FLORA
of
AUSTRALIA

Guide for Illustrators

Australian Biological Resources Study

1995

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INTRODUCTION

The *Flora of Australia,* and the related series, *Fungi of Australia* and *Algae of Australia,* will cover a wide spectrum of plant life from algae to flowering plants. Each group will be illustrated. The purpose of the illustrations is to complement the descriptive text and show particular characters in detail. Since a large number of illustrators will contribute, it is important that there is a measure of consistency of style, presentation and standard. This publication provides guidelines to which illustrations must conform as well as general information that will be helpful in achieving this objective.

Illustrations that do not conform to these guidelines or that are inaccurate or incomplete may be returned to the illustrator for correction.

Copyright in the published edition of the *Flora* and its related series rests with the Australian Nature Conservation Agency. However, unless otherwise specifically arranged, illustrators and photographers only provide copyright permission for use of their pictorial matter in the *Flora* and related (brochures and other publicity matter) publications. The artist or photographer retains full copyright of the original illustration, and will be contacted by ABRS if that organisation, or any other person or group, wishes to reproduce the illustration for any other purpose.

Anyone wishing to reproduce an illustration used in the *Flora* must request permission to do so from the Director, Flora, ABRS, GPO Box 636, Canberra, A.C.T. 2601, who will contact the copyright holder.

Original paintings used for the cover and frontispiece will usually be purchased by ABRS. In the past some cover paintings were bought by Artbank, a Commonwealth Government organisation that holds Australian works of art and craft for the purpose of hire to Government and approved instrumentalities.

Previously-published illustrations may be used in the *Flora* with the approval of the Executive Editor. For such art work to be used, permission will be obtained by ABRS in writing from the publisher and/or owner of the copyright. This courtesy will be duly acknowledged in the *Flora*.

While this guide has been largely written for the vascular flora similar instructions apply to illustrations of non-vascular taxa. See Figs 10 and 11, and the *Guide for Contributors to the Bryophyte Volumes*, 1990.

GUIDELINES FOR LINE DRAWINGS

All illustrators preparing line drawings should work in close collaboration with the contributor writing the text. Each set of figures should be planned with the contributor and the Executive Editor. This is necessary for spacing, balance, lettering, caption length, etc. The contributor will specify the magnification of structures so that they show features to be emphasised. The contributor will provide the subject material (frequently dried herbarium specimens), determine which features need illustration and demonstrate any necessary preparation of material. Many features will require dissection of flowers (or buds or fruits or seeds) using a dissecting microscope. Other features may require the use of a light microscope (Fig. 8).

The illustrator must understand the purpose of each figure and is advised to read the manuscript (if available) of the appropriate part of the text of the *Flora of Australia.*

Paper and Ink

Line drawings are to consist of black ink drawings on paper or art board, scraper board or drawing film. They must be prepared with archival quality materials. The ink must be high quality and dense black, e.g. Rotring drawing ink. The paper or art board must be of high quality, white, smooth, and take a crisp clean line, e.g. Chromolux art board, Cronaflex film, Essdee scraper board, Duradraft double matt drafting film. Boards must be thin enough to be cut if necessary for rearranging layout within a figure.

Size and Reduction

It is necessary to plan the size of each figure. Each final figure is to fit a full printed page (i.e. excluding margin) with the length varying due to the figure caption (Fig. 6). The printed area (including caption) is 12.5 cm wide and 20.5 cm deep.

Illustrations are usually printed at ½ or ⅓ of the original size, i.e. a 2:1 or 3:1 reduction. Illustrations to be printed at 1:1 have been accepted but are not encouraged. Intermediate reductions are not encouraged.

Recommendations for original figure drawings are:

	for 2:1 reduction	for 3:1 reduction
Image-area width	25 cm	37.5 cm
Image-area depth (including caption)	41 cm	61.5 cm
Minimum pen size	0.25 mm	0.35 mm

Captions

Captions are the contributor's responsibility. The contributor should prepare each caption and inform the artist of the probable depth (Fig. 6). The following table is a guide to estimating caption size.

Items per figure	2:1 reduction	3:1 reduction	final size
5	5 cm	7.5 cm	2.5 cm
10	8 cm	12 cm	4 cm
15	11 cm	16.5 cm	5.5 cm
20	12 cm	18 cm	6 cm
25	14 cm	21 cm	7 cm

Figure captions should be presented on a separate sheet. They should include the species name, the feature shown, and the voucher details (see below).

Lines

All lines must be dense black, crisp, clear, without 'feathering' and without hesitations.

Shading

Shading is to be achieved by stippling (Fig. 7) or hatching (Fig. 4). To indicate a darker area an increase in the size of each dot or thickness of each line as well as an increase in density is recommended.

The effect of reduction on line and shading must be kept in mind at all times. If dots or lines come too close together they may meld into a black blob upon reduction (Fig. 2). Conversely, fade-out is possible if line and shading are too fine (Fig. 3). Illustrators are advised not to use pens finer than the recommended minimum (see above). Similarly, if white stipple and line are used on a black background, as in scraper board, they must be exaggerated.

Light Direction

By convention, light is parallel and comes from the top left hand corner at 45° to the sides of the page for right-handed artists. There should be consistency within a figure.

Scale

All taxonomic illustrations must have the scale of the original pencilled lightly beside the drawing or on a plan of the complete figure. In the past, illustration magnifications were given in the caption. In all future volumes, scale bars will be used on the illustration itself to indicate magnification / reduction. Scale bars should be added to the plate by the artist. The measurements should be lightly pencilled alongside the relevant drawing on the original artwork, or added to a copy of the illustration. Where possible, elements of the illustration drawn to the same magnification should be grouped so as to minimise the number of scale bars needed. This grouping should not compromise logical layout of the plate. Scale bars preferably should be vertical, but on occasion horizontal bars may be more aesthetically pleasing.

Orientation

It is conventional that the plant growing-apex is oriented on the page in its normal growing position. Similarly, the axis of symmetry (or an approximation in asymmetrical flowers) should be vertical for plant parts.

Composition

Where a full plate is being drawn a balance should be struck between aesthetic values and the maximum use of available space (Fig. 4). Bear in mind that the space between items will also be reduced. In some cases items are drawn separately and the Executive Editor is responsible for determining layout. Occasionally plates will need to be cut up for rearrangement or to add extra elements. Overlapping drawings should only be used if absolutely necessary.

Lettering

All lettering will be done by the Executive Editor. When planning a figure, account must be taken of the space the lettering will occupy (Fig. 7). It is conventional to have the letters at the bottom right hand base of each item in the figure (compare Fig. 5 and Fig. 6); however, aesthetics, clarity of the plate and taxonomic grouping take precedence over this convention. Highlighted features may be indicated using lettering if the feature is likely to be misinterpreted (Fig. 9).

