BRYOPHYTES OF AUSTRALIA

Quick Guide for Contributors

http://ausbryophytes.org.au

Australian Biological Resources Study

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Contents

Introduction

Bryophytes of Australia is part of the *Flora of Australia* project run by the Australian Biological Resources Study. Since the 1980s, the *Flora of Australia* was published as a series of hard-cover editions, with the most recent edition published in 2015. These volumes contained a comprehensive and authoritative account of Australian mainland and offshore territory Flora. These volumes were intended to cover vascular plants, bryophytes and lichens – but were never completed. Only one published Flora volume covered Mosses (Vol 51). Although a number of Flora Supplementary Volumes and checklists were published targeting all Australian Bryophyte groups, none contained the level of detail intended for a Flora volume. Moss treatments continued to be published on the Australian Mosses Online website (http://www.anbg.gov.au/abrs/Mosses_online/) until 2016 as a series of PDFs.

In 2017, a partnership between ABRS, the Council Heads of Australian Herbaria and the Atlas of Living Australia launched a digital eFlora platform. This enables live linkage to nomenclatural data (National Species List), keys (KeyBase), Images, and Occurrence records from the Australian Virtual Herbarium. Treatments are broken up into taxon profiles, with a separate page for each infraspecies and species, and higher taxa (up to Family). These pages can be edited by ABRS approved users, and published online rapidly. This enables the eFlora to be taxonomically up-to-date, while maintaining the rigour of the original hard-copy series.

Although Bryophytes and Lichens were originally included in the scope of the hard cover series, Bryophytes are housed in a separate collection from the Vascular Plants (www.ausflora.org.au). This guide provides the key information required for providing a treatment for the *Bryophytes of Australia* (www.ausbryophytes.org.au). This is a companion volume to the main *Flora of Australia* Contributor Guidelines, which contains broader information about how to contribute treatments, and the usage and governance of the eFlora platform and its linked data.

To view the main *Flora* Contributor Guidelines and associated detailed “How-To” Guides visit https://ausflora.net/contributor-guidelines/

Geographical Coverage

The area covered by the Flora includes the six Australian States, the Northern Territory, the Australian Capital Territory and immediate offshore island Territories (Cocos (Keeling) Island, Christmas Island, Ashmore Reef, Cartier Island, the Coral Sea Territory, Lord Howe Island, Norfolk Island, Heard Island and Macquarie Island). In the hard copy Flora series, Australian and State offshore Territories were covered separately in Volumes 49 and 50 but for vascular flora only. The digital Flora will integrate updated legacy treatments and new treatments of taxa from all Australian offshore territories.

Data fields required for a Bryophyte treatment

Attribute Name	**Family**	**Genus** (subfamilies, tribes etc)	**Species** (infraspecific taxa)	**More Information**
Etymology	Optional	Recommended	Recommended	**
Common Name	Optional	Optional	Optional (if any)	**
Description	Required	Required	Required	Section 1
Diagnostic Features	Optional	Optional	Recommended	**
Chromosome Numbers	Optional	Optional	Optional	Section 2
Biostatus	N/A	N/A	Recommended	**
Habitat & Distribution [including number of genera/species for family & genera]	Required	Required	Required	Section 3
Ecology	Optional	Optional	Optional	**
Representative Herbarium Specimens	N/A	N/A	Required	Section 4
Uses & Ethnobotany	Optional	Optional	Optional	**
Nomenclature and Typification	Required*	Required*	Required*	Section 5
Excluded or Uncertain Names	Optional	Optional	Optional	**
Taxonomic Notes	Optional	Optional	Optional	**
Notes	Optional	Optional	Optional	**
Illustrations	N/A	N/A	Recommended	Section 6
Bibliography	Required	Required	Required	Section 7
Source	Required	Required	Required	**

*Until linkage with National Species List is complete.

** For more information on how to fill out these attributes please see the Flora of Australia Contributor Guidelines (https://ausflora.net/contributor-guidelines/)

1. Description for Bryophyte taxa

1.1 General requirements

Taxon descriptions should be as brief as possible, without compromising clarity or accuracy. Terminology used should follow the Mosses Glossary (available on the ABRS website) but additional terms can be used if an accurate term is not available. Please provide ABRS any additional terms with a definition so they can be included in the Glossary.

