Lomandra decomposita (R.Br.) Jian Wang ter & A.R.Bean (Laxmanniaceae), a new species for Queensland

Jian Wang & A.R. Bean

Summary

J. Wang & A.R. Bean (2017). *Lomandra decomposita* (R.Br.) Jian Wang ter & A.R.Bean (Laxmanniaceae), a new combination for a north Queensland species. ***Austrobaileya*** **10(1): 59–63**. *Lomandra decomposita* (R.Br.) Jian Wang ter & A.R.Bean is described, illustrated and differentiated from similar and related taxa. The known distribution of the newly reinstated species is from Charters Towers to the islands of the Torres Strait in Queensland. A conservation status of Least Concern is proposed.

Key Words: Laxmanniaceae, *Lomandra*, *Lomandra decomposita*, *Lomandra multiflora*, *Lomandra multiflora* subsp. *multiflora*, Australia flora, Queensland flora, taxonomy, new combination, conservation status

J. Wang & A.R. Bean, Queensland Herbarium, Department of Science, Information Technology and Innovation, Brisbane Botanic Gardens, Mt Coot-tha Road, Toowong, Queensland 4066, Australia. Email: Jian.Wang@dsiti.qld.gov.au; Tony.Bean@dsiti.qld.gov.au

Introduction

Lomandra Labill. is a genus of four sections with 54 species, all occurring in Australia, with two species extending to New Guinea and one species in New Caledonia (Lee & Macfarlane 1986; Macfarlane & Conran 2014). The genus was revised by Lee (1966). Currently, there are 17 recognised species in Queensland, as well as three non-autonymic subspecies (Wang 2015). *Lomandra multiflora* (R.Br.) Britten belongs to the Section *Lomandra*, Series *Lomandra* (Lee & Macfarlane 1984). It includes two subspecies, *L. multiflora* (R.Br.) Britten subsp. *multiflora* and *L. multiflora* subsp. *dura* (F.Muell.) T.Macfarlane, the former throughout eastern Queensland, New South Wales and Victoria and parts of the Northern Territory and the latter in South Australia only. Examination of herbarium material has revealed the existence of a distinctive species that was included within *Lomandra multiflora* (R.Br.) Britten subsp. *multiflora* by Lee & Macfarlane (1986). The name *Xerotes decomposita* R.Br. is applicable to this species and the new combination is made here.

Materials and methods

This study is based on morphological examination of *Lomandra* herbarium material, especially specimens identified as *Lomandra multiflora* subsp. *multiflora*, as well as undetermined *Lomandra* species at BRI and specimens received on loan from MEL, NSW and DNA. Images of type specimens at BM were viewed online.

All measurements are based on dried material, except the dimensions of flowers which are based on material reconstituted with boiling water. National Park is abbreviated to NP in the text and specimen citations.

Taxonomy

Lomandra decomposita (R.Br.) Jian Wang ter & A.R.Bean, **comb. nov.**; *Xerotes decomposita* R.Br., *Prodr.* 262 (1810); *Xerotes multiflora* var. *decomposita* (R.Br.) Domin, *Biblioth. Bot*. 85: 526 (1915). **Type:** Queensland. Cook District: Endeavour River, June/August 1770, *J. Banks & D. Solander s.n*. (lecto: BRI [AQ49624] [here designated]; isolecto: BM [000939335, 000939336]).

Accepted for publication 17 February 2017

Xerotes media R.Br., *Prodr.* 262 (1810); *Xerotes multiflora* var. *media* (R.Br.) Domin, *Biblioth. Bot*. 85: 526 (1915). **Type:** Queensland. Cook District: Endeavour River, June/August 1770, *J. Banks & D. Solander s.n*. (syn: BM).

Xerotes savannorum Domin, *Biblioth. Bot*. 85: 526 (1915). **Type:** Queensland. North Kennedy District: near Pentland, March 1910, *K. Domin 2385, 2386, 2387* (syn: PR, *n.v.*).

