




Caesia walalbai A.T.Webb, Birch & R.L.Barrett (Asphodelaceae, Hemerocallidoideae), a new species from south-east Queensland

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Abstract

Caesia walalbai A.T.Webb, Birch & R.L.Barrett (Asphodelaceae, Hemerocallidoideae) is described as a new species endemic to south-east Queensland, Australia. It is distinguished from other white-flowered, eastern Australian *Caesia* species by long, often recurved pedicels and entirely yellow staminal filaments. *Caesia walalbai* is notable for having 23 observations on the citizen science platform iNaturalist, all made in the last three years, while a similar number of herbarium specimens have been collected, the first in 1959. The species was also collected on the Carnarvon Station Reserve BushBlitz in 2014. A new description of *Caesia parviflora* R.Br. s. str. is provided based on specimens collected in the Sydney region of New South Wales, the type location for the species.

Introduction

Caesia R.Br. (Asphodelaceae subfam. Hemerocallidoideae) contains 14 species and eight additional entities that are recognised by phrase names in Western Australia (Western Australian Herbarium 1998–) and the Northern Territory (Northern Territory Herbarium 2023). The genus is predominantly Australian (10 species), with *C. setifera* Baker extending to Papua New Guinea, and four species in South Africa and Madagascar (Henderson 1987; Boatwright & Manning 2010). *Caesia* occupies a diverse array of habitats across much of Australia. In eastern Australia, species are most often found in the grassy understorey of eucalypt woodlands and in heathlands (Clifford *et al.* 1992; McCune & Hardin 1993; Conran & Walsh 1994).

Australian *Caesia* taxonomy has remained largely unaltered since the *Flora of Australia* treatment (Henderson 1987). Exceptions include two additions to the genus, *C. viscida* Keighery and *C. arcuata* T.Macfarlane, Conran & C.J.French (Keighery 1990; Macfarlane *et al.* 2020), and nomenclatural changes at familial rank [Xanthorrhoeaceae in APG III (The Angiosperm Phylogeny Group 2009), Asphodelaceae in APG IV (Klopper *et al.* 2013; Chase *et al.* 2016)]. Phylogenetic studies place *Caesia* sister to an *Arnocrinum* Endl. & Lehm., *Hensmania* W.Fitzg., *Hodgsoniola* F.Muell., plus *Johnsonia* R.Br. clade, which is successively sister to *Corynotheca* (Webb, unpublished MSc thesis; Webb *et al.*, in prep., Wurdack & Dorr, 2009; Chen *et al.* 2013). A recent revision of *Corynotheca* F.Muell. ex Benth. (Barrett *et al.* 2021) has highlighted the requirement for similar work within *Caesia* and as such, the genus is the subject of phylogenetic study (Webb *et al.*, in prep.).

Caesia diversity in eastern Australia currently comprises five species. The most widespread and prevalent of these is *Caesia parviflora* R.Br., a species complex found from Brisbane, Queensland, in proximity to the coastline through to south-eastern South Australia (Henderson 1987). It has previously been reported from Cape York Peninsula (Henderson 1987), but these collections are now referred to *C. setifera* s. lat. *Caesia parviflora* is morphologically variable and currently contains three infraspecific taxa: *C. parviflora* R.Br. var. *parviflora*, *C. parviflora* var. *minor* R.J.F.Hend. and *C. parviflora* var. *vittata* (R.Br.) R.J.F.Hend. Morphological characters that are cited for distinguishing *C. parviflora* varieties are limited to flower colour, inflorescence orientation and size, and root morphology.

Eastern Australian *Caesia* taxa, *C. alpina* Hook.f., *C. parviflora* and *C. setifera*, are easily overlooked in the vegetation understory unless flowering, as their leaves are typically sparse and narrow. Many of the features required for identification of *Caesia* taxa (e.g. flowers, seeds, roots) are often not collected or do not retain necessary details (e.g. colour) in voucher specimens. As a result, accurate assessment of taxonomic boundaries for eastern *Caesia* species, particularly *C. parviflora*, is challenging and species diversity is likely underestimated. For this reason, we here define and describe *C. parviflora* s. str. based on *C. parviflora* var. *parviflora* specimens (i.e. excluding vars. *minor* and *vittata*) and field observations of plants from the Sydney region to enable critical comparison of other species and varieties. Taxonomic revision of the *Caesia parviflora* complex is ongoing. This study highlights the value to taxonomic research of photographic records on citizen science platforms like iNaturalist (2023) for the documentation of ephemeral organs, especially colour and shape (Mesaglio *et al.* 2023).