Signatures or Monograms

Usually one signature or monogram is required per final figure, and should be unobtrusive (Fig. 5). Illustrators are also acknowledged in the figure caption. Where more than one illustrator has contributed to the figure and confusion over individual contributions is possible, illustrators will be acknowledged in the caption with reference to their individual illustrations in the plate (Fig. 6).

Accuracy

The importance of accuracy cannot be stressed too highly (Fig. 1). Freehand sketching is rarely satisfactory. Parts should be measured, especially when the object is either enlarged or reduced in drawing. A pair of proportional protractors is a very useful aid. For 1:1 drawing, the photocopier[1] and the light box can be useful aids. For microscope work it may be necessary to use a camera lucida or drawing tube. This enables the viewer to see the specimen both under the microscope and on the drawing paper at the same time. The object outline can then be traced onto the paper.

Optical Bias

Most people have a diagonal optical bias. Always turn your work upside down to correct for this before inking (Fig. 1).

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[1]Many photocopiers do not replicate the original object at exactly 100% of original size.

Vouchers

A record of the specimen used for the illustration must be kept and this voucher specimen should be cited in the caption for each drawing. This may be done in abbreviated form, e.g. J.Matheson 3456, BRI. If there is no collector's number then the locality should be cited, e.g. Broken Hill, N.S.W., J.Smith, MEL (Fig. 1).

Further Information

There are several books on botanical illustration which may be useful. The following are a selection:

Blunt, W. (1950), *The Art of Botanical Illustration*. New Naturalist Series No. 14. Collins, London.

Holmgren, N.H. & Angell.B. (1986), *Botanical Illustration: Preparation for Publication*. The New York Botanical Garden, New York.

Rix, M. (1981), *The Art of the Botanist*. Lutterworth, London.

West, K. (1983), *How to Draw Plants. The Techniques of Botanical Illustration*. Herbert/British Museum (Natural History), London.

HALF-TONE FIGURES

Half-tone figures (black-and-white photographs) should be submitted as glossy, unmounted prints. The prints should have good contrast and be the size at which they are to be reproduced. The identity of each print should be lightly pencilled on the back. A plan indicating layout and orientation should be submitted. A scale bar is to be lightly pencilled on the back of the prints or included in the plan. As with line drawings, the size of the caption should be considered when determining the composition of a whole page of prints. Captions should be collated in the same way as the captions for line drawings (see above). Lettering will be added by the Executive Editor. Black and white photographs are not returned to the supplier. Please supply negatives (which will be returned) if you are unable to supply black and white photographs.

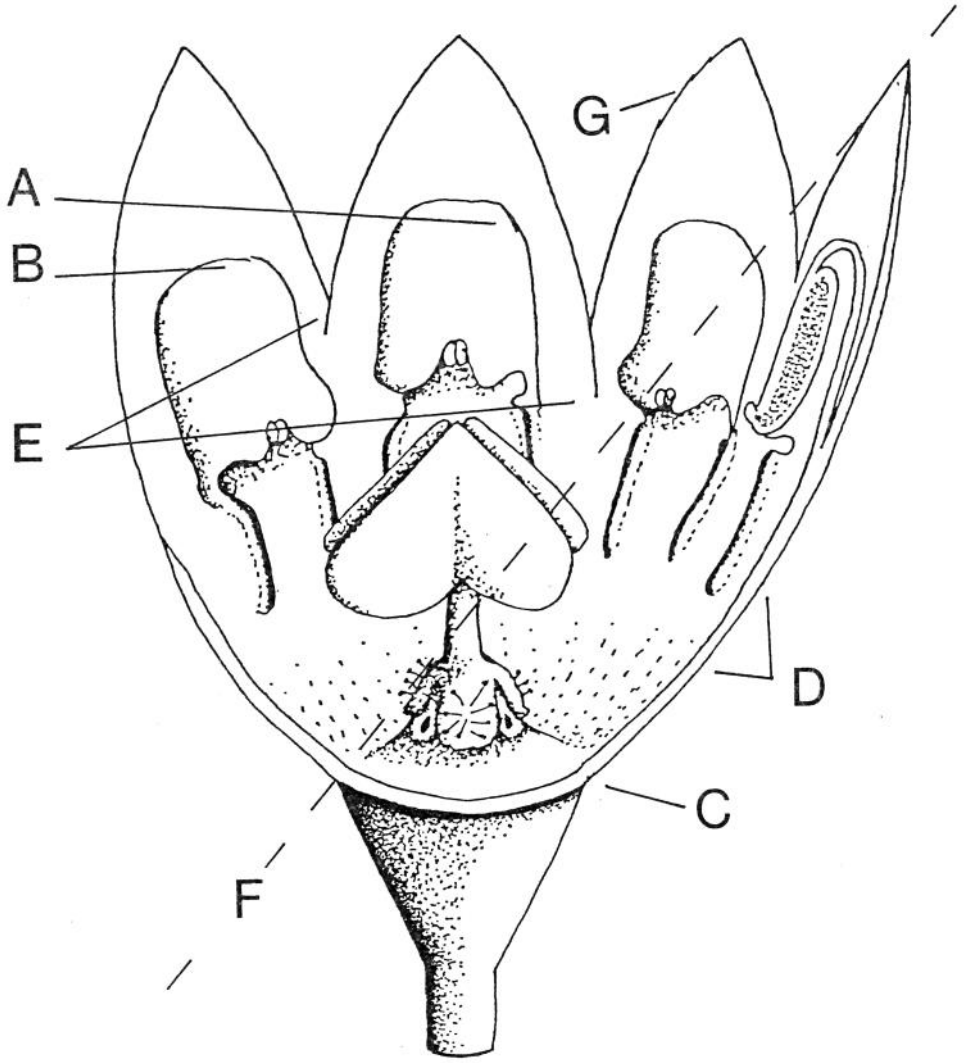
COLOUR FIGURES

Colour figures in the text are reproduced from colour slides. These may be submitted by the contributor or obtained from other sources. 35 mm colour slides are preferred but larger transparencies will be accepted. The Executive Editor makes the final selection. Slides should show detail (in focus) of habit, leaves, flowers or fruit in vascular plants and their equivalents for non-vascular plants and have no distracting features such as a hand holding a branch. Use of slides of cultivated plants is discouraged. Accurate colour and balance of composition are also taken into account. The caption contains the name of the species depicted and acknowledges the photographer. Original slides are returned to the supplier.

COVER AND FRONTISPIECE

For most volumes of the *Flora* a painting will be used for the cover and frontispiece. It will usually show a single species representing a family or large genus in the volume. The species will be selected by the Executive Editor, and an artist will be invited to prepare a painting. Where necessary, arrangements will be made for the collection of fresh material.