Plants more or less robust, forming tussocks from condensed ascending rhizomes. Each tussock comprising 1 to 5 tufts. Leaves firm, upright to slightly curved. Leaf sheath margins at first membranous or cartilaginous, fraying into short to long strips or fibres up to 8 cm long, white or pale to dark brown. Leaf blades usually glaucous, smooth to scabrid, slightly convex on the abaxial side or inrolled, 40–80 cm long, 2.3–4.5(–6.5) mm wide, with up to 30 parallel veins on the adaxial side and up to 28 parallel veins on the abaxial side; apex broadly rounded to obtuse without teeth; the margins slightly thickened, smooth to minutely serrulate. Male inflorescence 1 per tuft, paniculate, usually shorter than longest leaf; the peduncle flattened, smooth to verrucate, 10–34(–39) cm long, usually 0.25–0.3 cm broad. pale yellow; the primary rachis 4-angled, smooth to verrucate, 9–33(–40) cm long, bearing numerous branches and flower clusters; branches and flower clusters appearing whorled or opposite at nodes; inflorescence branches usually 4-angled, smooth to verrucate, 4–15 cm long; flower clusters 3–7 cm apart on the primary rachis, 1–3 cm apart on the secondary rachis (first branch), 0.5–1.5 cm apart on the tertiary rachis (second branch); inflorescences occasionally developing a quaternary rachis (third branch) 0.2–0.3 cm long. Cluster bracts usually 3–7, long- to short-deltoid, up to 1.5 cm long, *c*. 2 mm wide at the widest point, with 1–6 obvious veins, largest at the basal node of primary rachis, shorter and narrower upwards along primary rachis as well as on secondary and tertiary rachis. Flowers in groups of 4–15(–25) in each cluster, all of similar age within each cluster; bracteoles 3, cucullate, *c*. 0.5 mm long and 0.4 mm wide, membranous, completely encircling the pedicel. Flowers pedicellate, the pedicels slender, terete, 1.5–2.5(–3.5) mm long, 0.1–0.2 mm wide, grey to dark grey, erect to spreading. Flower buds globular, green, at anthesis becoming short campanulate, creamy-yellow to yellow. Perianth segments 6, with distinct outer and inner whorls; outer tepals 3, broadly elliptical, thin, free, uniform in size and texture, 1–1.1 mm long, 0.7–0.8 mm wide, pale yellow; inner tepals 3, elliptical, free except on lower 1/4–1/3, uniform in size and texture, 1.1–1.2 mm long, 0.8–0.9 mm wide, mostly creamy yellow except for brighter yellow in the middle of outer surface. Stamens 6, adnate basally to the inner tepals, the filament often connate throughout its length to the inner tepals; anthers all similar, 0.3–0.4 mm long, 0.2–0.3 mm wide, creamy yellow to bright yellow; anthers of inner tepals slightly more distal than the antetepalous anthers. Pistillode poorly formed, 0.1–0.2 mm long, pale yellow. Female inflorescences 1–3 per plant, a spike or usually a 1-branched panicle with numerous flower clusters, rachis and scape elongating with age; scape 4–26 cm long, 0.1–0.2 cm wide, flattened, smooth to verrucate; rachis often angled, verrucate; branches and flower clusters appearing whorled or opposite at nodes; the primary rachis 3–15 cm long, the secondary rachis usually 1–2 cm long. Cluster bracts usually 3–7, with 1–3 obvious veins, deltoid, up to 1.3 cm long, 1.5–2 mm wide at the base, largest at the basal node of primary rachis, shorter and narrower distally. Flowers in group of 3–9(–20), each subtended by 3–6 bracteoles, *c*. 2 mm long and 3 mm wide, membranous, completely encircling the flower base, sessile or shortly pedicellate, the pedicels *c*. 0.5 mm long and 0.5 mm wide, similar ages within each cluster; outer 3 tepals broadly ovate, *c*. 4 mm long and 1.8 mm wide, adnate at the base; inner 3 tepals ovate, *c*. 3 mm long and 1.2 mm wide, adnate near base. Staminodes 3(–6), whitish-transparent, with well-developed filaments and vestigial anthers, inserted on basal part of tepal. Pistil conspicuous, the ovary obovoid, 1.1–1.3 mm long, 0.7–1 mm diameter; styles stout, fused, with 3 robust out-curved stigmatic lobes; ovary with 3 locules; ovules 1 per loculus.

