

A new species of *Laxmannia* (Anthericaceae) from Tasmania and a new subspecies from Western Australia

G.J. Keighery

Department of Conservation and Land Management, Western Australian Wildlife Research Centre,
PO Box 51, Wanneroo, Western Australia 6065.

Abstract

Keighery, G.J. A new species of *Laxmannia* (Anthericaceae) from Tasmania and a new subspecies from Western Australia. *Nuytsia* 14(3): 375-380 (2002). Two new members of the genus *Laxmannia* R. Br. (Anthericaceae) are described as *L. morrisonii* Keighery and *L. grandiflora* subsp. *brendae* Keighery. The new species is a Tasmanian endemic known only from the type collection made in 1960. It is poorly known and urgently needs relocating to assess its conservation status. It could possibly be a member of the *Laxmannia squarrosa* group and, if so, would be the only representative of this group in eastern Australia. The new subspecies is one of the western representatives of the *L. squarrosa* group. It is confined to a small area north-west of Denmark and has conservation priority.

Introduction

Laxmannia R. Br. is an endemic Australian genus of Anthericaceae. The genus was treated for "Flora of Australia" by Keighery (1987), who recognised three species endemic to eastern Australia and a further 10 species and 7 subspecies occurring in Western Australia. Two new taxa of *Laxmannia*, one a new eastern species from Tasmania and the other a newly discovered subspecies from the south-west of Western Australia, are described here. They increase the total number of taxa recognised in the genus to 14 species and eight subspecies.

Of the three eastern Australian endemics recorded by Keighery (1987), only *L. orientalis* Keighery was known from Tasmania. In 1999 the author was shown a collection of an unidentified *Laxmannia* from Tasmania that had terminal erect inflorescences and appeared to be morphologically close to the *L. squarrosa* group of Western Australia or possibly intermediate between this group and the *L. gracilis* group. Determining the correct placement of this species would have been easier if other aspects of its biology, such as its flower colour and chromosome number, were known.

The *Laxmannia gracilis* species group occurs on both sides of Australia, represented in the west by *L. arida* Keighery and *L. minor* R. Br. and in the east by *L. compacta* Conran & P. Forster and *L. gracilis* R. Br. This group has small inflorescences on long erect peduncles, usually coloured flowers that open narrowly and are nocturnal or open over several days, and petals similar to the sepals. Polyploidy is common in *Laxmannia gracilis*, with populations in the southern parts of its range being hexaploid.

The *Laxmannia squarrosa* group comprises five species, all Western Australian, with large erect inflorescences on short or long peduncles, enclosed by numerous usually brown-coloured imbricate bracts, white flowers with a diurnal life and the sepals dry at flowering, and cupular petals much shorter than the sepals. Polyploidy is uncommon in members of this group.

In 1996 Brenda Hammersley collected an unusual *Laxmannia* from north-east of Denmark that was referable to the *Laxmannia squarrosa* group. Within this group the collection keys to *Laxmannia grandiflora* Lindl., but is disjunct and differs in having an extremely compact habit with few-flowered inflorescences on very short peduncles usually not exceeding the leaves. The disjunct location and morphological distinctiveness of this population merits its recognition as a separate subspecies. This new subspecies is described here together with the new species from Tasmania.

Taxonomy

Laxmannia grandiflora subsp. *brendae* Keighery, *subsp. nov.*

Differt a subspecies alliis *Laxmannia grandiflora* planta 2–6 cm alta, inflorescentia erecta, normaliter foliis brevioribus.

Typus: north-east of Denmark [precise locality withheld], Western Australia, 30 August 1996, B.G. Hammersley 1615 (*holo*: PERTH 04432177).

Erect compact stilted *herb* 2–6 cm tall, including the stilt roots which are 10–15 mm long and the inflorescences. *Leaves* straight with a recurved apex, linear, 10–15 mm long, apex acute; sheath scarious, c. 2 mm long, margins entire, the apex extended into 3 long cilia to 3 mm long. *Inflorescence* erect, generally not exceeding the leaves, 4–12-flowered; peduncle 10–30 mm long. *Outer bracts* scarious, keeled at base, translucent to fawn, oblong-ovate, 4–5 mm long, apex acute, margins entire. *Inner bracts* white, margins very divided. *Flowers* white. *Sepals* 4–5 mm long. *Petals* c. 3 mm long. *Outer anthers* free, c. 2 mm long. *Inner anthers* attached to petals c. 2 mm from base. *Ovary* c. 1 mm long. *Style* c. 1 mm long. *Fruit* not seen.

