

Aristea rufobracteata (Iridaceae: Aristeoideae), a new species from the southern Western Cape, South Africa

Authors:

Peter Goldblatt^{1,2}
John C. Manning^{1,3}

Affiliations:

¹Research Centre for Plant Growth and Development, University of KwaZulu-Natal, South Africa

²B.A. Krukoff Curator of African Botany, Missouri Botanical Garden, United States

³Compton Herbarium, South African National Biodiversity Institute, South Africa

Correspondence to:

John Manning

Email:

j.manning@sanbi.org.za

Postal address:

PO Box 299, St. Louis, Missouri 63166, United States

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Background: Collections of a tall species of *Aristea* from the southern coastal mountains of South Africa, with hairless, reddish brown bracts, have been variously identified as *Aristea bakeri* Klatt or *Aristea capitata* (L.) Ker Gawl., but do not accord with either of these two or any other known species.

Objectives: To describe a new species in *Aristea* to accommodate material from the southern coastal mountains that cannot be included in any known species.

Method: Existing herbarium collections were studied and the relevant published literature consulted.

Results: The new species *Aristea rufobracteata* is described for collections of tall plants from the Langeberg, Outeniqua, Tsitsikamma and Baviaanskloof mountains. It has a mostly condensed inflorescence, reddish brown bracts and small capsules.

Conclusion: The new species increases our understanding of the diversity in *Aristea* in southern Africa.

Introduction

In the course of a review of herbarium collections of *Aristea* Aiton, we identified specimens of tall plants with hairless, reddish brown inflorescence spathes and bracts from the Langeberg, Outeniqua, Tsitsikamma and Baviaanskloof mountains in South Africa as an undescribed species. These collections were identified as *Aristea bakeri* Klatt or *Aristea capitata* (L.) Ker Gawl. [or their synonyms *Aristea confusa* Goldblatt, *Aristea major* Andrews or *Aristea thyrsiflora* (D.Delaroche) N.E.Br.], following Weimarck (1940), who included several early collections of the taxon from the George and Knysna districts of the southern Western Cape in his circumscription of *A. capitata*. The name *A. capitata* is now reserved for the Western Cape species from the Cape Peninsula and nearby. We include these early collections and several more recent collections from the southern coastal mountains in the new species *Aristea rufobracteata*, naming it for the unusual dry, red-brown spathes.

The African and Madagascan genus *Aristea*, now with some 58 species (Goldblatt & Manning 2013), is the sole genus of the Iridaceae subfamily Aristeoideae Vines (Goldblatt & Manning 2008). Centred in western southern Africa, where it is both most diverse and species rich, the genus has some eight species in Madagascar and 11 in tropical Africa; of these, five are shared with southern Africa and one with Madagascar (Goldblatt & Manning 2013; Goldblatt, Phillipson & Manning 2013). *Aristea rufobracteata* is a member of subgenus *Aristea* section *Racemosae* Weim. This section, which is restricted to the winter rainfall zone of southern Africa (Goldblatt [2012] 2013), is recognised by its robust habit, minutely notched style and three winged, apically dehiscent capsules containing flattened, lamellate seeds.

Research method and design

We examined all relevant collections at the herbaria with significant collections of southern African plants, namely the Bolus Herbarium, University of Cape Town (BOL), Royal Botanic Gardens, Kew (K), the Compton Herbarium, South African National Biodiversity Institute, Cape Town (NBG), the Missouri Botanical Garden, Saint Louis (MO), the National Herbarium, South African National Biodiversity Institute, Pretoria (PRE) and the South African Museum Herbarium, South African National Biodiversity Institute, Cape Town (SAM) (acronyms after Holmgren, Holmgren and Barnett [1990]). We also reviewed the relevant literature and implemented our conclusions with a formal description of the new species.



Source: Compton Herbarium, South African National Biodiversity Institute, Cape Town
Scale bar, 10 mm.