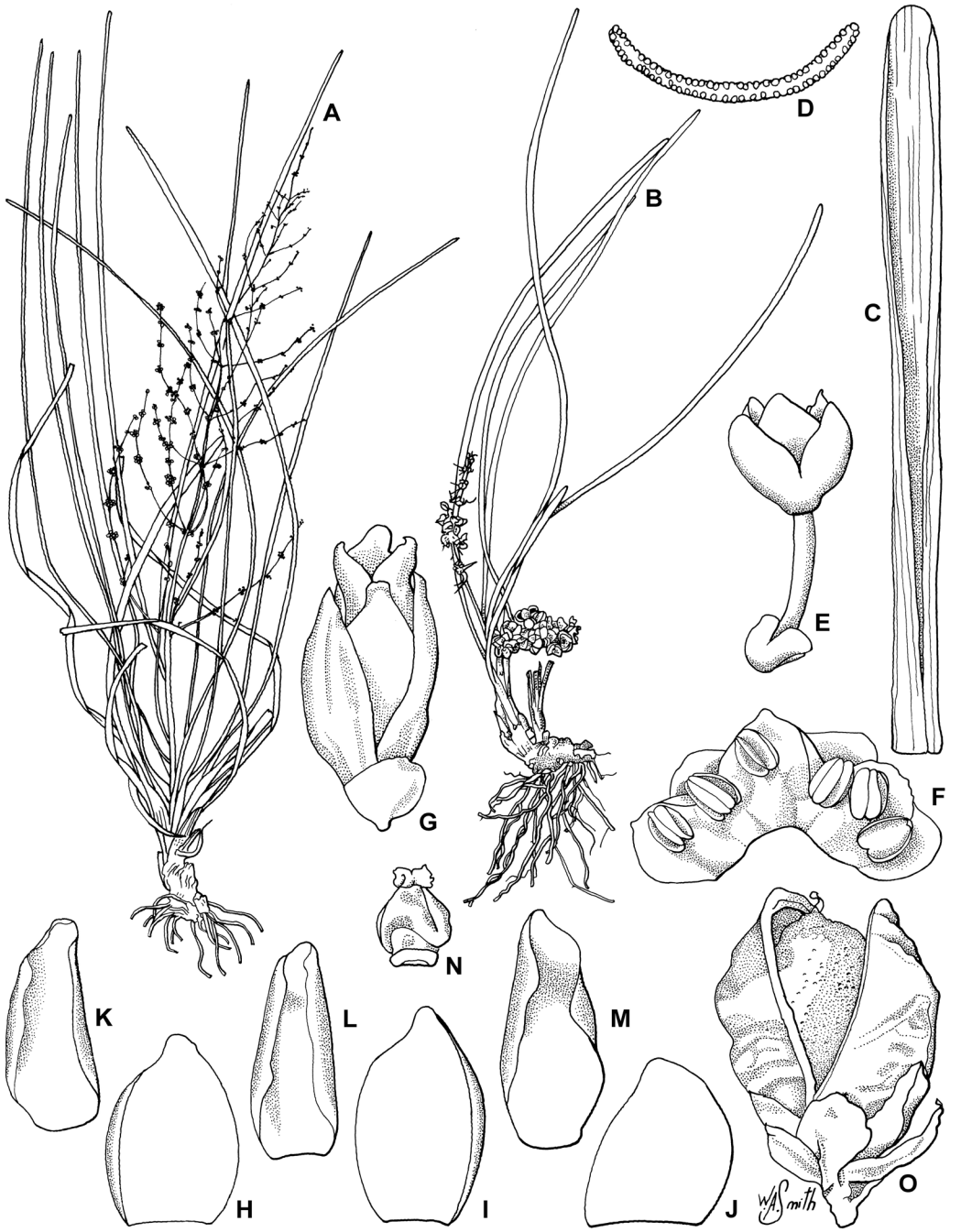


Fig. 1. ***Lomandra decomposita***. A. habit of male plant with flowering inflorescence ×0.3. B. habit of female plant with fruiting inflorescences ×0.3. C. top section of a leaf ×2. D. transection view of a leaf ×8. E. pedicellate male flower with bracts ×12. F. male flower spread open ×16. G. sessile female flower and its bracts ×8. H–J. sepals of the female flower ×8. K–M. petals of the female flower ×8. N. pistil ×8. O. opened fruit with seed ×6. A, F from *Johnson 4984* (BRI); B, O from *Clarkson 180* (BRI); C & D from *Kanis 2046* (BRI); E from *Forster PIF32574 & McDonald* (BRI); G–N from *McDonald 1652 & Batianoff* (BRI). Del. W. Smith.