The painting will usually be in watercolour. It should have a width:depth ratio of 5:6, preferably with a width of c. 30 cm, but not less than 20 cm or more than 40 cm. It must be prepared with archival quality materials.



Tacca maculata x10

Flower dissected to show stamen structure.

(near Cotton Gin, Kununurra, R.J. Petheram, PERTH)

Figure 1. This illustration is not of an acceptable standard. Note: **A**, overrun line; **B**, broken line; **C**, hesitations; **D**, inaccuracy of tissue thickness; **E**, probable inaccuracy – failing to demonstrate place of petal origin; **F**, skew – representing optical bias and not asymmetry of the flower (turn the figure upside down); **G**, feathering. The illustration was prepared for a composite plate and the accompanying information – name, structure, magnification and voucher details – are all correct.

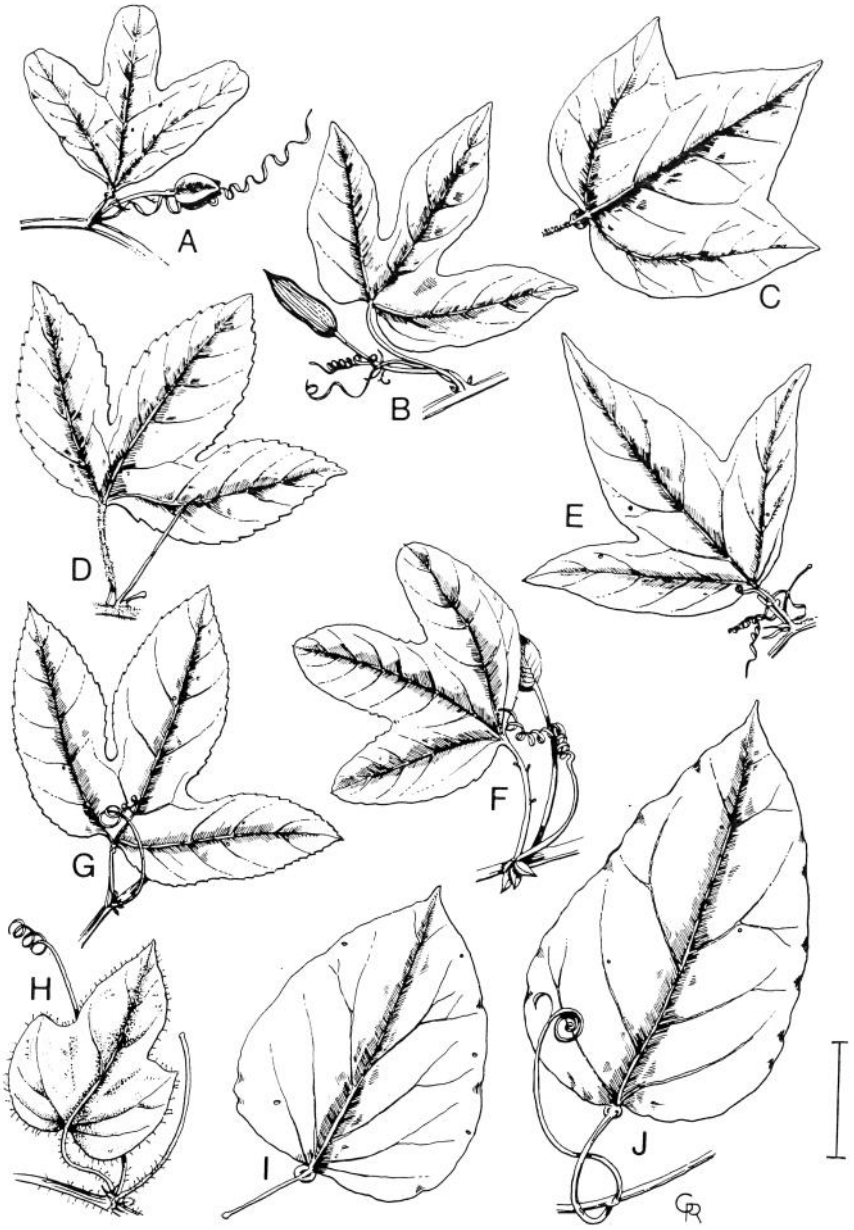


Figure 34. A–H, *Passiflora* leaves and tendrils. **A**, *P. aurantia* (Mt Wyangapinni, Qld, T.Stanley, BRI). **B**, *P. cinnabarina* (Constable, Tas., M.Allan, HO). **C**, *P. herbertiana* (Mt Glorious, Qld, J.Tyaek-Bake, BRI). **D**, *P. mollissima* (Canberra, A.C.T., M.E.Phillips, CBG). **E**, *P. suberosa* (M.Rankin 1180, BRI). **F** *P. subpeltata* (T.Stanley & E.Ross 78139, BRI). **G**, *P. edulis* (Springbrook, Qld, L.Jessup & E.Ross, BRI). **H**, *P. foetida* (R.Johnson 1762, BRI). **I–J**, *Adenia heterophylla*. **I**, subsp. *australis* (L.Webb & J.Tracey 12433, BRI). **J**, subsp. *heterophylla* (S.T.Blake 14985, BRI). Drawn by Gillian Rankin. Scale bar = 2 cm.

Figure 2. Black-out has occurred where hatching lines are too close together in this illustration.

Based on *Fl. Australia* 8: Fig. 34 (1982).