FIGURE 1: Scan of the holotype of *Aristea rufobracteata*, Ruiters 44 (Compton Herbarium, South African National Biodiversity Institute, Cape Town).

Results

Aristea rufobracteata Goldblatt & J.C.Manning, sp. nov.
Type: SOUTH AFRICA, **Western Cape:** 3320 (Montagu): Grootvadersbos, throughout Boesmansbos Wilderness area, after fire, 500 m – 1000 m, (–DD), 16 Nov. 1988, Ruiters 44 (NBG, holo.; NBG, PRE, iso.).

Description

Evergreen, rhizomatous perennials, 0.8 m – 1 m high, solitary or growing in clumps. *Stem:* subterete, with suberect branches borne at lower fertile nodes; lateral flower clusters sessile; branches short, crowded. *Leaves:* several, linear, 7 mm – 14 mm wide, firm and fibrotic. *Flower clusters:* many, crowded, upper clusters mostly sessile but lower nodes with short to long branches; mostly with two to four flowers in each cluster; spathes and bracts rusty brown, 8 mm – 10 mm long, thinner and somewhat translucent near edges, obtuse, glabrous, becoming slightly crinkled and torn with age. *Flowers:* subsessile, blue; tepals obovate, ± 15 mm long. *Stamens:* with filaments ± 4 mm long; anthers ± 4.5 mm long. *Style:* ± 7 mm long, minutely three-notched at apex. *Capsules:* oblong in outline, narrowly three winged, 11 mm – 14 mm long. *Seeds:* lamellate, kidney shaped, mostly two per locule,

margins papillate. *Flowering time:* mainly November and December, sometimes in October (Figure 1).

Distribution

Scattered along the southern coastal mountains of the Western and Eastern Cape, where it has been recorded from the Langeberg between Heidelberg and Riversdale, the Outeniqua Mountains above George, the Tsitsikamma mountains near Clarkson, and the Baviaanskloof Mountains at Loerie (Figure 2). The species occurs on stony sandstone slopes in fynbos, mainly at an altitude from 400 m a.s.l. to 600 m a.s.l., and flowers primarily after fire.

