

National Library of Australia
Cataloguing-in-publication entry (PDF):
Flora of the Darwin Region Volume 1
ISBN: 9781921519949 (PDF)
Series: Northern Territory Botanical Bulletin No. 37
Notes: Includes bibliographical references and
index.
Subjects: Botany – Northern Territory – Darwin
region – Plants – Identification
Other Authors/Contributors: Short, P.S.,
Cowie, I.D., Northern Territory Department
of Natural Resources, Environment, the Arts
and Sport.
Dewey Number: 581.994295
ISSN: 0314-1810
Date of Publication: March 2011

Cover: *Helicteres procumbens* (Benth.) Cowie, *ined.*
Cover Artist: R. Walter
Editors: P.S. Short and I.D. Cowie
Illustrations: M. Osterkamp
Typesetting: D. Bisa and M. Voukalis
Photographic Editor: B.M. Stuckey
Authors contributing to this publication:
D.E. Albrecht
Northern Territory Herbarium, Department of
Natural Resources, Environment, the Arts and
Sport, P.O. Box 1120, Alice Springs, N.T. 0871,
Australia
R.M. Barker
State Herbarium of South Australia, Plant
Biodiversity Centre, P.O. Box 2732, Kent Town,
S.A. 5071, Australia
I.D. Cowie; B. Crase*; D.J. Dixon*; C.R. Dunlop*;
R.K. Harwood*; R.A. Kerrigan*; G.J. Leach*;
C. Mangion*; P.S. Short; G.M. Wightman*
Northern Territory Herbarium, Department of
Natural Resources, Environment the Arts and

Sport, P.O. Box 496, Palmerston, N.T. 0831,
Australia
L.A. Craven
Australian National Herbarium, Centre for
Plant, Biodiversity Research, G.P.O. Box 1600,
Canberra, A.C.T. 2601, Australia
L.L. Forman† (deceased)
Royal Botanic Gardens, Kew, Richmond,
Surrey, TW9 3AB, UK
B. Jackes
James Cook University Herbarium, School of
Marine and Tropical Biology, James Cook
University, Townsville, Qld 4811, Australia
L. Jessup
Queensland Herbarium Mt Coot-tha Road,
Toowong, Qld 4066, Australia
J. Palmer
Australian National Herbarium, G.P.O. Box
1600, Canberra, A.C.T. 2601, Australia

*Former employee NT Herbarium

This book is copyright. Apart from any fair dealing
for the purpose of private study, research, criticism
or review, as permitted under the Copyright Act, no
part of this publication may be produced by any
process whatsoever without the written permission
of the publisher.

© Northern Territory Government

Publisher:

Northern Territory Herbarium
Department of Natural Resources,
Environment, the Arts and Sport
P.O. Box 496
Palmerston, N.T. 0831, Australia

Suggested citation for this article:

Short, P.S. (2011). Byblidaceae. *In* Short, P.S.
& Cowie, I.D. (eds), *Flora of the Darwin Region*.
(Northern Territory Herbarium, Department of
Natural Resources, Environment, the Arts and
Sport). Vol. 1, pp. 1–3.
[http://www.nt.gov.au/nreta/wildlife/plants_
herbarium/index.html](http://www.nt.gov.au/nreta/wildlife/plants_herbarium/index.html)

BYBLIDACEAE

P.S. Short

Herbs, perennial (not N.T.) or annual, with a general indumentum of stalked, insectivorous glands and sometimes with sessile glands. *Leaves* alternate, simple, sessile, linear-terete; stipules absent. *Flowers* bisexual, actinomorphic, solitary in leaf axils on long, ebracteate pedicels. *Calyx* of 5 sepals connate at the base, imbricate. *Petals* 5, shortly connate at the base, apically usually crenate, dentate or serrate. *Stamens* 5, opposite the sepals and adnate to the petals, the filaments curving and the anthers forming a group on one side of the gynoecium; anthers basifixed, tetrasporangiate and dithecal, opening by short, pore-like slits. *Gynoecium* of 2 carpels united to form a superior, 2-locular ovary, the ovary with usually many ovules on axile placentas; style simple and with a terminal stigma. *Fruit* a loculicidal, 2-valved capsule, sometimes the valves later splitting. *Seeds* small, many, rugose or ribbed, with a straight embryo and copious endosperm.

A monogeneric family with the genus *Byblis* containing about six species. Confined to south-west and northern Australia and southern New Guinea.

Cronquist (1981) included the southern African *Roridula* in the family but it is more commonly placed in its own family (e.g. Brummitt 1992; Mabberley 2008). Molecular studies (Albach *et al.* 2001) combining sequences from four different gene regions indicated that the family belongs to the Lamiales and is not closely related to the Pittosporaceae as suggested by Cronquist; it is placed in the Lamiales by Mabberley (2008).