Caesia walalbai A.T.Webb, Birch & R.L.Barrett is a new species in *Caesia* which, until recently, had gone largely unnoticed in south-eastern Queensland, where it is endemic. Prior to this publication, this entity has been identified as *C. parviflora* var. *parviflora*, contributing to confusion associated with taxonomic delimitation within the *Caesia parviflora* complex. It is most readily recognised by distant flower cluster spacing, with long, recurved pedicels giving the flowers a pendulous appearance, and entirely yellow staminal filaments. *Caesia walalbai* resembles *C. parviflora* and *C. setifera*, but is readily distinguished from them, as discussed below. *Caesia walalbai* is recognised by morphology (this paper) and preliminary phylogenetic analyses associated with an ongoing broader study of *Caesia* (Webb, unpublished MSc thesis; Webb *et al.*, in prep.).

Methods

Fieldwork was conducted in South Australia, New South Wales, and Victoria to understand and document the morphological and ecological diversity within the *Caesia parviflora* complex. *Caesia* specimens at the State Herbarium of South Australia (AD), Queensland Herbarium (BRI), National Herbarium of Victoria (MEL), University of Melbourne Herbarium (MELU), National Herbarium of New South Wales (NSW) and Tasmanian Herbarium (HO) were examined. Images of *Caesia* plants growing north of Brisbane, in Vernon Conservation Reserve, Hervey Bay, Burrum Coast National Park and Coonarr, north of Hervey Bay, Queensland, by Scott Gavins, Tony Eales and Geoffrey Sinclair in 2021 on iNaturalist (2023), were observed by the first author to be morphologically distinct from *Caesia parviflora*. This prompted the request for a voucher specimen, which was collected by Ted Johansen and lodged at BRI. Further observations on iNaturalist have been made from Freshwater National Park, Maryborough, Springwood Conservation Park, and Tuan Forest. Specimens resembling the new collection were obtained on loan and were studied at The University of Melbourne Herbarium, Victoria. Morphological measurements of 16 individuals of the target taxon were made using a dissecting microscope. These measurements were compared to those of other *Caesia* species, generated during earlier herbarium-based study. Thus, all measurements pertain to dried material. All specimens cited have been examined by the authors unless noted as images seen (denoted by *). Notes on ephemeral and colour-based features are derived from observations and associated images made available on iNaturalist (2023).

Taxonomy

Caesia walalbai A.T.Webb, Birch & R.L.Barrett, *sp. nov.*

Type: Vernon Conservation Reserve, Hervey Bay, Queensland, 6 September 2022, *T. Johansen* s.n. (holotype: BRI AQ1036032).

Rhizomatous, annual *herb* to 75 cm high; *roots* fleshy-fibrous or narrowly tuberous. *Leaves* (10–)20–50 cm long, linear, ascending to recurved, basal, seasonally senescent, green, abaxial and adaxial surfaces discolourous when fresh, apices acute; lamina 1–3 mm wide, slightly biconvex when young, canaliculate, glabrous, margins slightly inrolled and entire or minutely undulate to finely sinuate due to many small projections; sheath papery, reddish, persists as fine bristles following senescence. *Inflorescence* 1-per-plant, 35–75(–85) cm tall, paniculate; axis terete, slender, 1–several-branched; flower clusters distant, not overlapping, (1–)2–4-flowered. Bract subtending

lowest branch linear–lanceolate, (5–)20–50(–100) mm long, $> 3\times$ length of upper bracts subtending flower clusters; upper bracts subulate or lanceolate, 1.5–3 mm long, green to brown. *Pedicels* (6–)10–20(–30) mm long, slender, often recurved, red or green. *Flowers* pedicellate, erect to pendulous. *Perianth* segments 6, 4–6 mm long, narrowly elliptic, thin, spreading to recurved, two-toned in colour. Outer whorl white or pale pink to red-brown with subterminal, short, reflexed, apical trichomes, inner whorl white to cream, both whorls with green to brown nerves and obtuse apices, segments twist following anthesis. *Stamens* 6, equal, 2–3 mm long, epitepalous, attached slightly above tepal base; filaments fusiform, yellow with clear apex; anthers c. 0.5 mm long, yellow, dorsifixed, versatile. *Ovary* green, \pm spheroidal, smooth, 3-locular; ovules 2 per locule; placentation axile; style simple, filiform, of similar length to stamens; stigma minutely capitate. *Capsules* 3–6 mm wide, surface often with irregular, rounded projections, tripartite, loculicidal, 1 or 2 seeds developing per locule, green. *Seeds* 1.3–2 mm wide; testa dull black, granular with sparse, irregular tubercles; aril papery, not sheathing seed. (Figs 1 & 2)