Other specimens examined. WESTERNAUSTRALIA: S of type locality, 1 Sep. 1997, B.G. Hammersley 1757 (PERTH); type locality, 30 Aug. 1996, B.G. Hammersley 1619 (PERTH).

Distribution and habitat. Known from two monadnocks north of Denmark, growing in shallow siliceous sands over granite in a mixed low heath of *Grevillea fuscolutea*, *Cryptandra congesta*, *Andersonia sprengelioides* and *Grevillea cirsiifolia*. (Figure 1)

Conservation status. Conservation Codes for Western Australian Flora: Priority Two. The small area in which this taxon occurs is an area of State Forest that is proposed as a National Park. Although restricted in occurrence (B. Hammersley, pers. comm.) it does not appear to be under any immediate threat.

Etymology. This subspecies is named after the collector of the type, Brenda Hammersley in recognition of the considerable work she has undertaken in documenting the flora of the Denmark area.

Notes. Two subspecies have previously been described in *Laxmannia grandiflora*. Their distributions are included in Figure 1 for comparison with the new subspecies. Subsp. *grandiflora* is a densely tufted

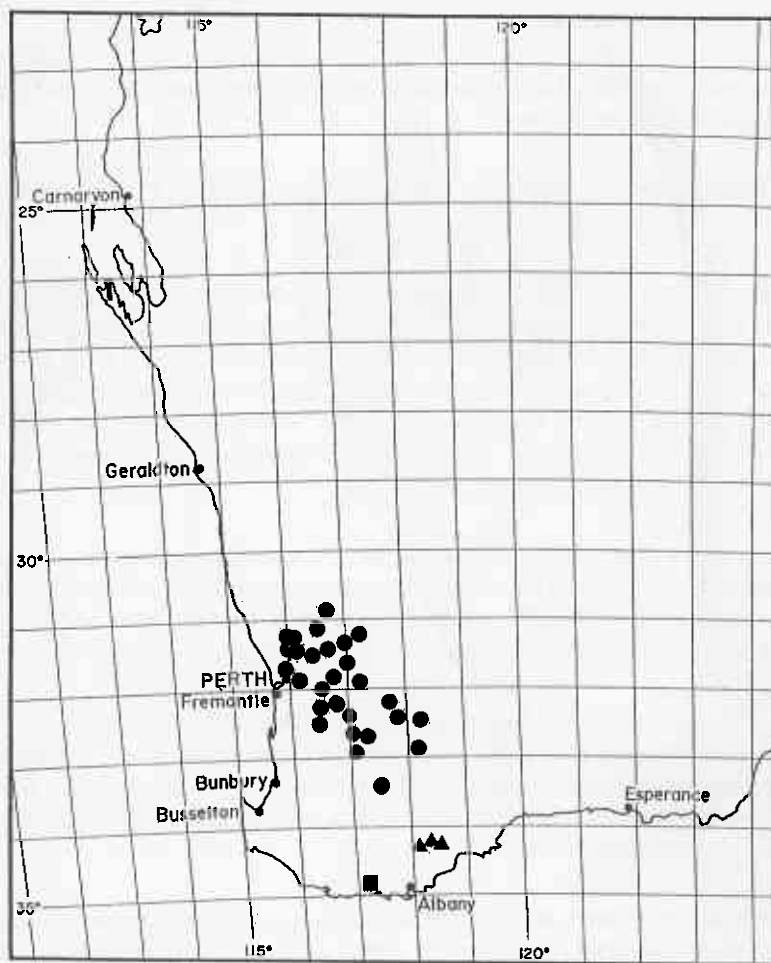


Figure 1. Distribution of *Laxmannia grandiflora* subsp. *brandae* ■, *L. grandiflora* subsp. *grandiflora* ● and *L. grandiflora* subsp. *stirlingsis* ▲.

perennial, normally with the stem bases on or near the soil surface, and with peduncles 7–14 cm long. It occurs between Mogumber, Perth inland to Quairading and south to Narrogin on duplex soils in Wandoo woodland. *Laxmannia grandiflora* subsp. *stirlingsis* is disjunct to the south of the nominate subspecies, occurring on winter-wet clay soils in heath around South Stirlings, and is a tall slender rambling perennial on stilt roots 10–22 cm tall and with peduncles 12–22 cm long.