Descriptions should describe the taxon as a whole, but be especially relevant to the Australian context. Attributes that occur only outside Australia should have the qualifier ('not in Australia'), as can be seen in the description of the leaf costa in *Hymenodon*. Such qualifiers may be necessary, for example, if Australia has only a few species of a large family.

Because Flora taxon profiles are managed and viewed independently it is important that descriptions cover all of the characters needed to understand the taxon. For example, Infraspecific taxa should be included in separate profiles, to ensure they are visible in the taxonomic hierarchy. As stand-alone profiles it may be useful to include a full description as for a species-level profile. However, it is sufficient to include only diagnostic characters for distinguishing this from other infraspecific taxa. For example, see *Macromitrium involutifolium* subsp. *ptychomitrioides*.

If a taxon or a character has one or several attributes that are common and others that are rare it is often worthwhile to say so, for example, 'Leaves alternate or rarely almost opposite'.

The treatment should contain the Australian taxa included in each rank (e.g. genera in each family) as per the AusMoss APC. A list of these taxa can be obtained from the NSL (https://moss.biodiversity.org.au/nsl/services/). The AusMoss taxonomy is out of date and incomplete in some places. Contact the ABRS or Niels Klazenga (Niels.Klazenga@rbg.vic.gov.au, the AusMoss APC authority) regarding instances where the APC taxonomy does not reflect latest scientific knowledge.

1.2 Sequence of organs in descriptions

The descriptions of bryophytes are divided into two paragraphs, to reflect the two life stages. The first paragraph describes the gametophyte, while the second paragraph includes the structures involved in sexual reproduction and sporophyte production. Contributors are asked to arrange organ descriptions in a fixed order described below. Within each organ the order of characters described is flexible, but should start out general and end with specific details.

- Family or genus descriptions generally do not contain detailed measurements or descriptions of attributes such as colours and texture, but may be included if useful for recognition.
- References to genera or species may be included within higher-level taxon descriptions. Where the family description includes various character states, then the state that applies in each genus should be described.
- Each principal organ (e.g. leaves, seta, capsule) begins a new sentence and its attributes are separated by commas. Secondary organs (e.g. exothecial cells, stomata, operculum) are preceded by a semicolon and the attributes again are separated by commas.
- For monoicous or dioicous plants, the descriptions of some characters for each sex should be described separately. The characters common to both sexes are covered first, followed by separate sentences for the male and female organs or plants. In these cases the organs that are usually given a sentence each are separated by semicolons.

Moss Description:

Gametophyte (paragraph 1)

Plant: habit, size, colour, dimorphism
Stems: size, branching pattern, paraphyllia (if present), section features (where relevant)
Protonema (include if seen and relevant to the taxon, otherwise exclude)
Rhizoids: distribution, colour, shape, surface texture (e.g. smooth or papillose)
Leaves: insertion, shape, size, where necessary include for both stem and branch, dry and moist, describing also the following elements:

- apex
- costa
- transverse section (no longer necessary to use T.S. as abbreviation)
- margin
- cells – upper, midleaf, basal, alars when present, apical surface ornamentation, wall thickness

Asexual reproductive structures (gemmae)

Reproduction (paragraph 2).

Sexual reproduction: type (e.g. dioicous, autoicous (not monoicous), synoicous, rhizoautoicous, phyllodioicous).Perigonia, perichaetia
Calyptra: size, shape, surface, colour
Seta: length, surface, twisting, colour
Capsule: emergence, shape, colour, surface, exothecial cells, stomata, operculum, peristome – type, single, double, colour, surface, exostome, endostome.
Spores: shape, size, colour.

Thalloid Liverwort Descriptions

Plant: habit, size, colour, branching dimorphism
Thallus: size (always in dimensions not descriptive, never with the term 'relatively'), branching pattern
Rhizoids:,distribution, colour, surface texture (smooth or pegged), shape
Tubers: present or absent; if present then description
Thallus: colour, dry and moist if different.
Segments

- dorsal surface;
- ventral flanks;
- dorsal groove;
- margins.