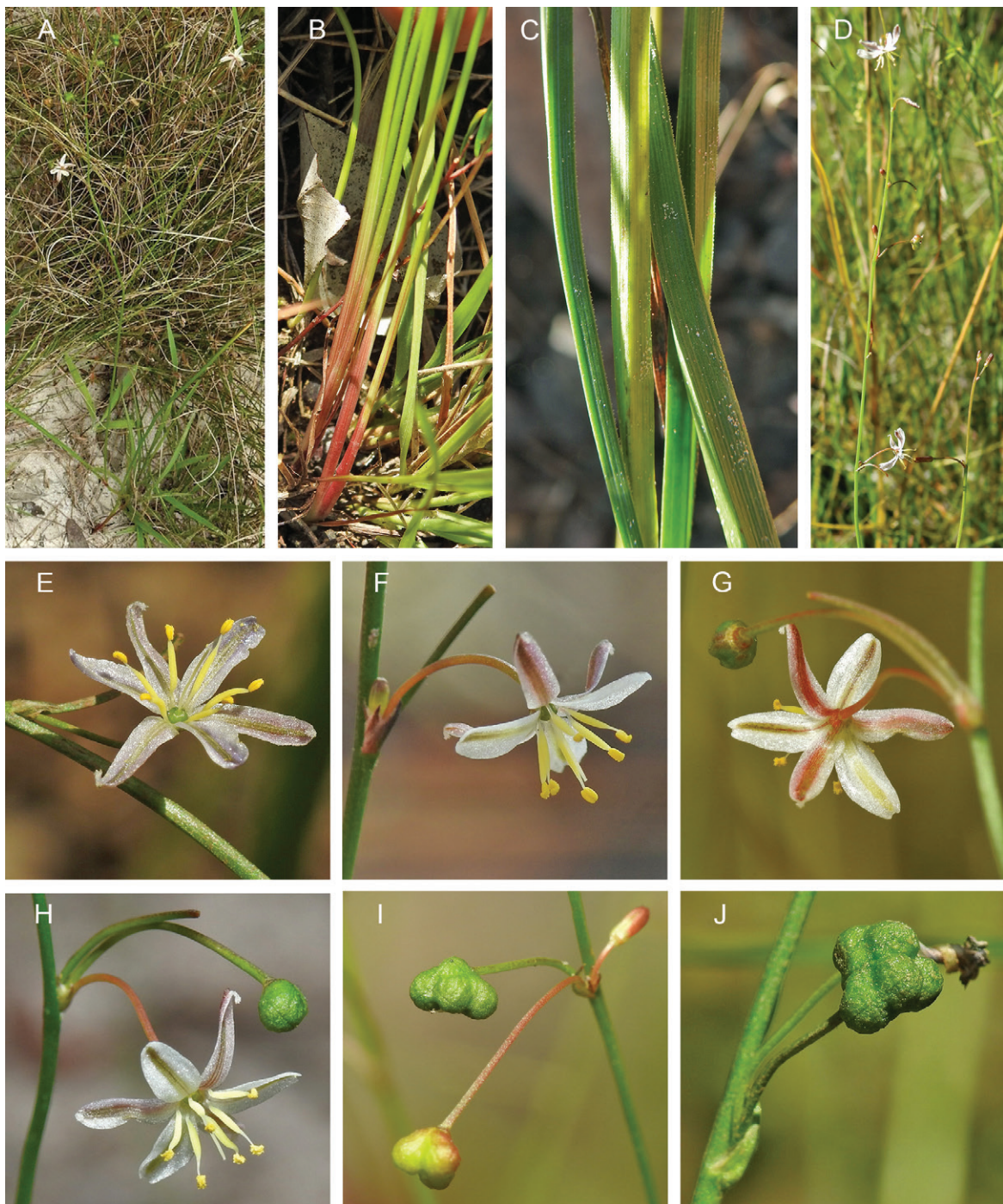


Figure 1. *Caesia walalbai* from Hervey Bay, Maryborough and near Talegalla Weir, Tuan State Forest, Queensland, Australia. A. Habit; B. Leaf sheath; C. Leaf lamina; D. Inflorescence; E–H. Flowers showing pedicels depicting yellow filaments and long, recurved pedicels; I, J. Mature and developing (centre) capsules. Photos by Scott Gavins.

Queensland Herbarium (BRI)

Australia: Queensland

Wide Bay

Caesia

Coll.: Johansen, T.

Sep 2022

Coll. no.: s.n.

Lat.: 25° 20' 27.000"S Long.: 152° 45' 10.000"E

Datum: GDA94

Vernon Conservation Park, Hervey Bay.

Coastal and sub-coastal floodplain tree swamp; *Melaleuca* spp. and *Eucalyptus* spp. Palustrine wetland.

Voucher for DNA sequencing, Aiden Webb (MELU).

