon & I.D.Cowie, *sp. nov.*

Affinis *A. longicollis* (Domin) Henrard sed apice lemmatis laevi vel carinis scaberulis, inflorescentiis angustioribus, aristis lemmatis brevioribus et spiculis minoribus, et affinis *A. psammopilae* Henrard, sed columna lemmatis minore, convoluta dimidio et aristis rectis et brevioribus differt.

**Type:** Northern Territory: Nitmiluk National Park, 20 km N of Edith Falls: *C.R. Michell* 3717; holo: DNA; iso: BRI, CANB, NSW.

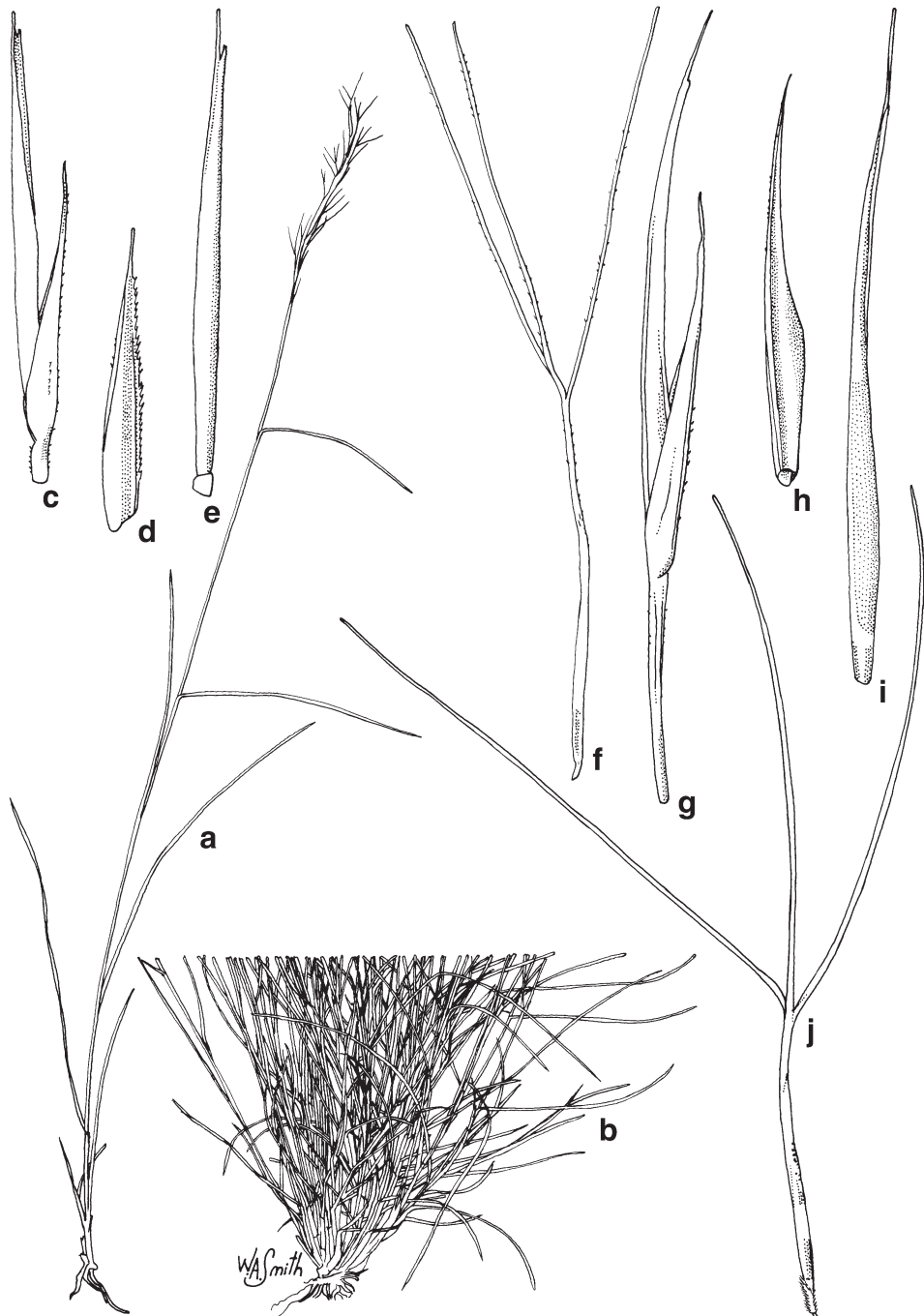
Perennial, compactly tufted. Culms 20–60 cm tall, sometimes sparingly branched. Culm internodes smooth, glabrous. Nodes 4–6, glabrous. Leaf sheaths longer than internodes, smooth, glabrous. Ligule 0.2 mm long. Collar hairy. Auricles hairy. Hairs to 2 mm long. Leaf blades 5–12 cm long, 1–2 mm wide, smooth, glabrous adaxially, scaberulous, glabrous abaxially, involute, conduplicate or convolute or flat, setaceous or not setaceous, not coiled or flexuose at maturity. Inflorescence 5–20 cm long, 0.5–2 cm wide, spiciform, continuous and dense or contracted or interrupted, stiffly erect to loosely erect, branches 1–2.5 cm long, branches bearing spikelets from base, branches bi-partite, branches without pulvini, branches tightly appressed to loosely appressed, branches scabrous or scaberulous. Glumes normal. Lower glume 3.5–6.5 mm long, 1 - nerved, glabrous, smooth, acute to acuminate, entire, aristulate. Arista 1–2 mm long. Upper glume 6–11 mm long, 1-nerved, glabrous, smooth, acute to acuminate, entire, aristulate. Awn 0.5–1.5 mm long. Lemma 5.5–9 mm long, subequal to one or both glumes, distinctly longer than lower, subequal to upper or slightly longer than upper, convolute, smooth towards apex or scabrous only on keel, narrowed upwards, without an articulation or pseudoarticulation. Callus 0.5–1 mm long, hairs 0.1–0.3 mm long. Column poorly developed, 1.5–2 mm long. Awns equal to subequal, loosely spreading. Median awn 9–18 mm long, not geniculate, terete, straight. Lateral awns 8–16 mm long, terete, straight. Fig. 1.