Ventral Scales: shape; colour, size, cell walls straight or sinuose
Presence of an appendage at the apex of the ventral scale, shape of appendage
Cilia: distribution, size, shape.
Epidermal cells: number of layers, shape; colour
Oil Bodies/idioblasts: colour, shape, size, distribution.
Asexual reproduction: presence, type, arrangement on gametophyte and propagule description

Sexual reproduction: type (using more general terms:- dioicous, monoicous, autoicous, synoicous, rhizoautoicous, phyllodioicous)
Gametangia: arrangement

Androecium: position, shape, bracts, bracteoles; antheridia: number, shape, size
Gynoecium: position, innovations, bracts, bracteoles; protective structures (pseudoperianths, involucre, calyptra); number and position of archegonia

Seta: length, articulation, section features

Capsule: shape, colour, dimensions, valves, dehiscence, surface, exothecial cells, numbers of capsule layers; thickenings in cells and shapes of the thickenings
Elaters: colour, size, number of thickenings.
Spores: shape, size, pores; ornamentation on distal and proximal faces; triradiate mark presence or absence (i.e. whether spores are polar or apolar) and any ornamentation associated with mark

Leafy Liverwort Descriptions

Habit: size, colour, growth habit
Branching pattern
Stems: diameter, tomentum and paraphyllia, section features
Rhizoids: position, distribution, morphology, colour
Lateral leaves: insertion, spacing, stature when wet/dry, size, shape
Lobes: number, shape, cilia, planes, sections, cells (position, shape, sizes, planes, sections),
Disc (if present): shape, size (in um or mm and no cells), margins, cells (shape size).
Oil Bodies: colour, shape, size, distribution
Underleaves: number per pair of lateral leaves, insertion, spacing, size, shape; and as above: disc, lobes, oil bodies.
Asexual reproduction: presence, type, arrangement on gametophyte and propagule description

Sexual reproduction: type (using more general terms:- dioicous, monoicous ,autoicous, synoicous, rhizoautoicous, phyllodioicous).
Gametangia: arrangement
Androecium: position, shape, bracts, bracteoles, antheridia: number, shape, size
Gynoecium: position, innovations, bracts, bracteoles, protective structures (perianth, shoot calyptra, coelocaule), number and position of archegonia
Seta: length, articulate, section features
Capsule: shape, colour, dimensions, dehiscence, wall layers
Elaters: attachment, size and shape.
Spores: shape, dimensions, ornamentation, colour

Hornworts Descriptions

Plant: dimensions, habit, branching, colour, dimorphism
Thallus: Shape, dimensions, margins, midrib, thickness, section description and cavity presence/anatomy, symbiont morphology - whether cyanobacteria is in globose colonies or in strands
Ventral thallus: ventral clefts present, size
Rhizoids: position, distribution, colour, morphology
Asexual reproduction: presence, type, arrangement on gametophyte and propagule description

` Sexual reproduction: type (using more general terms: dioicous, monoicous, autoicous, synoicous, rhizoautoicous, phyllodioicous).
Gametangia: arrangement
Androecium: position, shape, antheridia: number per chamber, shape, size, jacket cell arrangement, stalk cell rows
Gynoecium: position, archegonia, involucre
Foot: size, shape
Capsule: size, shape, emergent or non-emergent; presence or number valves, dehiscence, stomata, wall layers, columella- presence or absence; number of cells making up columella
Pseudoelaters: size, shape, colour, number of cells making up pseudoelater, if it has spiralthickenings
Spores: colour, shape – polar or apolar, dimensions – diameter , triradiate ridge, ornamentation on distal and proximal faces.

1.3 Other stylistic requirements

- When expressing the number of parts, consecutive numerals should be separated by ‘or’ or ‘to’, not a hyphen (or en dash), e.g. ‘2 or 3 cells’, not ‘2–3 cells’.
- Ranges of values are expressed using an en dash (–), not a hyphen (-), e.g. Spores 16–20 µm diameter, not 16-20 µm.
- When one term is used to qualify another term, the two words may be separated by a hyphen, e.g. sinuate-dentate. If the intention is to express a range from one to the other, then the word ‘to’ should be used, e.g. ‘linear to lanceolate’. Expressions of the form ‘(ob-) lanceolate to (ob-) ovate’, meaning ‘ranging through lanceolate, ovate, oblanceolate and obovate’ should be avoided
- All measurements are provided in metric units (µm, mm, cm, m), with the same units used for each organ across a treatment.
- For long, narrow organs, the dimensions are explicitly characterised, e.g. leaves 2–4 m long, 2–3 cm wide.
- Extreme measurements are expressed using parentheses (round brackets) and en dashes (–), but sparingly. e.g. ‘laminal cells 18–40 (–60) × 4–5 µm, indicating that the normal length range is between 18 and 40 µm, with occasional extremes as long as 60 µm.
- Special characters are separated from its descriptor word by a space (e.g. “± falcate”).