QUEENSLAND HERBARIUM (BRI)
Brisbane Australia

AQ 1036032

Det.: Wang, J., Sep 2022

Dup.:

389.2 Johnsoniaceae



BRI-AQ1036032

Prep at BRI: Sheet



Figure 2. Holotype of *Caesia walalbai* from Vernon Conservation Reserve, Hervey Bay, Queensland (T. Johansen s.n.; BRI AQ1036032). Specimen reproduced with permission from Queensland Herbarium & Biodiversity Science, Brisbane, Queensland.

Diagnostic characters: *Caesia walalbai* is the only eastern Australian *Caesia* species with entirely yellow staminal filaments. Filament colours of other eastern Australian *Caesia* taxa are white (*C. parviflora* s. str.), banded purple and white (*C. chlorantha* F.Muell., *C. parviflora* var. *vittata*), purple (*C. calliantha* in NSW, Victoria and Tasmania), or purple and yellow (white in WA) (*C. setifera* s. lat.). Perianth colour separates *C. walalbai* (white to red-brown) from *C. parviflora* var. *vittata* (blue) and may help distinguish it from *C. parviflora* s. str. and *C. setifera* (white or pale blue). Pedicels are typically longer [(6–)10–20(–30) mm] and more recurved in *C. walalbai* than those of other white-flowered *Caesia* species from Queensland [*C. parviflora* s. str. (c. 3–10 mm) and *C. setifera* (c. 5–15 mm)], often giving a pendulous appearance to flowers. Inflorescence height tends to be greater in *C. walalbai* (35–75 cm) than in *C. parviflora* s. str. (25–55 cm) or *C. setifera* (< 45 cm). Flower cluster spacing is distant in *C. walalbai* and proximate in *C. parviflora* s. str. The fleshy-fibrous roots of *C. walalbai* distinguish it from *C. setifera*, which has roots with distinct tubers.

Additional specimens examined: QUEENSLAND. Near Beerburrum, 19 Sept. 1959, S.T. Blake 21001 (BRI, NSW); Blackdown Tableland, c. 32 km SE of Blackwater, 18 Apr. 1971, S.B. Andrews 659 & P. Sharpe (BRI); Blackdown Tableland, c. 1.2 km NW of campsite on Mimosa Creek, c. 35 km SE of Blackwater, Sept. 1971, R.J. Henderson 971, L. Durrington & P. Sharpe (BRI, NSW); 18 km N of Maroochydore on Noosa Road, 25 Nov. 1972, P. Sharpe 181 (BRI); Carnarvon Gorge, Nov. 1989, W. Morley 11 (BRI); Kinkuna National Park, 4 Mar. 1991, J. Brushe JB535 (BRI*); Neville Lawrie Reserve, Logan City, 14 Dec. 1993, E.J. Thompson MOR295 (BRI); Gastons Road, west of Bundaberg, 16 Oct. 1996, A.R. Bean 11024 (BRI); 2 km W of Rules Beach, north-west of Bundaberg, 19 Oct. 1996, A.R. Bean 11088 (BRI); Burrum Coast National Park, Woodgate section, 22 Oct. 1996, P.I. Forster 19859 & G. Leiper (BRI); Mt Moffatt National Park, 29 Dec. 1997, A.R. Bean 12838 (BRI); Palmgrove National Park, north-west of Taroom, 3 Nov. 1998, P.I. Forster 23696 & R. Booth (AD, BRI, MEL, NSW); North Stradbroke Island, track beside swamp off East Coast Road, 25 Oct. 2006, K.M. Stephens 25100619 (BRI); 4 km N of Mt. Owen, 23 Nov. 2011, A.R. Bean 31350 (BRI); Carnarvon Station Reserve, Caves Creek Road, SE section of reserve, c. 1.6 km from the boundary, 10 Oct. 2014, B.M. Collins 268 & E.J. Toms (CANB*); Nour Nour National Park, Hungry Hills, 18 Apr. 2015, P.I. Forster 42458 & M.B. Thomas (BRI); Redland Bay, Serpentine Creek Road Historic Cemetery, 24 Sep. 2015, P.I. Forster 43029, J.J. Beard & G. Leiper (BRI, MEL); Tin Can Bay, Wide Bay Training Area, 17 Dec. 2015, P.I. Forster 43677 & M.B. Thomas (BRI); c. 50 km SW of Moura, 20 Mar. 2018, C. Wiley 32 (BRI).

iNaturalist records: <https://inaturalist.ala.org.au/> (verified 22 April 2023): 39647429, 66723760, 94086286, 103129348, 127963076, 128539654, 129380578, 133674933, 133678734, 133678738, 133678744, 133942946, 135761167, 136548593, 137228217, 137724150, 140474507, 140475404, 142430434, 143861124, 144696471, 146263124, 147233053.