Species of *Byblis* superficially look like sundews (*Drosera*; Droseraceae). However, in *Drosera* the flowers are commonly racemose (not single), there are 3 or 5 carpels (not 2) and instead of a simple style there are several, often bifid or multi-fid. Vegetatively they particularly resemble the linear-leaved *D. indica* but in that species the long, sticky hairs on the leaves are apically club-shaped and not somewhat globular (fresh) or disc-shaped (dried) as they are in species of *Byblis*.

Taxonomic references: van Steenis (1972); Cronquist (1981); Brummitt (1992); Lowrie & Conran (1998); Albach *et al.* (2001); Conran *et al.* (2002b); Conran & Carolin (2004); Mabberley (2008).

BYBLIS Salisb.

The following key is essentially a slightly modified version of that provided by Lowrie & Conran (1998) to the four species they recognised as occurring in the N.T. Descriptions are only provided for *B. aquatica* and *B. liniflora*, the only formally named species which can be definitely said to occur in the D.R.

Attempts to sort DNA specimens using this key sometimes proved difficult, there being more variation in the ratios of anther to filament length and seed ornamentation than indicated by Lowrie & Conran. There seems no doubt that *B. filifolia* and *B. liniflora* are distinct species (A. Lowrie, M. & R. Barrett, *pers. comms.* 2008/2009) but the circumscription of each needs further investigation, with one or perhaps more additional entities as yet undescribed. As such work is being carried out by Lowrie and others, and because specimens are frequently lacking seed and other features needed to facilitate sorting, the concepts of Lowrie & Conran (1998) are maintained here.

Taxonomic references: Lowrie (1998); Lowrie & Conran (1998).

- | | | |
|----|---|---------------------|
| 1 | Anthers shorter than their filaments | 2 |
| 1: | Anthers as long, or longer, than their filaments | 3 |
| 2 | Corolla dark purple, petals 4.5–7.8 mm long; seeds with conspicuous longitudinal channels, transverse walls absent or barely formed | B. aquatica |
| 2: | Corolla mauve (at least above), petals 7–10 mm long; seeds with a somewhat honeycomb appearance | B. liniflora |

- 3 Sepals glabrous or only bearing stalked glandular hairs **B. filifolia**
 3: Sepals bearing sessile glands and stalked glandular hairs **B. rorida**

B. aquatica Lowrie & Conran

Annual *herb* with a weak stem *c.* 10–35 cm long, with a general indumentum of viscid, stalked glandular hairs. *Leaves* terete, 3–6.5 cm long, apically blunt or with a knob-like swelling. *Pedicels* 1.5–4.5 cm long. *Sepals* somewhat ovate but apically tapered, 3–4 mm long, 1.2–1.6 mm wide, 3-veined, glabrous or with a few stalked glandular hairs. *Petals* obovate, 4.5–7.8 mm long, 2.3–3.8 mm wide, purple, apically entire or slightly crenate or dentate. *Stamens* 5; filaments 1.3–2.7 mm long; anthers 0.8–1.5 mm long and shorter than the filaments. *Ovary* glabrous or with scattered stalked glandular hairs. *Style* 2–2.5 mm long. *Capsule* 2.6–3.2 mm long, 2.9–4.5 mm wide, glabrous or with occasional stalked glandular hairs. *Seeds* 1–1.2 mm long, *c.* 0.8 mm diam., dark brown or black, with conspicuous longitudinal furrows, transverse walls absent or barely formed. *Flowering & fruiting* Dec.–June.

Fig. 1 (*Short* 5174; *Wightman* 4666); Pl. 1 (*Metcalfe* 2).

Endemic to the N.T., ranging from the D.R. to eastern Arnhem Land. In the D.R. known from Melville Island, Holmes Jungle and a few sites in the vicinity of Palmerston, Noonamah, Berry Springs and Howard Springs. Grows in seasonally flooded, shallow depressions in sandy soils.

The species has a chromosome number of $2n = 16$ (Conran *et al.* 2002a; based on *Lowrie* 2603 from Howard River).