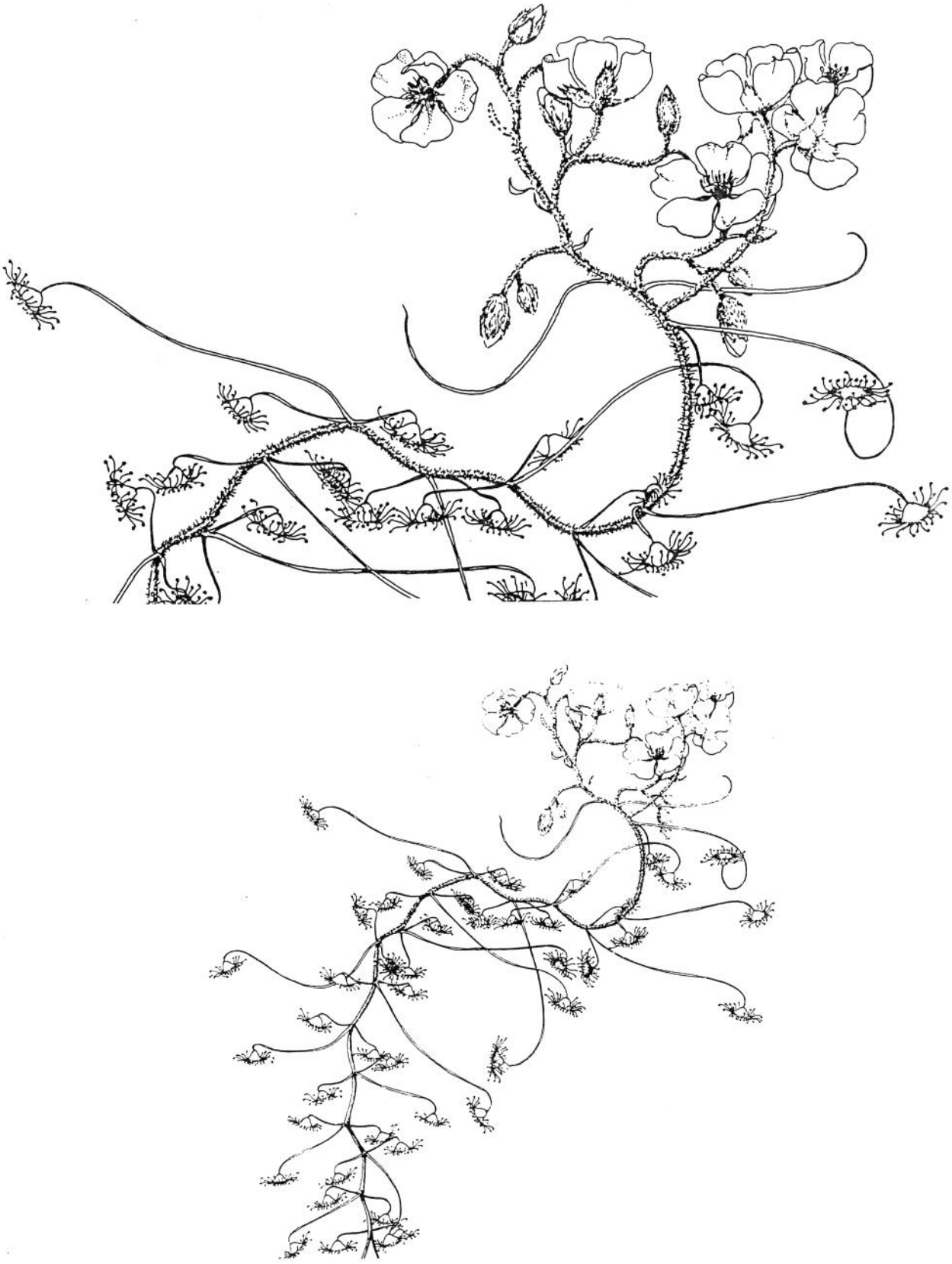


Figure 3. Compare the two illustrations – original (upper) and reproduction (lower). Detail has been lost because the lines are too fine for the reduction. Based on *Fl. Australia* 8: Fig. 9 (1982).

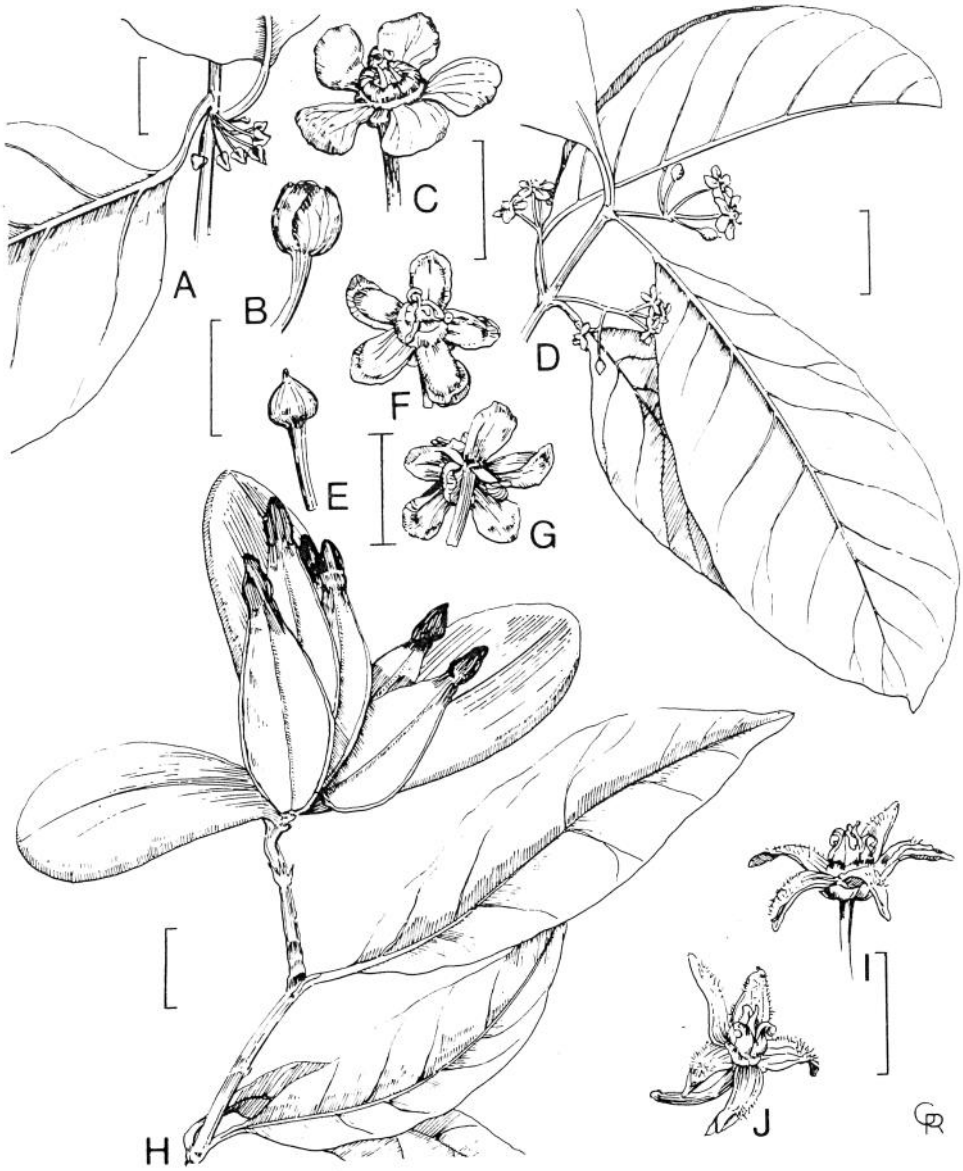


Figure 46. **A–F**, *Salacia*. **A–C**, *S. chinensis*. **A**, part of flowering branchlet; **B**, bud; **C**, flower (A–C, L.Webb & J.Tracey 11428, BRI). **D–G**, *S. disepala*. **D**, flowering branchlet; **E**, bud; **F**, flower; **G**, flower from below (D–G, B.Hyland 6437, BRI). **H–J**, *Hippocratea barbata*. **H**, fruiting branchlet (J.Simmonds, BRI 111826); **I**, flower from side; **J**, flower from above (I–J, E.Volck 1941, BRI). Drawn by Gillian Rankin. Scale bars: A, D, H = 1 cm; B, C, E–G, I, J = 5 mm.