Phenology: Flowering occurs primarily between September and December, with additional records in January, March, April, July and August. It is likely dependent on seasonal rains. Flowers open for one day, at mid to late afternoon (T. Johansen pers. comm.).

Distribution: Endemic to Queensland, *Caesia walalbai* is found only in the south-east (Fig. 3). In addition to herbarium vouchers cited above, iNaturalist records confirm the species for Freshwater National Park, Maryborough, Springwood Conservation Park, and Tuan Forest.

Habitat: *Caesia walalbai* is often cryptic in palustrine wetland, coastal and sub-coastal floodplain tree swamp (*Melaleuca* and *Eucalyptus*), and in grassy understorey of open eucalypt woodland, on damp, sandy soils. Its distribution extends inland to the Blackdown Tablelands, Palmgrove National Park, and Carnarvon National Park, where it occurs in eucalypt woodland on sand atop sandstone ridges.

Conservation status: *Caesia walalbai* is relatively common, but often cryptic, at known localities across its distribution and is not considered threatened.

Etymology: ‘Walalbai’ originates from Butchulla/Badjala, the language of the Butchulla/Badjala people, from whose country the holotype was collected. It means small or little, in reference to the relative size of the flowers. The name was provided by Darren Blake, Traditional Owner of Butchulla/Badjala country and permission was granted for the application of the name for this species.

Common name: Drooping Grass-lily.

Notes: As is common for most eastern-Australian *Caesia* taxa (*C. alpina*, *C. parviflora*, *C. setifera*), *C. walalbai* is easily overlooked in its habitat unless it is flowering. Consequently, the genus is represented by a relatively small number of specimens in Australian herbaria. Additionally, the characters required for identification of *Caesia* taxa (e.g., flowers, seeds, roots) are often not collected or do not retain necessary details (e.g., colour) in herbarium specimens. This results in difficulty providing accurate specimen determinations and may have contributed to the oversight of *C. walalbai* in south-east Queensland. Superficially, *C. walalbai* is very similar

to *C. parviflora* s. str. and *C. setifera* and specimens have historically been determined as *C. parviflora* or *C. parviflora* var. *parviflora*.

The distribution of *Caesia setifera* in Queensland is likely confined to the far north (Cape York Peninsula), while the furthest north *C. parviflora* var. *parviflora* (*C. parviflora* s. str.) has been confirmed is Noosa. Therefore, the distribution of *C. walalbai* only intersects with *C. parviflora* var. *parviflora* and *C. parviflora* var. *vittata*, between Noosa and Brisbane (Fig. 3). Records at BRI of *Caesia parviflora* var. *parviflora* from Mackay (BRI AQ0053413) and near Emerald (BRI AQ0739761) are likely to represent collections of *Caesia walalbai*, but have not been examined.

Caesia walalbai is a new species separated from the concept of *C. parviflora* s. lat. in eastern Australia. Formal recognition of this taxon and defining its distribution will aid in delimitation of other taxa within the *C. parviflora* complex and their associated distributions, which have historically been poorly defined (Henderson 1987). A study of the *Caesia parviflora* complex is ongoing, but a description of the typical form occurring in the Sydney region (currently var. *parviflora*) is provided below for comparison to *C. walalbai*.