2. Chromosome Numbers

n=_. Include a citation (Reference or pers. Comm. Author, Date – see section 7), with full reference included in the Bibliography. For novel counts cite a vouchered specimen (Collector, No; Herbarium).

3. Habitat & Distribution

Provide a general distribution within Australia and globally. Specify region of origin if it is not native to Australia. For Families and Genera, include the number of genera and species and distribution worldwide, the Australian content and the number of native, endemic and naturalised taxa. All States and Territories should be referred to using the full name (e.g. Tasmania, not Tas.).
Also provide general information on habitat including vegetation type(s), landforms, geology, and soils, as appropriate. Commonly co-occurring taxa may be included here if there is a strong association.

4. Representative Herbarium Specimens

For now, the eFlora still asks for citations representative herbarium specimens.

Examples:

W.A.: Porongorups Range, 6 Oct. 1959, *G.G. Smith s.n.* (MEL ex WAU).

N.T.: Uluru, *A.C. Beauglehole 25880* (MEL).

S.A.: Kensington Park, Adelaide, *D.G. Catcheside 79.155* (AD).

Qld: Tinaroo Dam, *W.B. Schofield 80214* (NSW).

N.S.W.: between Rous and Wardell, *H.P. Ramsay R530* (NSW).

A.C.T.: Naas Creek, 35 km SE of Canberra, *H. Streimann 7937* (CANB).

Vic.: Grampians, *D. Sullivan s.n.* (MEL 1000163).

Tas.: Mount Wellington, 31 Mar. 1976, *D.A. & A.V. Ratkowsky s.n.* (MEL).

Noting:

- States and territories are separated onto new lines, but follow the order W.A., N.T., S.A., Qld, N.S.W., A.C.T., Vic., Tas.
- Multiple specimens from the same state are separated by semicolons.
- Where some States are or include (cases where State has native and naturalised records) naturalised records, please indicate by preceding with an asterisk * the State or specimen, respectively.
- Contributors are encouraged to view physical specimens, but specimens on the Australian Virtual Herbarium may be referred to if *n.v.* is appended to the citation. This indicates that the specimen was not physically seen by the contributor.

5. Nomenclature and Typification

Until the Moss eFlora collection is linked with the NSL, contributors are requested to provide full Nomenclature and Typification details in the original *Flora of Australia* format. However, as there are no longer space constraints, contributors may provide expanded citations. For example, instead of *J. Hattori Bot. Lab.* this journal may be cited as *Journal of the Hattori Botanical Laboratory*).

These should follow the following stylistic guidelines:

Nomenclatural synonyms in chronological order: name, reference. This should also include the name of the considered taxa in the appropriate chronological position.

Type: Locality, State if Australian, date, collector name (initials, surname), collector number; kind of type (e.g. holotype/syntype): Herbarium acronym, (if lectotype give reference to where selected, *n.v.* if not seen but with reference to source of data. Note that all data should be provided if available).

Taxonomic synonyms: as above. Include only those based on Australian types or applied to Australian material in publications.

An example of the *Nomenclature and Typification* section from a genus (also applicable to Family) profile:

Thuidium Schimp., *in* P.Bruch, W.P.Schimper & W.T.Gümbel, *Bryologia Europaea* 5: 157 (1852).
Type: *T. tamariscinum* (Hedw.) Schimp.

An example of *Nomenclature and typification* from a species:

Hypnum cymbifolium Dozy & Molk., *Annales des Sciencies Naturelles, Botanique sér. 3*, 2: 10 (1844); ***Thuidium cymbifolium*** (Dozy & Molk.) Dozy & Molk., *Bryologia Javanica* 2: 115 (1865).
Type: Sumatra, [Indonesia], P.W.Korthals *s.n.*; lectotype: L, *fide* A.Touw & L.Falter-Van den Haak, *Journal of the Hattori Botanical Laboratory* 67: 30 (1989); Java, [Indonesia], P.W.Korthals *s.n.*, syntype: L.