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Figure 4. This illustration is a nice example of the use of hatching for shading. Inefficient use of the page has been made. It is too crowded above but well spaced below, causing imbalance and difficulty with labelling. In addition, too much room has been left for the caption.

Based on *Fl. Australia* 22: Fig. 46 (1982).

Figure 29. *Frankenia laxiflora*. **A**, flowering branch; **B**, leaves; **C**, flower; **D**, petal; **E**, stamens; **F**, ovary and style; **G**, ovary spread open (H.Demarz 3972, PERTH). Drawn by Mary Monsma. Scale bars: A = 5 mm; B = 1 mm; C–F = 2 mm.

Figure 5. This illustration is a nice example of dot shading. The orientation of parts is correct, the signature is unobtrusive and the technique is good. However, the layout is crowded so that some items almost touch at this reduction and the lettering is less than ideal. Based on *Fl. Australia* 8: Fig. 29 (1982).

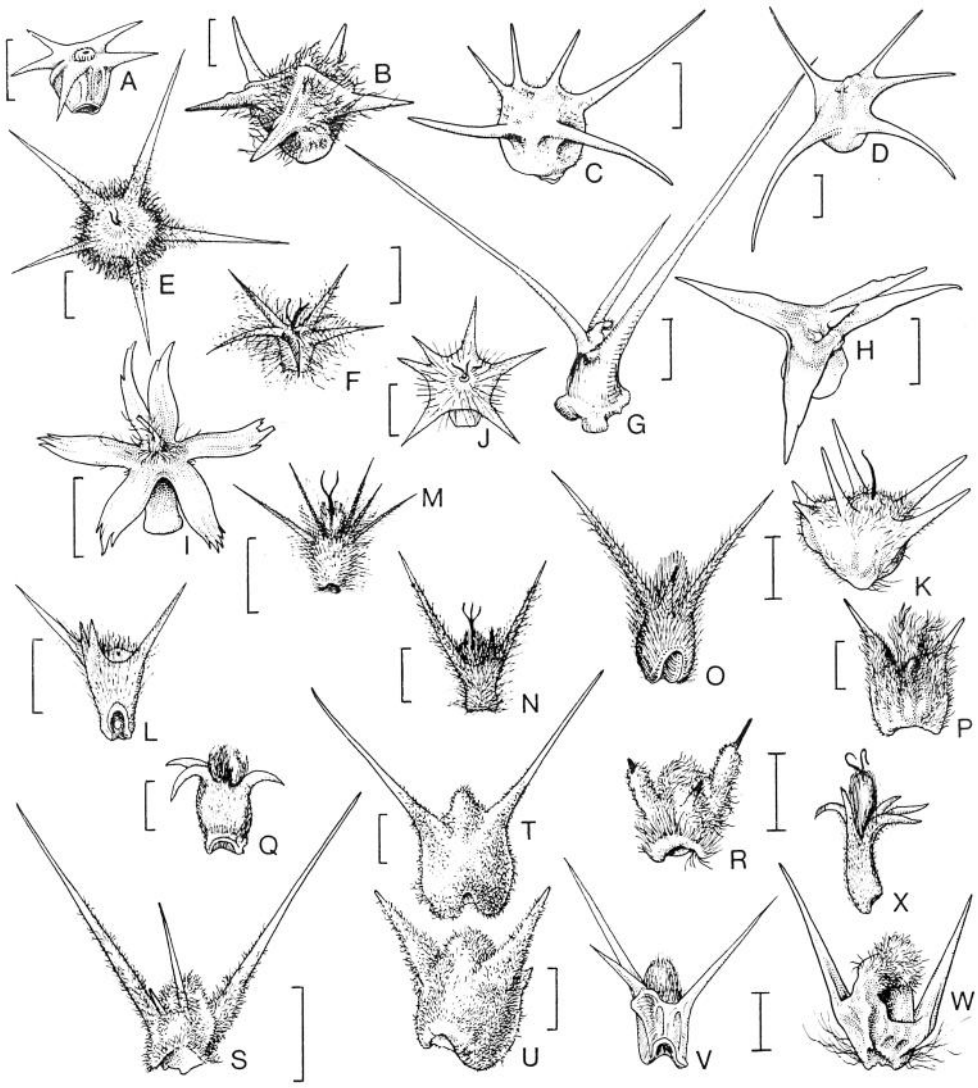

Figure 48. *Sclerolaena* fruits. **A**, *S. costata* (J.Weber 850, AD). **B**, *S. convexula* (E.Constable, NSW). **C**, *S. ramulosa* (N.Byrnes 3590, BRI). **D**, *S. johnsonii* (G.Chippendale & L.Johnson 3940, NSW). **E**, *S. cornishiana* (T.Lothian 4444, AD). **F**, *S. muelleri* (T.Henshall 1236, AD). **G**, *S. longicuspis* (J.Cleland, AD 95820066). **H**, *S. tridens* (C.Gardner 3291, PERTH). **I**, *S. alata* (A.Ashby 5054, PERTH). **J**, *S. parviflora* (E.Ising, AD 966081113). **K**, *S. napiformis* (E.D'Arnay 424, CANB). **L**, *S. minuta* (S.Blake 15967, AD). **M**, *S. densiflora* (G.Chippendale 57481, NSW). **N**, *S. lanicuspis* (E.Ising 2896, AD). **O**, *S. ventricosa* (M.Dodson, AD 96820158). **P**, *S. everistiana* (J.Mann, BRI 93014). **Q**, *S. blackiana* (J.Cleland, AD 96309284). **R**, *S. stylosa* (A.Beauglehole 11780, PERTH). **S**, *S. forrestiana* (P.Wilson 8477, PERTH). **T**, *S. bicornis* var. *bicornis* (N.Ford, NSW 61452). **U**, *S. bicornis* var. *horrida* (E.Constable, NSW 4450). **V**, *S. decurrens* (D.Whibley 2381, AD). **W**, *S. bicuspis* (P.Wilson 8434, PERTH). **X**, *S. clelandii* (D.Symon 2372, AD). B–D, H, I, K, P, R–U, W drawn by M.Menadue. Others reproduced by permission from J.Jessop (ed.), *Fl. Centr. Australia* fig. 82 (1981). Scale bars: A, C, E, F, H, I, K, M–O, R, U–X = 2 mm; T = 3 mm; B, D, J, L, P, Q = 1 mm; G = 4 mm; S = 5 mm.