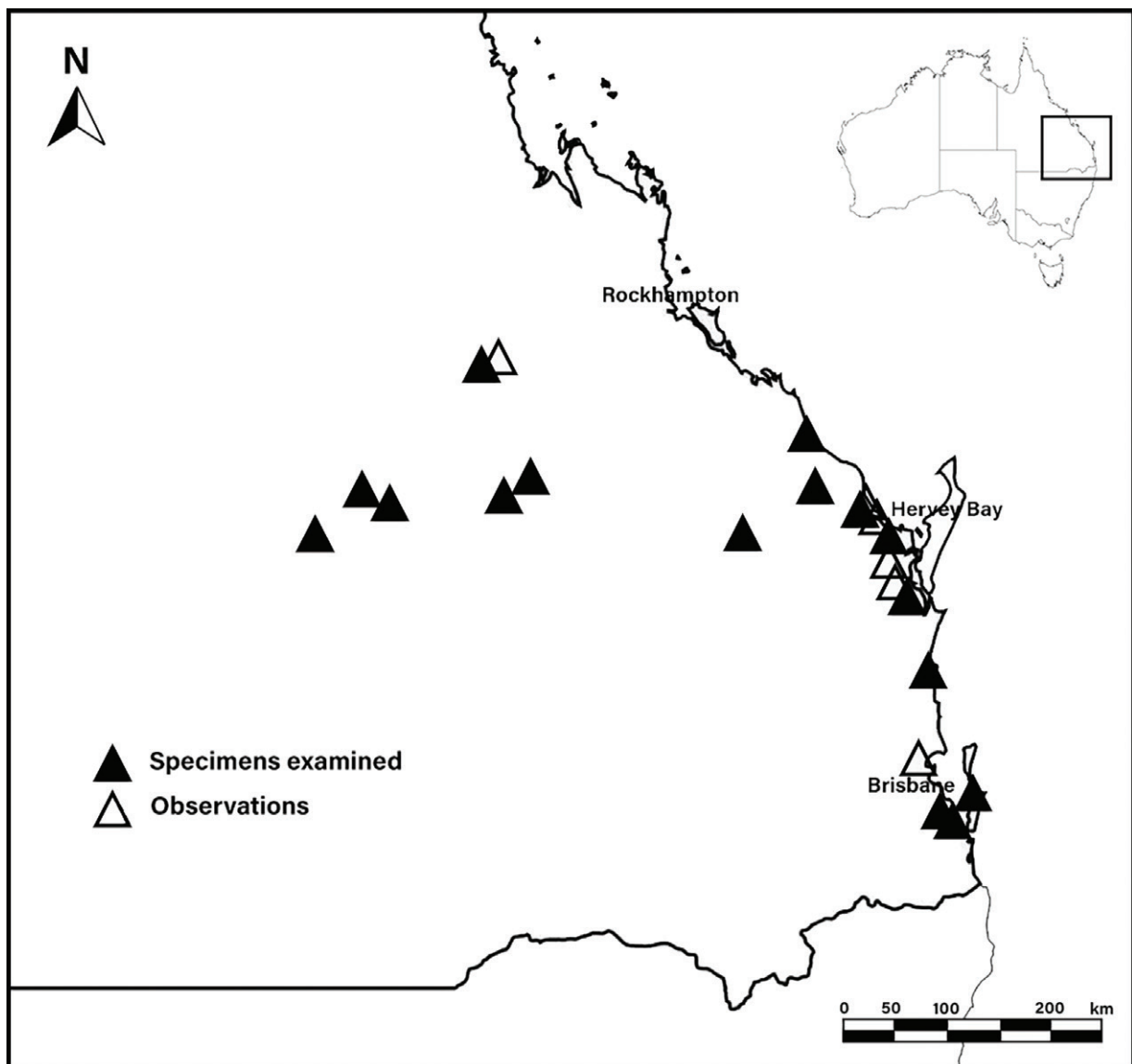


Figure 3. Distribution of *Caesia walalbai* in south-east Queensland, Australia. Solid black triangles (▲) denote specimens examined from BRI, open triangles (△) denote confirmed observations from iNaturalist.

Caesia parviflora R.Br., *Prodromus florae Novae Hollandiae et insulae Van-Diemen* 277 (1810).

Type citation: “(J.D.) v.v.”

Lectotype: New South Wales: [in apricis sterilibus prope Sydney, 16 October 1803], *R. Brown s.n.* [Iter Austral. 5693] (lecto: BM 000990656*; isolecto: BM 000990659*, CANB 279204*, K 000794739*, K 000794740*, MEL 107238*, NSW 154908, P 00852457*), designated by Henderson (1987: 471).

Syntypes: New South Wales: Port Jackson, *R. Brown s.n.* (syn: BM 000990657*, BM 000990658*).

Caesia dichotomizans Gand., *Bulletin de la Société Botanique de France* 66: 292 (1919).

Type citation: “Australia, Victoria (Walter!)”

Lectotype: Victoria: 1902, *Walter s.n.* (lecto: NSW 120960 ex Herb. Walter), designated by McGillivray (1973: 333; as ‘holotype’).

Syntype: Victoria: Dividing Ranges, Nov. 1898, *Walter* (syn: NSW).