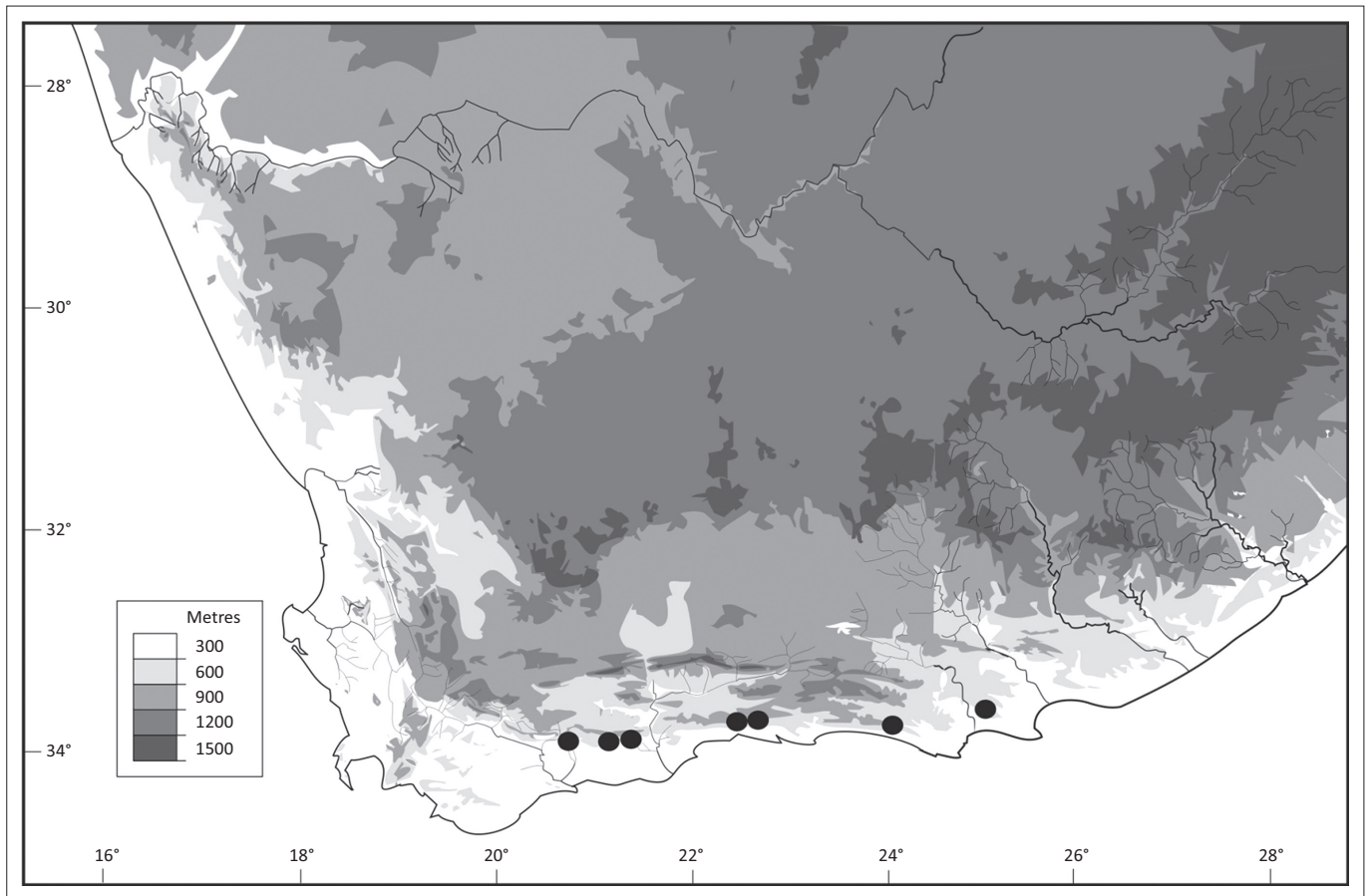
Diagnosis

Aristea rufobracteata is broadly similar to *A. capitata* in its tall stature, often densely columnar flowering axis and relatively short capsules (11 mm – 14 mm long). The flowering stem is branched but the branches are usually fairly short (sometimes up to 150 mm long) and erect or suberect. The individual flower clusters are sessile or subsessile and the inflorescence spathes and floral bracts are rusty brown, thinner and slightly paler toward the margins; the spathes are usually obtuse but are sometimes more or less acute (Figure 3a).

The reddish brown spathes and bracts differ substantially from those of *A. capitata*, which are pale and silvery translucent, with a dark brown central keel extending upwards as an attenuate, cusp-like tip (Figure 3b). *Aristea capitata* is centred on the Cape Peninsula, extending eastwards to the Rivieronsderend Mountains and northwards to the Piketberg, thus some distance to the west of the nearest station for *A. rufobracteata*.

Most collections of *A. bakeri* have a rather open, panicle-like inflorescence with well-developed secondary and sometimes even tertiary branches, which are occasionally suberect. The rust-coloured bracts are usually minutely hairy to scabrid beneath and always have evident, narrow, semitransparent margins. *Aristea bakeri* extends from the Cape Peninsula in the west to Uitenhage in the east, thus overlapping considerably with *A. rufobracteata* in the eastern half of its range, and both have been recorded in the mountains above George.

Capsules are particularly important in distinguishing species of section *Racemosae* (Goldblatt & Manning 1997). *Aristea rufobracteata* has capsules 11 mm – 14 mm long, thus shorter than most collections of *A. bakeri*, in which they are typically 18 mm – 30 mm long. The seeds are lamellate and irregularly kidney shaped, with brown papillae along the margins, like those of *A. bakeri* and its allies, *Aristea juncifolia* Baker and *Aristea racemosa* Baker. The margins of the seeds in *A. capitata* are smooth. Plants illustrated under the name *A. capitata* in Curtis's *Botanical Magazine* (Ker Gawler 1802) are almost certainly *A. rufobracteata*.