**Other specimens examined:** Northern Territory: Nitmiluk National Park, Murrawal Plateau North, *C.R. Michell* 3718 (BRI, CANB, DNA, NSW); Nitmiluk National Park, Fergusson R. area, *I.D. Cowie* 9537 & *A.K. Gibbons* (BRI, DNA); Nitmiluk National Park, *C.R. Michell* 2952 & *S. Boyce* (DNA); Adelaide River, headwaters of Anniversary Ck, *I.D. Cowie* 4658 (BRI, DNA, MEL). Queensland: Blackbraes National Park, 2.1 km from turn off from homestead, *J. Kemp* BLAC09D (BRI); Amelia Downs Station, 0.3 km S along Amelia-Bluff fence, *J. Kemp* AMEL11a (BRI).

**Derivation of epithet:** named for Surrey Jacobs, Senior Principal Research Scientist at the National Herbarium of New South Wales (NSW) and recently deceased. He spent much of his time collecting grasses and water plants in tropical Australia and co-authored four editions of *Grasses of New South Wales* (Wheeler et al. 1984, 1990, 2002; Jacobs et al. 2008).

**Flowering and fruiting:** March and April.

**Habitat:** shale, quartzite and basalt soils in *Eucalyptus* or *Corymbia* woodland.



**Fig. 1.** *Aristida jacobiana* **a**, one culm,  $\times 0.5$ ; **b**, base of plant  $\times 0.4$ ; **c**, glumes  $\times 16$ ; **d**, lower glume  $\times 16$ ; **e**, upper glume  $\times 16$ ; **f**, lemma  $\times 6$ .; **g**, glumes  $\times 8$ ; **h**, lower glume  $\times 8$ ; **i**, upper glume  $\times 8$ ; **j**, lemma  $\times 4$ . (a–f from *Michell 3717* (iso), BRI; g–j from *Kemp BLAC09D*, BRI).

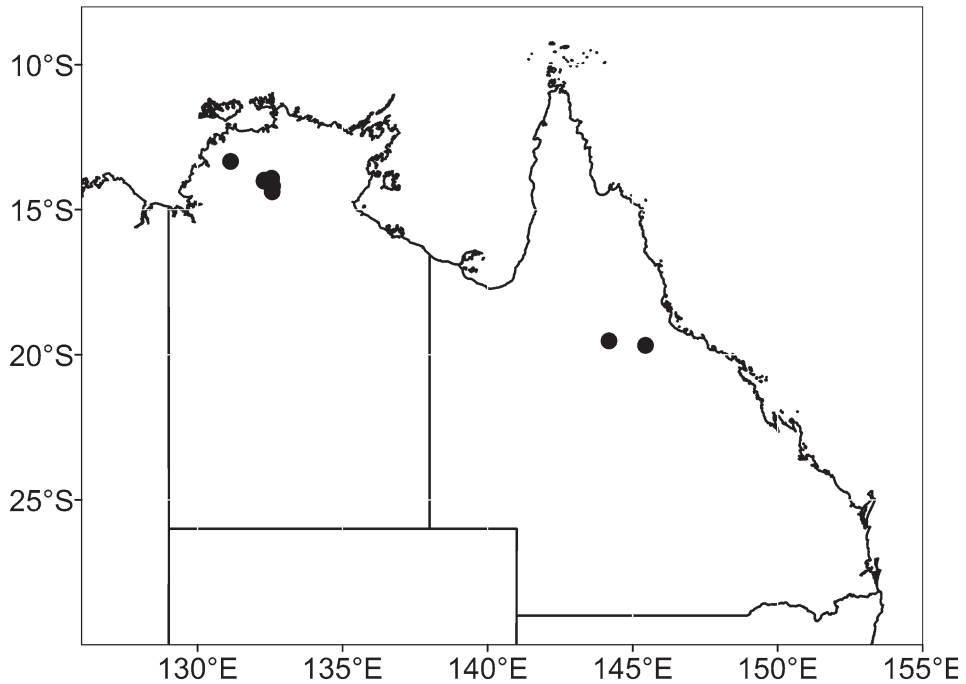
### Key to related species:

*Aristida jacobiana* may be keyed from other species in Section *Macrocladae* by the following key modified from Simon (2005).

- 1 Lemma with a twisted column (sometimes reduced to a ½ spiral)
  - 2 Lower glume 3–7-nerved
    - 3 Awns similar ..... *A. schultzi*
    - 3: Awns dissimilar, median thicker and recurved at maturity ..... *A. warburgii*
  - 2: Lower glume 1-nerved
    - 4 Glumes differing in length by up to 2 mm ..... *A. latifolia*
    - 4: Glumes differing in length by 3–4 mm
      - 5 Inflorescence loose to open with branches naked at base ..... *A. macroclada*
      - 5: Inflorescence ± spike-like with branches bearing spikelets from base
        - 6 Column with at least 1 complete spiral.....*A. psammophila*
        - 6: Column with only a ½ spiral
          - 7 Lemma apex smooth or scabrous only on the keel; inflorescence 2–5 cm wide ..... *A. jacobiana*
          - 7: Lemma apex scaberulous all over; inflorescence 0.5–2 cm wide ..... *A. longicollis*

**Distribution:** *Aristida jacobiana* is known from isolated localities from the top end of the Northern Territory (Adelaide River and Nitmiluk National Park) and north Queensland (Amelia Downs Station and Blackbraes National Park) (Fig. 2). The species has a wide distribution in northern Australia but the Queensland and Northern Territory populations are disjunct. In the Northern Territory it is known from six locations with an extent of occurrence of c. 3880 km<sup>2</sup>, while in Queensland it is known from two locations less than 200 kms apart. While the species is apparently relatively uncommon, there are no apparent threats and six of the eight subpopulations occur in National Parks. It is likely that the species has been overlooked in general field surveys, especially those conducted during the dry season and it is probably more common than the records indicate. Although other abundance data are lacking, foliage cover values at sites where it was present in Nitmiluk National Park were low (≤1 %).

**Notes:** *A. jacobiana* has the very short column of *A. longicollis* but the lemma is not scaberulous all over at the apex, but scabrous only on the keel or the lemma apex is entirely smooth. The inflorescence is narrower (0.5–2 cm wide) than in *A. longicollis* (2–5 cm wide). Furthermore the lemma awns are shorter (9–18 mm long) than in *A. longicollis* (15–25 mm long) and the spikelets are generally smaller and more delicate. Although one of the grass species included in *Grasses of New South Wales* (Jacobs et al. 2008) is *Aristida longicollis*, the latter species does not occur in New South Wales and it is presently unknown what this material should be referred to. *Aristida jacobiana* usually differs from *A. psammophila* by having a shorter column, with barely half a twist, as opposed to the full twist usually present in *A. psammophila*, and by the



**Fig. 2.** Distribution of *Aristida jacobiana* in the Northern Territory and Queensland, Australia.

awns being straight and not recurved, and shorter, than in *A. psammophila*. *Aristida jacobiana* belongs to the Section *Macrocladae* B.K.Simon (Simon 1992), as do both *A. longicollis* and *A. psammophila*. The two Queensland specimens differ from the Northern Territory specimens in having larger spikelet dimensions (Fig.1) and they may represent a separate subspecies, but this will only be resolved by the collection of further material from other regions of both Queensland and the Northern Territory.

**Conservation Status:** following the IUCN Red List (a conservation status of least concern (LC) is recommended for the Northern Territory, and data deficient (DD) for Queensland.

([http://en.wikipedia.org/wiki/IUCN\\_Red\\_List](http://en.wikipedia.org/wiki/IUCN_Red_List))

### Acknowledgments

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