Rhizomatous, annual *herb* to 55 cm high; *roots* fleshy, narrowly tuberous. *Leaves* 12–31 cm long, linear, ascending to recurved, basal, seasonally senescent, green, abaxial and adaxial surfaces discolorous when fresh, almost glaucous above, ± concolorous when dry, apices acute; lamina 1.1–1.9(–3.2) mm wide, slightly biconvex when young, shallowly canaliculate at maturity, finely ribbed, glabrous, margins plain and appearing finely sinuate due to many small projections; sheath papery, white to pale brown or red, persists as fine bristles following senescence. *Inflorescences* 1-per-plant (but plants commonly clustered, so appearing multiple), 25–55 cm tall, paniculate; axis ± terete when fresh, drying angular, slender, 1–several-branched; flower clusters usually proximate, commonly overlapping or almost so, (2–)3–4-flowered. Bract subtending lowest branch linear, variable in length, 5–14 mm long, 3–7× length of upper bracts subtending flower clusters; upper bracts ovate, 1.3–2.4 mm long, white to dark grey or with a purplish tint. *Pedicels* 2.6–6.0(–10) mm long, slender, erect to gently curved, green or brownish. *Flowers* pedicellate, erect to spreading. *Perianth* segments 6, 2.7–3.9 mm long, narrowly elliptic or oblong, thin, spreading to recurved, two-toned in colour. Outer whorl white (or pale pink with age) to grey-brown with subterminal, short, reflexed, apical trichomes, inner whorl white to cream, both whorls with green to grey-brown nerves and obtuse apices, segments twist strongly following anthesis and commonly age purple. *Stamens* 6, equal, 1.9–2.8 mm long, epitepalous, attached slightly above tepal base; anthers c. 0.6 mm long, yellow, dorsifixed, versatile; filaments fusiform, white with clear apex. *Ovary* green, ± spheroidal, irregularly tuberculate, 3-locular; ovules 2 per locule; placentation axile; style simple, filiform, of similar length to stamens; stigma minutely capitate. *Capsules* 3.1–4.7 mm wide, 2.6–3.8 mm long, tripartite, loculicidal, 1 or 2 seeds developing per locule, green. *Seeds* subglobular, with a ventral groove where the aril is attached, 1.8–2 mm wide; testa dull black, granular with sparse, irregular, pillar-form tubercles; aril papery, not sheathing seed. (Fig. 4)

Diagnostic characters: Differs from *Caesia parviflora* var. *vittata* by its short habit, to 55 cm tall; narrow leaves 1.1–1.9(–3.2) mm wide, margins with many small projections; primarily white flowers, with short perianth segments 2.7–3.9 mm long, irregularly tuberculate ovary, anther filaments all white, and style of similar length to the stamens.

Selected specimens examined: New South Wales: Elanora Heights, 50 m, 8 Nov. 1970, *A. Rodd 1522* (NSW); Royal National Park, Waterfall, 105 m, 4 Dec. 1970, *R. Coveny 3415* & *M.H. Zenk* (NSW); Carrington Falls road, 1 km from the falls, 565 m, 29 Oct. 1973, *A. Rodd 2424* (NSW); 21 km S of Woodburn on road through Bundjalung National Park, 5 m, 10 Nov 1983, *R.J. Henderson H3046*, *G.P. Guymmer* & *P.R. Sharpe* (BRI, NSW); corner of Illaroo and Bundanon Roads, 14.9 km W of junction at Shoalhaven River Bridge, Nowra, 200 m, 3 Jan. 1997, *P.C. Jobson 4546* (NSW); Tomago Sand Beds, Tanimbla Station, 30 Oct. 2001, *D.L. McNair 914* (NSW); corner of Litton Street and Greenhaven Drive, Emu Heights, 20 Dec. 2008, *K.A. McColl s.n.* (NSW 792509); Lake Parramatta, c. 300 m along walking track on SE side of lake from carpark, 23 Nov. 2021, *R.L. Barrett* & *S.A. Rowntree RLB 9372* (BRI, MEL, NE, NSW); Jellybean Pool lower carpark, Glenbrook, Blue Mountains National Park, 25 Dec. 2021, *R.L. Barrett*, *Z.E. Davies*, *X.V. Davies* & *F.F. Barrett RLB 9375* (CANB, MEL, NSW).

Selected iNaturalist records: <https://inaturalist.ala.org.au/> (verified 22 April 2023): 137385417; 140631154, 141589916, 141747755, 143351547, 143476463, 145040917, 143476463, 145040917, 145317407, 146954976, 147000106, 149702075.

Phenology: Flowering occurs primarily between September to January with occasional records at other times of the year.