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Figure 6. Where large numbers of species require comparison of a particular character this type of illustration is effective. It is an example of a plate derived from two sources and compiled by the Executive Editor. Part of the plate is from previously published material and part is new illustration. Acknowledgement is incorporated in the caption and no signature is used. The plate has a large number of entities all from separate species, therefore the caption is very large and this makes the figure almost square. Note that there are 24 items and the caption takes 6.5 cm of the depth of the image-area. Based on *Fl. Australia* 4: Fig. 48 (1984).

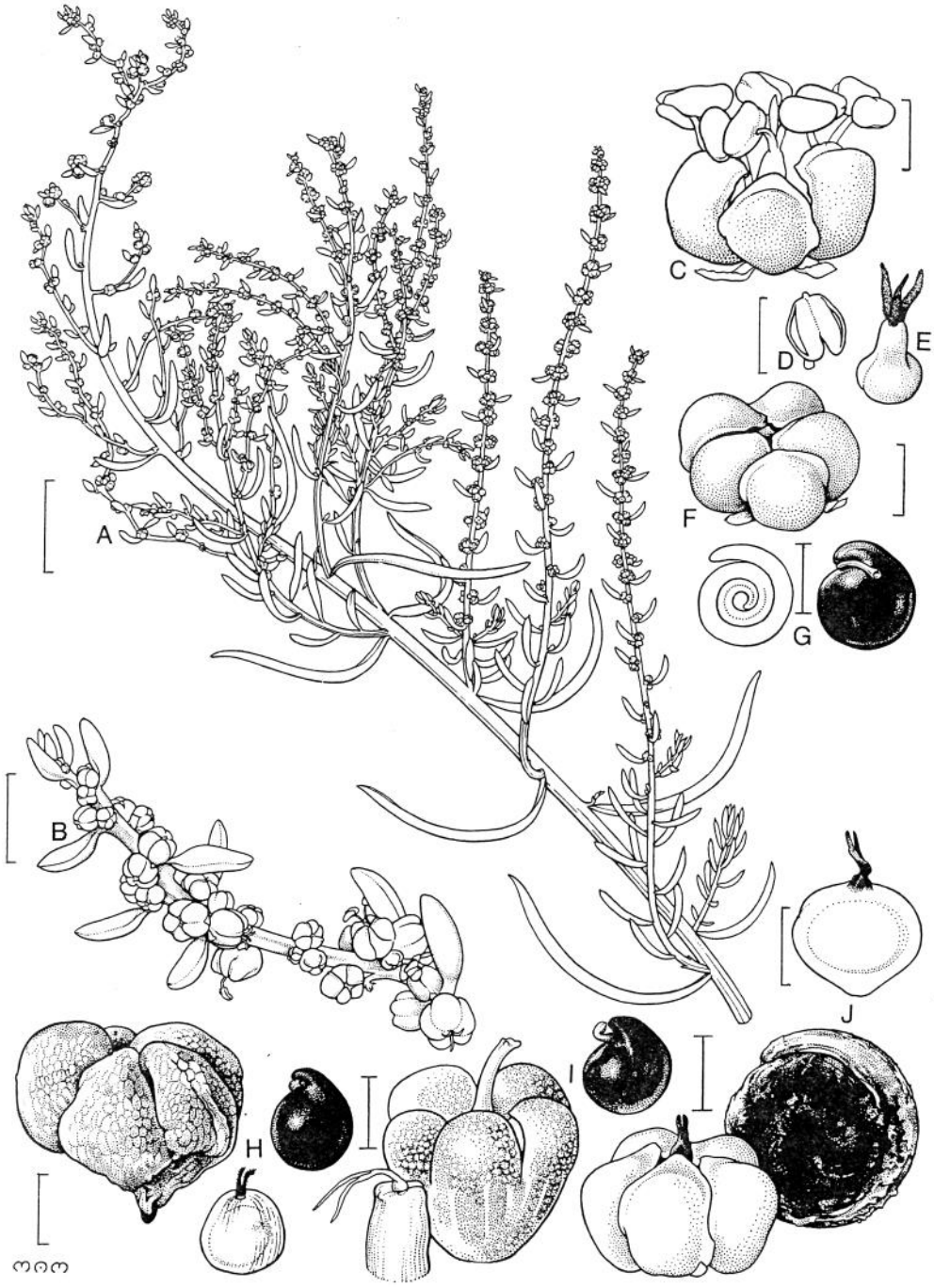

Figure 55. *Suaeda*. **A–G**, *S. australis*. **A**, branch; **B**, flowering branch; **C**, flower; **D**, anther; **E**, ovary; **F**, fruiting perianth; **G**, seed and embryo (A–G, P.Wilson 11841, PERTH). **H–J**, fruiting perianth, ovary and seed. **H**, *S. aegyptica* (P.Wilson 10264, PERTH). **I**, *S. baccifera* (C.Moore 5671, CANB). **J**, *S. arbusculoides* (G.Craig 391, PERTH). Drawn by M.Menadue. Scale bars: A = 1 cm; B = 5 mm; C–J = 2 mm.

Figure 7. This illustration is of a very high standard. The illustrator designed the composition and the plate was submitted entire. The use of shading to demonstrate shape, texture and tone is extremely effective. However, due to spacing, the labelling of the perianth, ovary and seed of *S. aegyptica*, *S. baccifera* and *S. arbusculoides* presented some difficulty. It would be less ambiguous if each set of three items had all its items overlapping. Conversely, if all nine items had larger spaces between them, each could have been labelled independently.

Based on *Fl. Australia* 4: Fig. 55 (1984).

Figure 24. *Chenopodium*. **A–E**, *C. pumilio*. **A**, branch; **B**, bisexual flower, entire and without perianth; **C**, female flower; **D**, seed, entire and L.S.; **E**, fruiting perianth (A–E, P.Wilson 1183, PERTH). **F–G**, *C. saxatile*. **F**, branch; **G**, bisexual flower (F–G, A.George 12137, PERTH). **H–K**, fruiting perianth. **H**, *C. cristatum* (Hyden, W.A., T.McDowell, PERTH). **I**, *C. carinatum* (A.Beauglehole 36646, PERTH). **J**, *C. melanocarpum* (A.George 12128, PERTH). **K**, *C. truncatum* (Palamatta Bore, N.S.W., Nov. 1901, PERTH). Drawn by M.Menadue. Scale bars: A, F = 1 cm; B–E, G–J = 0.5 mm.

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Figure 8. This illustration, of very high standard, was designed thoughtfully. The illustrator submitted the plate entire and clearly has worked effectively with the contributor right down to the detail of hair anatomy. Dissections, transection and light-microscopy have all been necessary to portray the information required by the contributor.

Based on *Fl. Australia* 4: Fig. 24 (1984).