Taxonomic synonyms

Hypnum nano-delicatulum Hampe, *Linnaea* 40: 323 (1876); *Thuidium nano-delicatulum* (Hampe) A.Jaeger, in A.Jaeger & F.Sauerbeck, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1876–77: 259 (1878); *Cyrto-Hypnum nano-delicatulum* (Hampe) AJaeger, in A.Jaeger & F.Sauerbeck, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1876–77: 259 (1878), *nom. inval. in synon*.
Type: "Subtropical Eastern Australia", Eaves *s.n.*; holotype: BM; isotype: H, L.

Hypnum plumulosiforme Hampe, *Linnaea* 40: 324 (1876); *Thuidium plumulosiforme* (Hampe) A.Jaeger, in A.Jaeger & F.Sauerbeck, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1876/77: 267 (1878); *Cyrto-Hypnum plumulosiforme* (Hampe) A.Jaeger, in A.Jaeger & F.Sauerbeck, *Ber. Thätigk. St. Gallischen Naturwiss. Ges.* 1876/77: 267 (1878), *nom. inval. in synon.*
Type: "Subtropical Eastern Australia", Eaves *s.n.*; lecto: BM, fide A.Touw & L.Falter-Van den Haak, *Journal of the Hattori Botanical Laboratory* 67: 30 (1989); isolectotype: H; Illawarra, N.S.W., 1875, *S.Johnson s.n., p.p.,* syntype: BM.

Thuidium protensulum Müll.Hal. ex Cardot, *Bulletin de l'Herbier Boissier, sér. 2*, 8: 171 (1908).
Type: New Caledonia, *Vieillard s.n.*; holotype: PC.

Misapplications

[Thuidium furfurosum auct. non (J.D.Hook. & Wilson) Reichardt: H.P.Ramsay, *in* A. Löve, *Taxon* 16: 559 (1967) *p.p.]*

[Thuidiopsis furfurosa auct. non (J.D.Hook. & Wilson) M.Fleisch.: H.P.Ramsay, *Australian Journal of Botany* 22: 328 (1974) *p.p.]*

[Thuidium ramentosum auct. non (Mitt.) Mitt.: W.Mitten, *Transactions and Proceedings of the Royal Society of Victoria* 19: 90 (1882)*]*

Please ensure information provided here is also present and correct in the National Species List (NSL) AusMoss shard (https://moss.biodiversity.org.au/nsl/services/). This feedback to the National Species List should be provided via the "Provide Feedback" button on the far middle right of the page. We encourage you to keep a record of necessary updates and provide them to the NSL.

For more information see Flora of Australia Contributor Guidelines.

6. Photos and Illustrations

Illustrations in other publications can be cited in the "Illustrations" attribute, and are cited in a reduced format on a single line, in chronological order, and separated by semicolons. Please do not include any *loc. cit.* or *op. cit.* citations.

D.G.Catcheside, *Mosses of South Australia* 229, fig. 128 (1980); D.Meagher & B.Fuhrer, *A Field Guide to the Mosses and Allied Plants of Southern Australia* 155 (2003); B.Malcolm, N.Malcolm, J.Shevock & D.Norris [B. Malcolm *et al*. is acceptable if more than two authors where full authorship is provided in the Bibliography reference citation], *California Mosses* 48 (2009).

6.1 Curating the image gallery

Each taxon profile is accompanied by images that ALA has harvested from the Australian Plant Image Index. Editing profiles also allows access image settings, including which ones are on public display. Please check these for accuracy to the taxon concept presented. For more information see the Flora of Australia Contributor Guidelines.

6.2 Contributing new images and illustrations

The ABRS encourages contributions of new images to the Flora, particularly where taxa are under-represented or where additional images would assist identification or to distinguish among similar taxa. Images may include digital photographs or digital scans of diagnostic scientific illustrations. Submission of slides is discouraged.