The new subspecies from the Denmark area differs from both of the named subspecies in having an extremely compact habit with few-flowered inflorescences on very short peduncles usually not exceeding the leaves. Subsp. *brandae* is separated by a disjunction of some 60 km from the closest populations of subsp. *stirlingsis* and over 200 km from the closest populations of subsp. *grandiflora*.

Laxmannia grandiflora subsp. *brandae* joins a series of narrow endemics confined to a few isolated granite monadnocks north of Denmark. These are the recently described species *Borya longiscapa*, *Cryptandra congesta*, *Grevillea fuscolutea* and two currently unnamed species of *Andersonia*. Future study will probably add more to this list.

Laxmannia morrisii Keighery, *sp. nov.*

Differt a *Laxmannia gracili* habitu compacto vel 50 mm alto, internodiis brevissimis, pedunculo brevi, petalis sepalis multo brevioribus.

Typus: Snug Plains, near Grey Mountain, Tasmania, January 1960, W.D. Jackson s.n. (*holo*: HO 446141).

Erect compact stilted *herb* to 50 mm tall, including the stilt roots (to 15 mm long) and the inflorescences. *Leaves* straight, linear, pungent, 8–15 mm long; sheath scarious, c. 2 mm long, margins entire, the apex extended into 3 long cilia to 3 mm long. *Inflorescence* erect, 4–12-flowered; peduncle 10–30 mm long. *Outer bracts* scarious, keeled at base, oblong-ovate, 4–5 mm long, apex acute, margins entire. *Inner bracts* white, margins very divided. *Flowers* ?white. *Sepals* 4–5 mm long. *Petals* c. 3 mm long. *Outer anthers* free, c. 2 mm long. *Inner anthers* attached to petals c. 2 mm from base. *Ovary* c. 1 mm long. *Style* c. 1 mm long. *Fruit* not seen. (Figure 2)

Distribution and habitat. The locality given on the type specimen is uncertain according to the collector; there is a possibility the type could have been collected on the Middlesex Plains (D.S. Morrison pers. comm.). However, Middlesex Plains is a lowland area which has been intensively collected and it is unlikely that the species was collected there.

Snug Plains is an area of subalpine undulating plateau at an altitude of c. 600 m, south-west of Hobart. The vegetation is a complex of wet and dry sclerophyll forest, and mallee woodlands (Jackson 1973). The area receives winter snowfalls and temperatures below freezing, including a record of –22 degrees in 1983 (Davidson & Read 1985). This is a remarkable site for a species of *Laxmannia*, as no other species reaches the subalpine.

Conservation status. Snug Plains, an area of State Forest, is a proposed conservation park under the Tasmanian Regional agreement (A. Blanks pers. comm.). However, the species has not been collected since the type in 1960 and urgently needs recollecting to assess its true conservation status. It should be listed as 1K (known only from the type, conservation status cannot be determined) under the national ROTAP system (Briggs & Leigh 1996).

Etymology. I have great pleasure in naming this species after Desmond Morris F.L.S., who has a unique knowledge of the native and naturalized flora of Tasmania and who, in publications and in herbarium curation, has spread this knowledge to many people. Dennis recognized the unusual nature of this collection during routine curatorial activities at Hobart.

Notes. *Laxmannia morrisii* is a very distinctive species that has small inflorescences subtended by numerous bracts almost as long as the flowers, probably white flowers, with the petals shorter than the sepals but not cupular, and a short vegetative axis densely covered by leaf bases. The plant is superficially very similar in appearance to some forest populations of *Laxmannia squarrosa*, probably because of its compact habit and short inflorescences. This is no doubt owing to the locality where the species occurs, as the compact vegetative axis covered by the overlapping leaf sheaths would provide some cold protection. The sole population is in flower in summer and is the only summer-flowering species known in the genus. All western species, including *L. squarrosa*, are in mature seed in January.