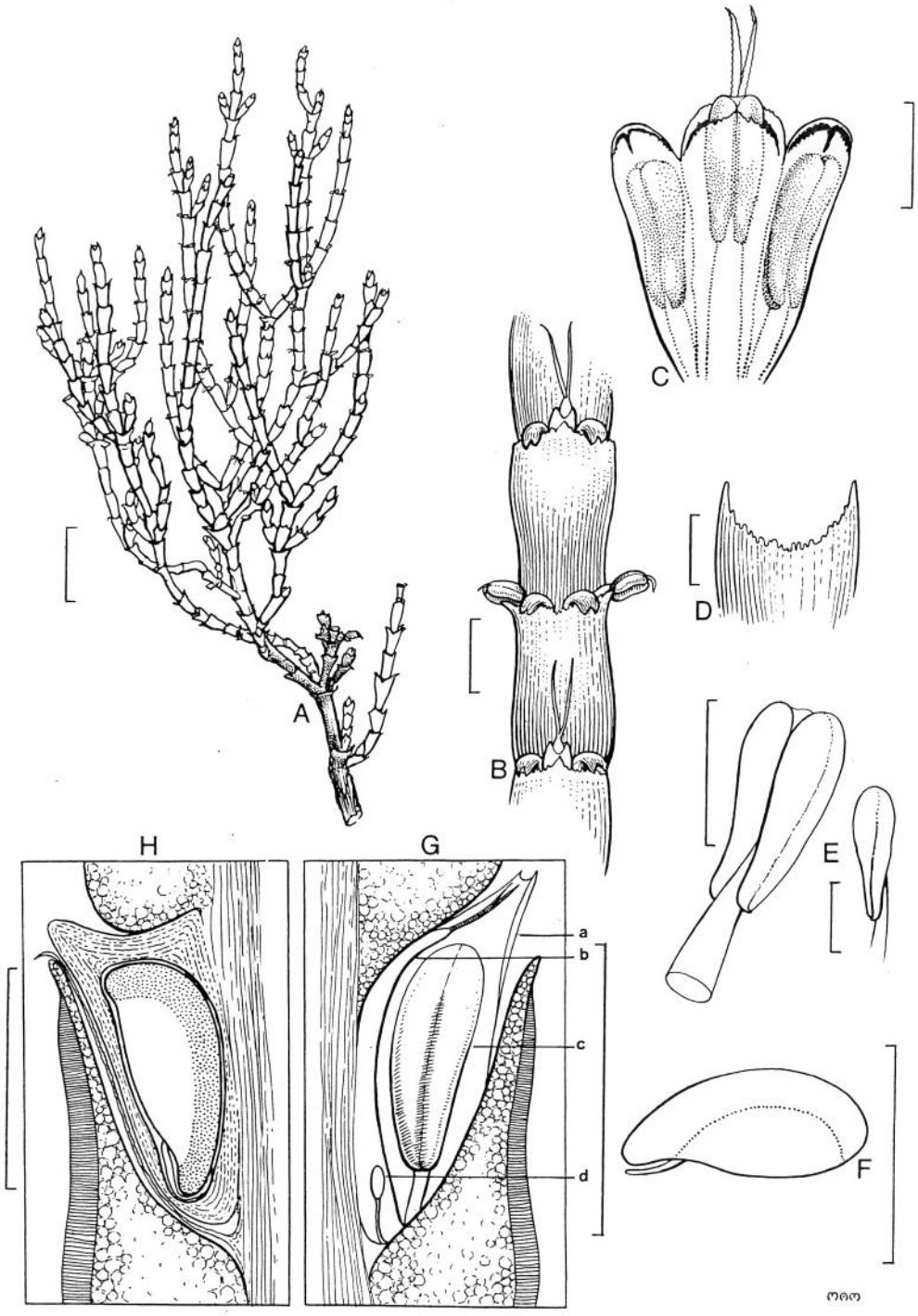

Figure 54. *Sclerostegia medullosa*. **A**, flowering branch; **B**, portion of branch showing triads of flowers; **C**, abaxial view of triad with central hermaphrodite and lateral male flowers; **D**, apex of article showing denticulate margin; **E**, stamens; **F**, seed; **G**, L.S. flower (**a**, perianth, **b**, ovary wall, **c**, stamen, **d**, ovule); **H**, L.S. fruit (D.Symon 11313, AD). Reproduced by permission from *Nuytsia* 3(1): fig. 15 (1980). Drawn by M.Menadue. Scale bars: A = 1 cm; B, D, F–H = 2 mm; C, E = 0.5 mm.

Figure 9. The parts of the flower in item **G** have been highlighted using lettering to facilitate their interpretation. Based on *Fl. Australia* 4: Fig. 54 (1984).