Detailed guidelines for the preparation of scientific illustrations, including line-drawings, half-tone figures and colour plates are given in the *Flora of Australia Guide for Illustrators* (1988). A PDF of this guide is available on the help site: https://ausflora.net/contributor-guidelines/

Contributors are asked to submit images that:

- Can be sent to the Australian Plant Image Index. Photos can be uploaded to the platform by negotiation with ABRS.
- Comply with the file format and resolution requirements outlined below.
- Are taxonomically verified, preferably associated with a herbarium voucher specimen lodged in an Australian herbarium.
- Include a single taxon. Images including multiple taxa can be submitted, but may only be automatically linked to a single Flora taxon profile.
- Are representative of a taxon. These may be complementary to existing images available in Flora taxon profiles. For example, images of important diagnostic features such as fruiting bodies will be useful where none are available.
- Can be provided under a CC-BY license (https://creativecommons.org/licenses/by/3.0/au/). Image creators (e.g. illustrators/ photographers) will be appropriately acknowledged if the image is reused.
- Are accompanied by metadata including caption and appropriate citations. The form for contributing any images to the Flora of Australia (by direct upload or via APII) is located on the Ausflora.net contributor guidelines page or contact abrs@environment.gov.au for a copy.
- ABRS will contact you, as the image producer, regarding any requests of copies for higher resolution or uncompressed images that are not held by ABRS or the APII.

Image file format and resolution requirements:

- Photographs: Due to storage limitations, widely used compressed image formats for web view are preferred (e.g. JPEG and PNG). TIFFs will also be accepted. Any resolution will be accepted for web view only, but for archival purposes images of a resolution greater than 6 megapixels is requested. Uncompressed image formats (e.g. RAW, NEF, DNG) will be accepted under rare circumstances by negotiation only.
- Scientific illustrations: For web publication via the APII will accept JPG or PNG formats, but we
- Prefer images to be print accessible so please provide ABRS with a high resolution (at least 600 dpi, minimum size ~2000 x 3000 megapixels) scanned copies of illustrations in TIFF format.
- Please send all new Flora images and associated metadata template (mentioned above) to ABRS. The ABRS will package and submit the images for loading to the APII.

Please note: There is likely to be a time delay between submission of images to the ABRS and delivery on the Flora platform. Time frames will vary depending on APII workloads and periodic updates of the ALA image cache (import of APII images).

7. Citation and Referencing

Cite references according to the *Flora* style below. In-text citations should be provided in chronological order, in the following format: (Smith 2016; Smith & Smythe 2017; Smith *et al*. 2018a; Smith *et al*. 2018b). If the entire text of an attribute was extracted directly from another source the "source" field below the attribute should contain the in-text style citation, with the full reference included in the Bibliography. Bibliography should be sorted by author alphabetical order, then by date of publication.

Book Chapter or Section

Brotherus, V.F. (1924). Funariaceae, in Engler, H.G.A. & Prantl, K.A.E. *Natürlichen Pflanzenfamilien*, 2nd edn, 10: 320–332.

Catcheside, D.G. (1980). *Mosses of South Australia*: 218–239. (South Australian Govt. Printing: Adelaide.)

Gilmore, S.R. (2006). Bartramiaceae, in McCarthy, P.M. (ed.) *Flora of Australia* 51: 248-270. (Australian Biological Resources Study, Canberra & CSIRO Publishing: Melbourne.)

Spence, J.R. & Ramsay, H.P. (2006). Bryaceae, in McCarthy, P.M. (ed.) *Flora of Australia* 51: 274–310, 319–348. (Australian Biological Resources Study, Canberra & CSIRO Publishing: Melbourne.)

Journal

Fife, A.J. & Seppelt, R.D. (2001). A revision of the family Funariaceae (Musci) in Australia. *Hikobia* 13: 473–490.

Fife, A.J. (1985). A generic revision of the Funariaceae (Bryophyta: Musci), Part 1. *Journal of the Hattori Botanical Laboratory* 58: 149–196.

Website

Goffinet, B., Shaw, A.J. & Buck, W.R. (2012). *Classification of the Bryophyta*. Available at: https://bryology.uconn.edu/classification/ [Accessed 2012]

Thesis

Fife A.J. (1982). *A Generic Revision of the Funariaceae (Bryophyta: Musci)*. PhD Thesis, University of Michigan, Ann Arbor.

For more information please consult the *Flora of Australia* contributor guidelines available online here (https://ausflora.net/contributor-guidelines/)

If you encounter any problems, please do not hesitate to contact abrs@environment.gov.au