Byblis aquatica

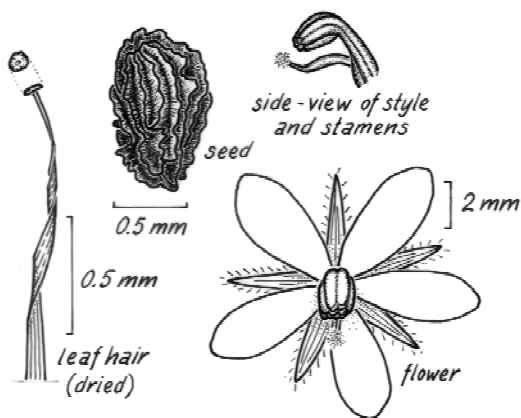


Fig. 1

B. liniflora Salisb.

B. caerulea R. Br. ex Planch.

Annual *herb* with a weak to erect stem, commonly 5–15 cm long, with a general indumentum of viscid, stalked glandular hairs. *Leaves* terete, *c.* 2–8 cm long, green, apically with a knob-like swelling. *Pedicels* 3–9 cm long. *Sepals* ovate, 3 mm long, 1–1.3 mm wide, 3- or sometimes 4- or 5-veined. *Petals* obovate, 5–8 mm long, 3–4 mm wide, mauve or pinkish-mauve above, white below, apically crenate. *Stamens* 5; filaments 2–2.5 mm long; anthers 1–1.5 mm long and shorter than the filaments. *Ovary* with stalked glandular hairs. *Style* 2.5–3.5 mm long. *Capsule* broadly obovoid, 2.2–4 mm long. *Seeds* 0.6–0.8 mm long, blackish, with minutely denticulate longitudinal ridges and shallow transverse ridges giving a honeycomb-like appearance. *Flowering & fruiting* *c.* Jan.–July.

Fig. 2 (*Dunlop* 5923; *Michell* 2127).

Northern Australia (W.A., N.T., Qld) and New Guinea. Widespread in the Top End north of Mataranka and in the Gulf region. Common in seasonally wet, sandy depressions and on the shallow margins of sandy drainage channels.

Byblis liniflora

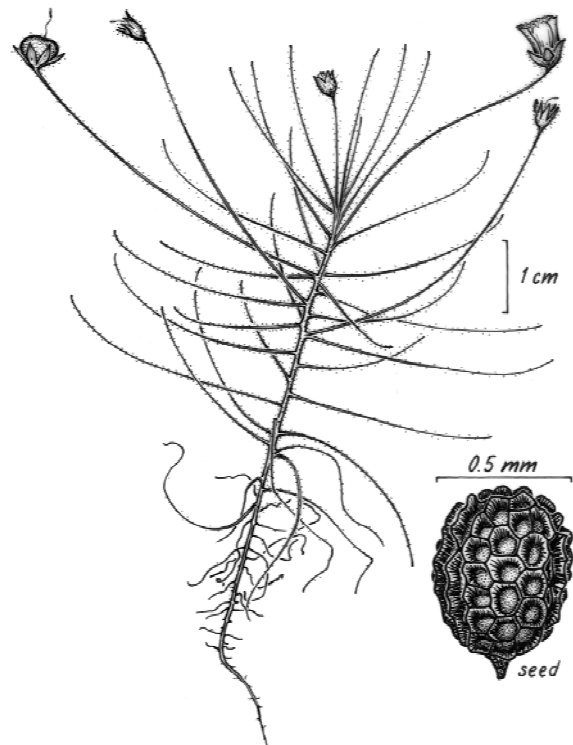


Fig. 2

The above description essentially follows Lowrie & Conran (1998) and Lowrie (1998). As noted previously, some specimens encountered in the D.R. may not closely fit this circumscription and perhaps represent another, as yet, undescribed taxon or prove referable to the generally larger *B. filifolia*.

Conran *et al.* (2002a) recorded a chromosome number of $2n = 32$ for specimens they referred to *B. liniflora*, including Lowrie 2301 from Palmerston.

REFERENCES

- Albach, D.C., Soltis, P.S., Soltis, D.E. & Olmstead, R.G. (2001). Phylogenetic analysis of Asterids based on sequences of four genes. *Annals of the Missouri Botanical Garden* 88: 163–212.
- Brummitt, R.K. (1992). *Vascular Plant Families and Genera*. (Royal Botanic Gardens, Kew).
- Conran, J.G. & Carolin, R.C. (2004). Byblidaceae. In Kadereit, J.W. (ed.), *The Families and Genera of Vascular Plants*. (Springer-Verlag: Berlin). Vol. 7, pp. 45–49.
- Conran, J.G., Houben, A. & Lowrie, A. (2002a). Chromosome numbers in Byblidaceae. *Australian Journal of Botany* 50: 583–586.
- Conran, J.G., Lowrie, A. & Moyle-Croft, J. (2002b). A revision of *Byblis* (Byblidaceae) in south-western Australia. *Nuytsia* 15: 11–19.
- Cronquist, A. (1981). *An Integrated System of Classification of Flowering Plants*. (Columbia University Press: New York).
- Lowrie, A. (1998). *Carnivorous Plants of Australia*. Vol. 3. (University of Western Australia Press: Nedlands).
- Lowrie, A. & Conran, J.G. (1998). A taxonomic revision of the genus *Byblis* (Byblidaceae) in northern Australia. *Nuytsia* 12: 59–74.
- Mabberley, D.J. (2008). *Mabberley's Plant-Book: a Portable Dictionary of Plants, their Classification and Uses*. (Cambridge University Press: Cambridge).
- Steenis, C.G.G.J. van (1972). Byblidaceae. In Steenis, C.G.G.J. van (ed.), *Flora malesiana*. (Noordhoff International Publishers: Leyden). Ser. I, vol. 7, pp. 135–137.



Pl. 1 *Byblis aquatica* (Photo: K.M. Metcalfe)