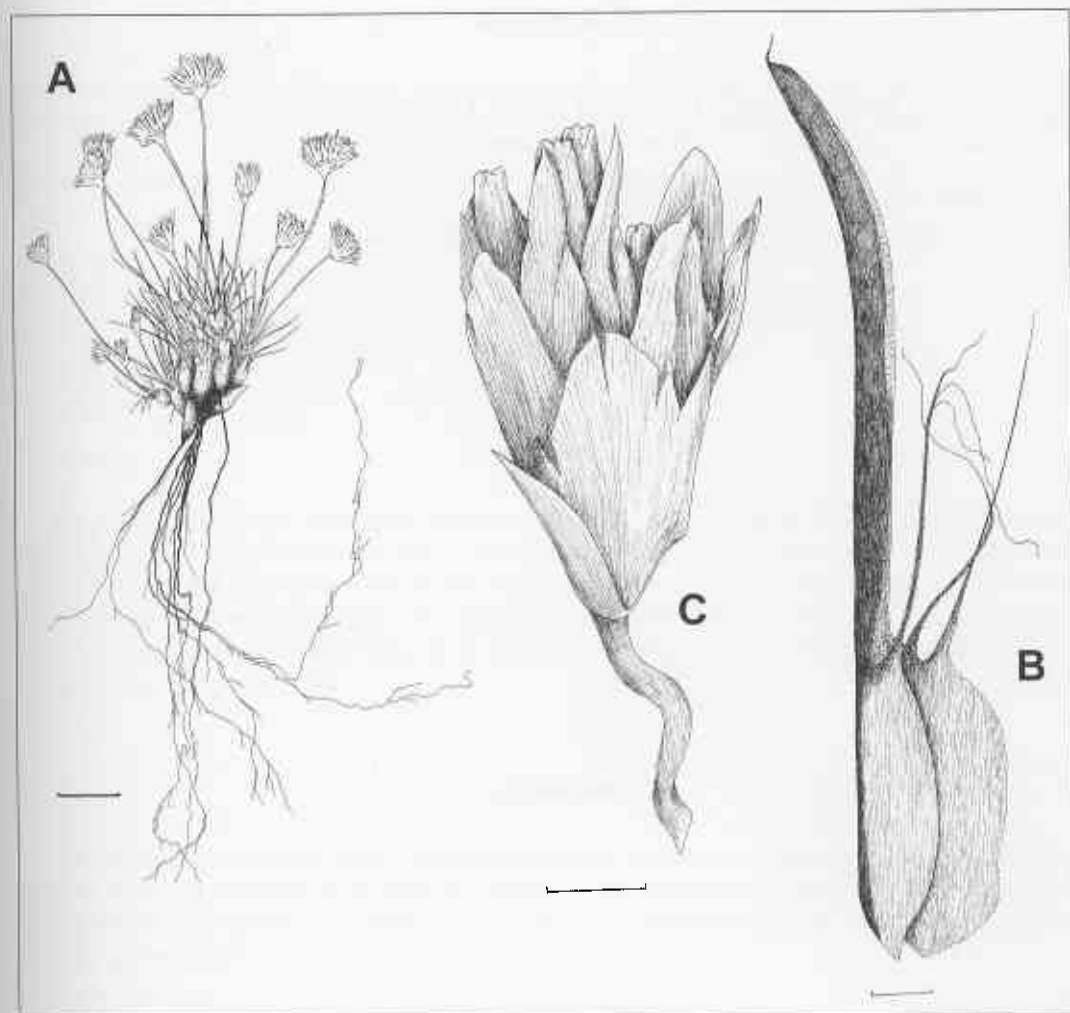


Figure 2. Type of *Laxmannia morrisii*. A – whole plant, scale bar = 1 cm; B – leaf with leaf sheath, scale bar = 1 mm; C – inflorescence, scale bar = 1 mm.

While its distribution suggests that it is part of the *Laxmannia gracilis* group, *L. morrisii* differs in having the petals much shorter than the sepals and a very compact habit. The densely overlapping leaf bases with long terminal cilia are unique in the *L. gracilis* group. Living plants are necessary to place this unique collection since flower colour, flower longevity, petal shape, bract colour and ploidy levels are all diagnostic for the species groups.

Acknowledgements

The type collection of the new species was borrowed from HIO. The author was able to view type material and other collections at SYD, MEL and AD with the assistance of these organisations, and an ABRs grant. Neil Gibson and Tony Blanks provided details about the habitat of the species. Nadine Guthrie drew the illustrations. Brenda Hammersley first recorded the new Western Australian taxon and has surveyed its known populations.

References

- Briggs, J.D. & Leigh, J.H. (1996). "Rare and Threatened Australian Plants." (CSIRO Publishing: Collingwood, Victoria.)
- Davidson, N.J. & Reid, J.B. (1985). Frost as a factor influencing the growth and distribution of subalpine eucalypts. *Australian Journal of Botany* 33: 657-667.
- Jackson, W.D. (1973). Vegetation of the Central Plateau. In: The Lake Country of Tasmania. Royal Society of Tasmania Symposium, November 1972, pp. 61-86.
- Keighery, G.J. (1987). *Laxmannia*. In: "Flora of Australia." Vol. 45, pp. 254-264.