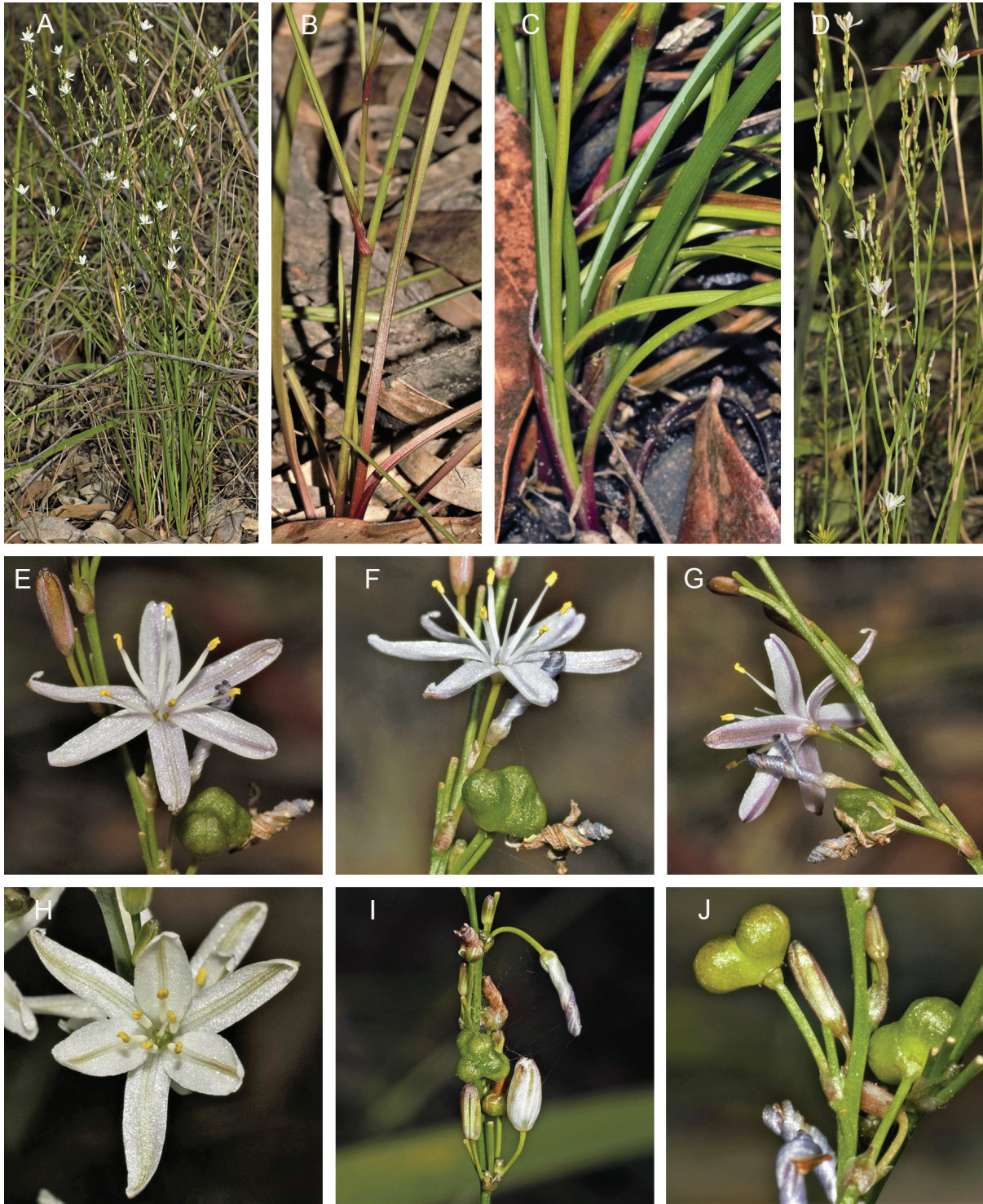


Figure 4. *Caesia parviflora* from Lake Parramatta, Sydney, New South Wales, Australia. A. Habit; B. Leaf sheath; C. Leaves; D. Inflorescence; E–H. Flowers showing pedicels depicting white filaments and short, straight pedicels; I, J. Mature and developing capsules. Voucher: *R.L. Barrett & S.A. Rowntree RLB 9372* (NSW). Photos by Russell Barrett.

Distribution: Currently considered to be widespread, occurring in south-east South Australia, south-east Queensland, eastern New South Wales, Victoria, and Tasmania. In the strict sense, the species may be restricted to south-east Queensland, in proximity to the coast south from Noosa to the Portland region of Victoria, and Tasmania, but further work is required to confirm this distribution.

Habitat: In the Sydney region this species grows in relatively dry sites in woodland, often in rocky areas over sandstone. In Victoria, the species is often associated with depressions or natural drainage lines in heath and woodland.

Conservation status: *Caesia parviflora* is relatively common across a broad distribution and is not considered threatened.

Etymology: From the Latin *parvi-* (small) and *florus* (flower).

Common name: Pale Grass-lily.

Notes: Typification of *Caesia parviflora* follows Mabberley & Moore (2022).

Henderson (1987: 419) noted that *Bidwillia glaucescens* Herb. (type of the genus *Bidwillia* Herb.) may be a synonym of *Caesia parviflora*. However, examination of the protologue reveals that *B. glaucescens* was described as having staminal filaments that are dilated at the base and pubescent, so it is more likely to represent a species of *Arthropodium* R.Br., but application of the name remains uncertain.

Acknowledgements

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