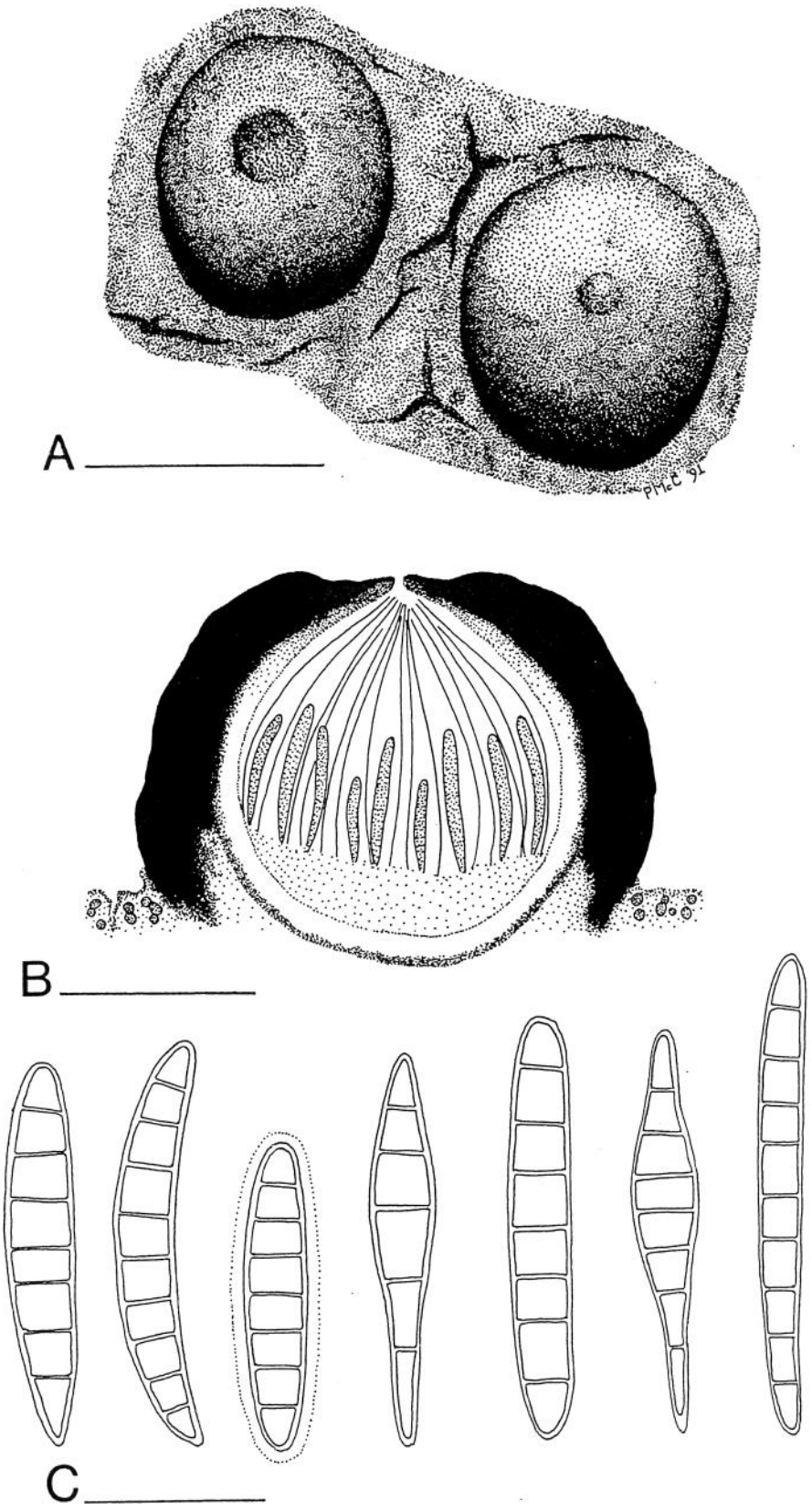

Figure 10. This lichen, *Porina aptrootii*, is one example of types of illustration appropriate for non-vascular plants. **A**, the habit of the thallus and perithecia, shows the use of stippling to provide a high quality illustration with a good 3-dimensional representation. **B** shows a vertical section of the perithecium, combining stippling, simple lines and solid shading to good effect. **C** illustrates the range of ascospore morphology. This is a well designed, aesthetically pleasing plate, striking a balance between economical use of space while avoiding overcrowding. Note that this plate, prepared for a scientific journal, has lettering and scale bars that are not in *Flora* format.

From *Biblioth. Lichenol.* 52: 30 (1993).

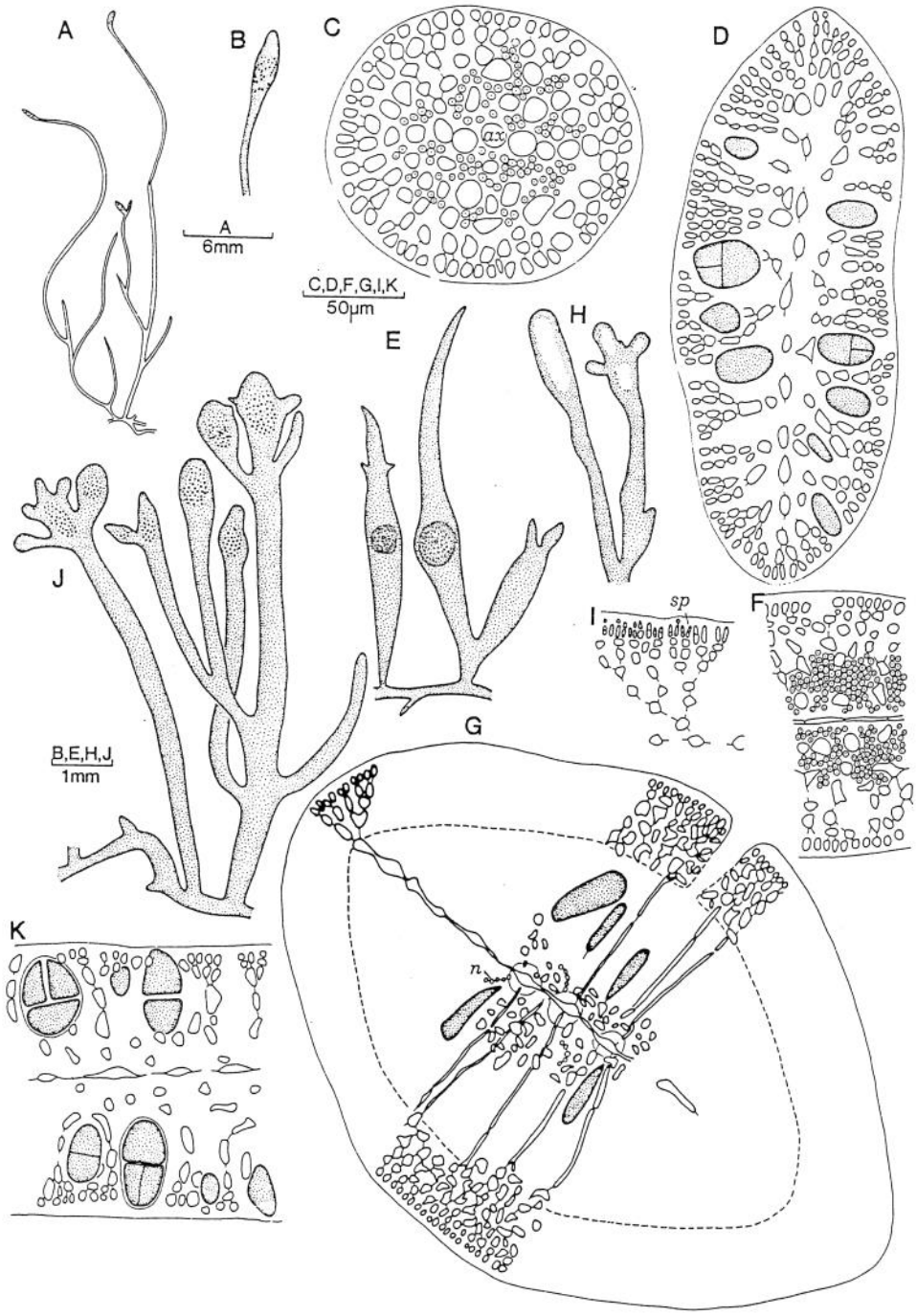

Figure 11. This is an example of a suitable illustration of algae. It is a well designed plate incorporating both microscopic and macroscopic characters. Despite the high degree of detail in the plate, it is aesthetically pleasing and each illustrated feature is clearly distinguishable.

From *The Marine Benthic Flora of Southern Australia, Flora of Australia Supplementary Series* No. 1, Fig. 39 (1994).

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Figure references are in *italic*.