Fruiting peduncle usually 10–25 cm long, 0.2–0.25 cm wide. Capsule 7.5–8 mm long, 5–6 mm diameter with 3 transverse wrinkled carpels at maturity; carpels dark grey outside, pale yellow inside; the carpel margins slightly ridged; the hardened perianth persistent, 3–3.5 mm long, 2–2.5 mm wide; the hardened bracts occasionally persistent, *c*. 1.5 mm long, 0.6–0.8 mm wide. Seeds 1 per locule, ovoid, 3.6–5.5 mm long, 2–3 mm wide, 2-angled on inner face, rounded on outer face, smooth to rough or slightly wrinkled, translucent in appearance, light brown to brown. **Fig. 1.**

***Additional selected specimens examined*: Queensland.** Cook District: Nagir (Mt Ernest) Island, Apr 1997, *Waterhouse BMW4337* (BRI, DNA); Prince of Wales Island, May 1906, *Tate s.n.* (BRI [AQ118336]);W of Bamaga, *c*. 27 km SW of Cape York, Oct 1965, *Smith 12489* (BRI); 28.9 km S of New Road turnoff, off Telegraph Line, Mar 1992, *Johnson 5081* (BRI); 27.2 km SE of Heathlands, Feb 1992, *Johnson 4984* (BRI); E of 'Bramwell' Homestead, on Olive River, Cape York Peninsula, Aug 1978, *Kanis 2046* (BRI, L); Olive River Environmental Reserve, 0.5 km W by road of 'Bromley' Homestead, Cape York Peninsula, Jun 2007, *Forster PIF32574 & McDonald* (BRI); 1 km N of Maloney's Springs, Jun 1989, *Forster PIF5294* (BRI); Portland Roads, Aylen Hills, May 1948, *Brass 18939* (BRI); Chilli Beach to Cape Weymouth Road, Jul 2003, *Sankowsky 2078 & Sankowsky* (BRI); Portlands Roads Road, 2 km E of Brown Creek, Jun 2004, *Gray 8928* (BRI, CANB), *8930* (BRI, CANB); Above cascades on Coen River near Coen, Nov 1980, *Morton AM789* (BRI); N side of Nesbit River, Silver Plains, Jun 1998, *Forster PIF22995 et al.* (BRI, CNS); Stanley Island, Jun 1991, *Godwin C3530* (BRI); 65 km SE of Coen Monitoring site 2 in Balclutha Creek Natural Refuge, Jun 2011, *Thompson SLT1105* & *SLT1106* (BRI); Cooktown, May 1968, *San & Clifford s.n.* (BRI [AQ252808]); Endeavour River, in 1878, *Persieh 225* (MEL); *ibid*., in 1883, *Persieh 838* (MEL); *ibid*., *s.dat*., *Persieh 967* (MEL); *ibid*, in 1885, *Persieh 406* (MEL); Mt Saunders, Mar 1984, *Scarth-Johnson 1478A* (BRI); 1 km W of Airport, Cooktown, Apr 1975, *McDonald 1652 & Batianoff* (BRI); Pannikin Springs area, Blackdown Station, May 1999, *Forster PIF24406 & Booth* (BRI); Stannary Hills, 13 km S of Mutchilba, Portion 603, May 2006, *Forster PIF31623 & McDonald* (BRI); *c*. 14 km N of the Lynd Road junction on the road to Hughenden, May 1975, *Clarkson 179 & 180* (BRI); 4.2 km NW of Margaret's Bore, 'Curlew Paddock', Lyndhurst Cattle Station, Mar 2002, *Kahler TH6736 & Appelman* (BRI). Burke District: 9.5 km SW of Clyde Park new homestead, 63 km NE of Hughenden, Mar 1993, *Thompson HUG228 & Henderson* (BRI), *Thompson HUG241 & Henderson* (BRI); 3 km SE of Clyde Park homestead, 74 km NE of Hughenden, Sep 1992, *Thompson HUG6 & Sharpe* (BRI). North Kennedy District: Minnamoolka Station, *c*. 35 km S of Mt Garnet, Apr 1991, *Batianoff MM9104023 & Franks* (BOL, BRI, CANB, K, PRE); 25 km W of Pentland on Great Dividing Range (locally known as 'Burra Range'), Jul 1975, *Chapman 1326* (BRI, CANB); North Branch Creek, White Mountains NP, Apr 1992, *Bean 4312* (BRI).