Source: Michelle Smith

FIGURE 2: Map showing the geographic distribution of *Aristea rufobracteata*.

The important taxonomic differences amongst the three species are summarised in Table 1.

Conservation notes

Aristea rufobracteata is relatively widely distributed and occurs in several conservation areas. There are no immediate threats.

Additional specimens seen

WESTERN CAPE.—**3320** (Montagu): Grootvadersbos, lower slopes of mountains, (–DD), 3 Dec. 1958, *G.J. Lewis* 5233 (NBG). **3321** (Ladismith): Riversdale, between the Little Vet river and Kampsheberg, (–CC), [without date], *Burchell* 6879 (K); Corente River Farm, (–CC), Aug. 1909 [without date], *Muir sub Galpin* 5359 (PRE). **3322** (Oudtshoorn): Montagu Pass, south slopes (–CD), 4 Nov. 1928, *Hutchinson* 1213 (BOL, K); Montagu Pass, 2000 ft [600 m], (–CD), 4 Feb. 1951, *Hodge* 8541 (K); between Oudtshoorn and George, (–CD), 14 Nov. 1942, *Chippindall s.n.* (K, PRE); George, below the power station, (–CD), 5 Nov. 1928, *J.B. Gillett* 2096 (NBG); mountains north of George Town [George], (–CD), [without date], *Burchell* 6011 (K); slopes of Cradockberg, 1600 ft [490 m], (–CD), Nov. 1928 [without date], *Fourcade* 4095 (BOL, K); George, Tierkop, 1600 ft [490 m], (–DC), 11

Nov. 1976, *Bond* W653 (PRE); Knysna, Buffelsnek, 2000 ft [600 m], (–DC), Oct. 1923 [without date], *Phillips* 151 (BOL, PRE); Knysna, Van der Waltshoek, (–DC), 20 Oct. 1922, *Keet* 998 (PRE); Knysna, Spitskop, (–DC), 4 Nov. 1970, *Geldenhuis* 166 (PRE).

EASTERN CAPE.—**3325** (Port Elizabeth): Humansdorp, Loerie Forest Reserve, (–CC), 29 Jan. 1934, *W. Long* 66 (NBG).

Acknowledgements

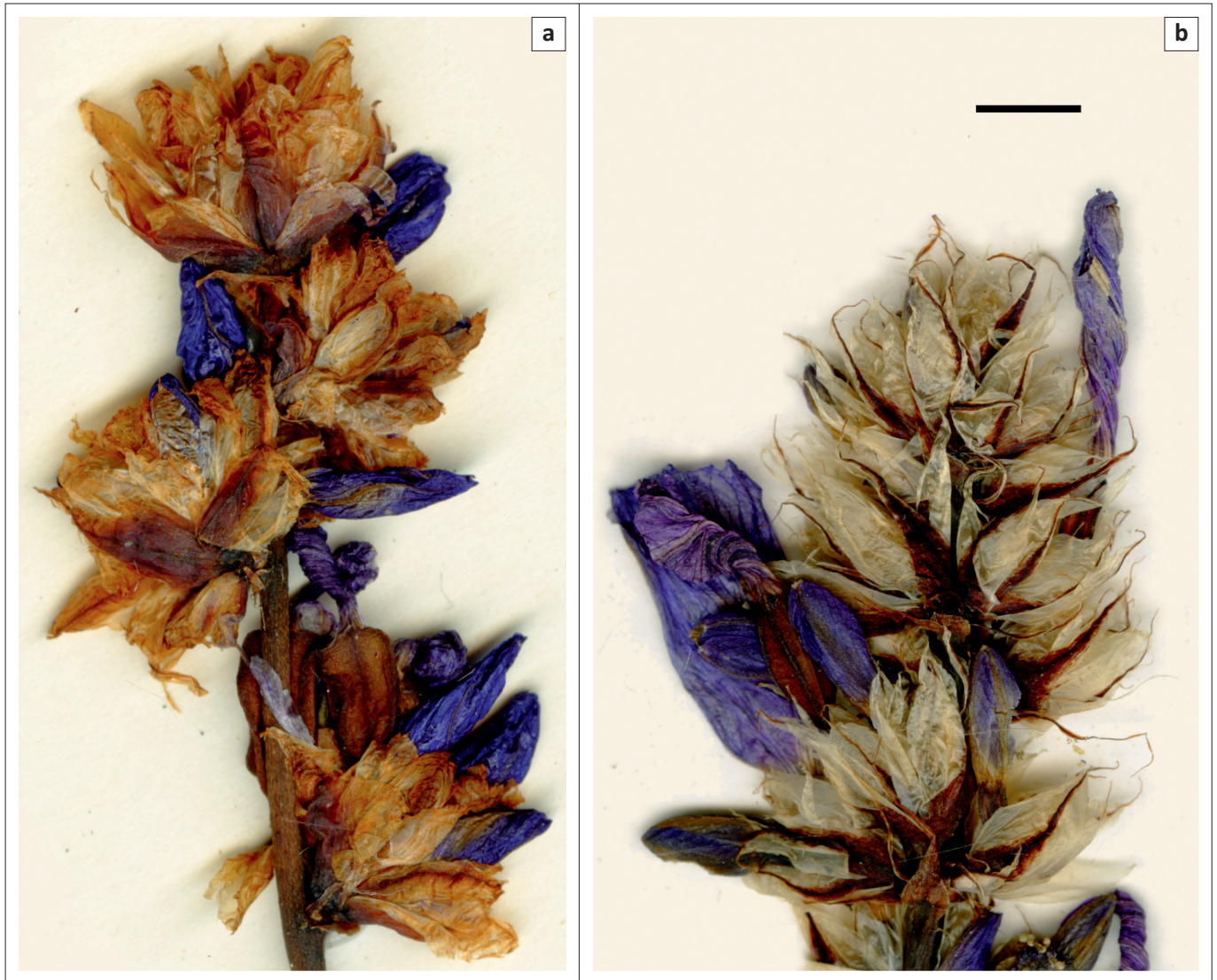
Michelle Smith prepared the digital map. Anthony Magee prepared the figures.

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

P.G. (Missouri Botanical Garden) and J.C.M. (South African National Biodiversity Institute) contributed equally in all parts of this article.



Source: Compton Herbarium, South African National Biodiversity Institute, Cape Town Scale bar, 5 mm.

FIGURE 3: Flower clusters of *Aristeia* species, showing bract differences: (a) *Aristeia rufobracteata*, based on the specimen from *Ruiters 44* (NBG), showing rusty bracts with obtuse apices; (b) *Aristeia capitata*, based on the specimen from *Orchard 451* (NBG), showing translucent bracts with dark keels and attenuate aristate apices.

TABLE 1: Comparison of important taxonomic differences amongst *Aristeia bakeri*, *Aristeia capitata* and *Aristeia rufobracteata*.

Character	Species		
	<i>Aristeia bakeri</i>	<i>Aristeia capitata</i>	<i>Aristeia rufobracteata</i>
Inflorescence	Open and paniculate	Congested and columnar	Congested and columnar or, rarely, weakly paniculate
Bracts	Weakly speckled rusty brown, puberulous below, attenuate cuspidate	Silvery translucent with glabrous blackish keel, attenuate aristate	Densely speckled rusty brown, glabrous, obtuse or acute
Capsules	(15–) 18 mm – 30 mm long	11 mm – 14 mm long	11 mm – 14 mm long
Seed margins	Papillate	Smooth	Papillate
Distribution	Cape Peninsula to Uitenhage	Piketberg to Riviersonderend	Langeberg to Tsitsikamma mountains

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