***Distribution and habitat*:** *Lomandra decomposita* is endemic to north east Queensland where it is widespread on Cape York Peninsula extending south to White Mountains NP and east to near Charters Towers. It also occurs on some Torres Strait islands (**Map 1**). The species mainly grows in woodlands with *Corymbia clarksoniana* (D.J.Carr & S.G.M.Carr) K.D.Hill & L.A.S.Johnson, *C. polycarpa* (F.Muell.) K.D.Hill & L.A.S.Johnson, *C. stockeri* (D.J.Carr & S.G.M.Carr) K.D.Hill & L.A.S.Johnson, *Eucalyptus crebra* F.Muell., *E. leptophleba* F.Muell., *E. platyphylla* F.Muell., and open forests of *Corymbia nesophila* (Blakely) K.D.Hill & L.A.S.Johnson or *C. peltata* (Benth.) K.D.Hill & L.A.S.Johnson and *Eucalyptus tetrodonta* F.Muell., on sandstone and sandy soils. It has also been recorded in *Melaleuca viridiflora* Sol. ex Gaertn. forest, *Acacia shirleyi* Maiden and *Eucalyptus persistens* L.A.S.Johnson & K.D.Hill woodland on sandstone and deciduous vinethicket with metamorphic rocks.

***Phenology*:** Male flowering has been recorded every month except December. Female flowering was recorded only in April, August, October and November. Mature fruits were collected from February through to July.

***Typification*:** Original material of *Xerotes decomposita* is present at BM and BRI. The BRI specimen is a good quality flowering specimen. Therefore, it is chosen as the lectotype of *Lomandra decomposita*.

***Notes*:** *Lomandra decomposita* is related to the widespread *L. multiflora* subsp. *multiflora* of eastern Australia and *L. patens* A.Lee of central Australia. It differs from *L. multiflora* subsp. *multiflora* by the glaucous leaves, shorter pedicels in the male flowers, smaller and more rounded male flowers and the 6 anthers in the male flower aligned almost on the same level (**Fig. 1**). It differs from *L. patens* by the glaucous leaves, shorter inflorescence

bracts, smaller and more rounded male flowers with longer pedicels, the 6 anthers in the male flower aligned almost on the same level, the fewer branched female inflorescence and shorter persistent styles of the fruits.

Conservation status*: *Lomandra decomposita can be a common species where it occurs. It is recorded from several National Parks and is not known to be at risk. Therefore, it is assessed as **Least Concern** using the IUCN (2012) criteria.

Acknowledgements

We are grateful to the Directors of DNA, MEL and NSW for providing specimens on loan and to Will Smith for producing the illustrations and distribution map.

References

Brown, R. (1810) [1963 fascimile]. *Xerotes* R.Br. *Prodromus Florae Novae Hollandiae et Insulae van-Diemen*, p. 262. J.Cramer: New York.

Domin, K. (1915). *Xerotes* R.Br. *Bibliotheca Botanica* 85: 526.

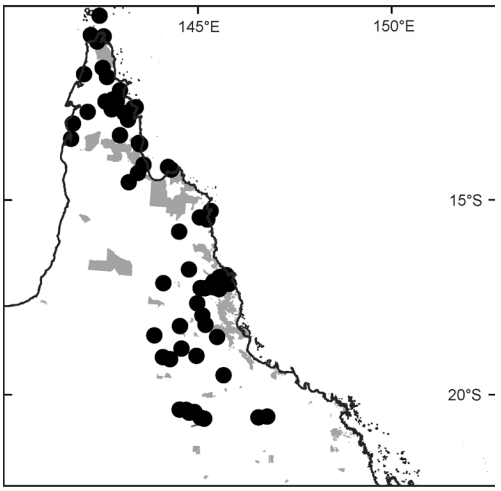
Iucn (2012). *IUCN Red List Categories and Criteria: Version 3.1*. 2nd Edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.

Lee, A.T. (1966). *Xanthorrhoeaceae. Contributions from the New South Wales National Herbarium, Flora Series* 34: 16–42.

Lee, A.T. & Macfarlane, T.D. (1986). *Lomandra*. In A.S. George (ed.), *Flora of Australia* 46: 100–141. Australian Government Publishing Service: Canberra.

Macfarlane, T.D. & Conran, J.G. (2014). *Lomandra marginata* (Asparagaceae), a shy-flowering new species from south-western Australia. *Australian Systematic Botany* 27: 421–426.

Wang, J. (2015). Laxmanniaceae. In P.D.Bostock & A.E.Holland (eds), *Census of the Queensland Flora 2015*. Queensland Department of Science, Information Technology and Innovation: Brisbane. https://data.qld.gov.au/dataset/census-of-the-queensland-flora-2015, accessed 1 December 2015.



Map 1. Distribution of ***Lomandra decomposita***