

**ORNAMENTAL PLANT CONSERVATION
ASSOCIATION OF AUSTRALIA**
INC. A 17946 R

COLLECTIONS MANUAL



Helleborus orientalis Lam.
Lenten Rose
drawing by Anita Barley

Ornamental Plant Conservation Association of Australia Inc.
C/- Royal Botanic Gardens
Birdwood Ave
South Yarra 3141

Phone/Fax: (03) 9650 5639

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The drawings of *Helleborus orientalis*, *Teloepa speciosissima* and *Rosa* 'Sunny South', are available as Cards (16 x 11 cm) and can be ordered from the OPCAAs.

Prepared by the Scientific and Collections Committee of the
Ornamental Plant Conservation Association of Australia Inc A 17946 R
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1.0 INTRODUCTION

1.1 HISTORY AND STRUCTURE

In 1983-84 the Royal Botanic Gardens Melbourne carried out a survey of plant cultivars growing in Victoria. As part of the survey a list was made of tree and shrub cultivars from Victorian Nursery Catalogues since 1855. This list contained dramatically more plants than are now available. Reasons for the decline include changes in fashion, difficulty of propagation, difficulty of cultivation, and disappearance of poor cultivars. However, a major factor is the loss of plants when a nursery closes down, a plant collector moves or dies or a garden changes hands. This haphazard selection of our current range of cultivated plants is unsatisfactory.

In England, the National Council for Conservation of Plants and Gardens (NCCPG) started the National Collections movement to bring together comprehensive reference collections of important groups of plants in order to conserve the wealth of cultivated plant material in existence and to make decisions about priorities for plant preservation.

Concerned about the loss of significant cultivated plants in Victoria, the Royal Botanic Gardens established an Ornamental Plant Collections Committee. The following organisations were invited to be represented on the Committee:

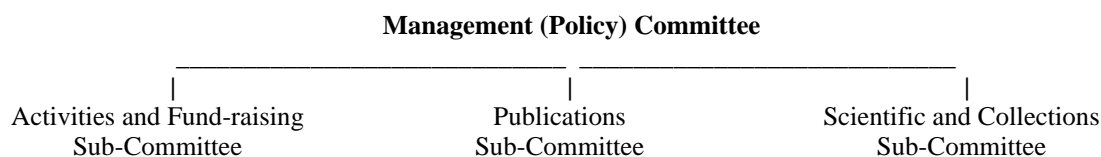
Royal Botanic Gardens, Melbourne
Victorian Nurserymen's Association
Garden State Committee
Victorian College of Agriculture and Horticulture: Burnley
National Trust of Australia (Victoria)
Royal Australian Institute of Parks and Recreation
Australian Institute of Horticulture
Australian Garden History Society
Department of Planning and Environment: Heritage Unit
Royal Horticultural Society
Department of Agriculture and Rural Affairs: Knoxfield Horticultural Research Station
Melbourne and Metropolitan Board of Works
Melbourne University: Department of Environmental Planning

The inaugural meeting was held in August 1986. Dr Jim Willis, former Assistant Government Botanist, agreed to be Patron. Subsequently the Committee decided to register, on a trial basis, collections which represent a range of plant types and holder. For the purposes of the Pilot Study, the Royal Botanic Gardens Melbourne held viburnums, the Geelong Botanic Gardens pelargoniums, a commercial nursery *Prunus* (Sato-zakura Group), private owners roses and crocuses and Banksias at the George Pentland Gardens, Frankston. These collections were used to develop the record system and solve problems which might arise. A National Estate Grant was provided to the Royal Botanic Gardens Melbourne in 1988 to employ a horticulturist half-time to develop the project and act as project officer for the Committee.

OPCAA is an Incorporated Association which operates under a constitution and rules. Anyone can apply for membership to the Association, which entitles them to 4 issues of GENUS, the OPCAA Newsletter and access to talks, meetings, tours and voting rights. An Annual General Meeting is held in August each year.

The Association employs a part-time secretary, and receives funding from grants, card and book sales, tours, donations and plant sales. The Annual membership fee assists with the operation of the Association.

On the 29 March 1994 the Association approved a new Constitution which replaced the Subscribers Group and Committee with a new structure. The structure of OPCAA Committee is as follows:



1.2 OPCA COLLECTIONS AND CONSERVATION

The Ornamental Plant Conservation Association of Australia notes with concern that many plants once available in the horticultural trade are lost, hidden or unknown in old gardens and our aim is to discover, identify and propagate some of these. We note with equal concern the sometimes haphazard and undocumented selection of native plants for cultivation and revegetation and we hope through establishing suitable collections of such plants to preserve genetic variation for future use.

We hope to promote the exchange of information between professional botanists and horticulturists and those plant collectors and gardeners who are devoted to the study of particular groups of plants. In this way the maintenance and increase in diversity of plants used in gardens and environmental horticulture through selection and conservation of plants of merit and rarity will be encouraged and the repeated importation of the same plants from overseas avoided.

Another important aspect of the Association is the encouragement of documentation, study and propagation of plants in collections and in ensuring that collectors pass on their plants and expertise so that these are not lost.

For a complete list of Objectives see Appendix 1, page 16.

1.3 HOW OPCA CAN HELP COLLECTION HOLDERS

Plant identification

Advice on literature and literature searches

Advice on record keeping

Advice on experimental design

Running workshops

Organising lectures

Our journal *Genus*

Contact with professional botanists and horticulturists

Contact with like-minded collectors

Publicity

2.0 COLLECTIONS

2.1 HOW TO REGISTER YOUR COLLECTION

Please fill in the Application Form Appendix 3, page 26.

Then return the application form together with a list of species/cultivars you hold a brief description of the collection site together with any other information you may consider relevant.

The Scientific and Collections Committee will nominate a member to arrange a time for him or her to visit your collection, discuss the conditions of registration and complete an Assessment Form (Appendix 4, pages 27 - 28) which will be discussed at the next Scientific and Collections Committee meeting. Your collection may be registered, placed on a reserve list or rejected. You will receive a letter telling you of the Committee's decision.

2.2 CONDITIONS OF REGISTRATION

You are asked to agree that you will:

1. *Ensure that the collection is maintained in good health.*

OPCAA will consider the health of plants, the suitability of the site, the amount of space, the amount of time devoted to the collection, and the skill of the collector.

2. *Add to or otherwise improve the Collection so that it remains as representative as possible.*

OPCAA will discuss ways of increasing your collection.

3. *Maintain, as far as possible, accurate lists and records of the plants and label or map the individual plants or plant groups in the Collection.*

minimum record keeping requirements are given in Section 4. The assessor will discuss your records and labelling.

4. *Co-operate with OPCAA in occasional inspections of the Collection and provide a brief annual report to OPCAA detailing changes that have occurred in the Collection.*

a brief annual report is required either on the proforma in this booklet (Appendix 5, pages 29 - 30) or in some other format.

5. *Endeavour to identify, accurately, the plants in the Collection and provide OPCAA with an updated list annually.*

OPCAA may be able to help with identifications.

6. *Provide plant material for herbarium specimens where appropriate and allow photography of the Collection for record purposes.*

7. *Provide reasonable quantities of propagating material on request from OPCAA to ensure that the taxon will remain in cultivation.*

OPCAA recognises that the sale or distribution of propagating material remains the responsibility of the Collector, who has the right to restrict the amount of propagating material provided to any firm or individual; the collection should not be regarded as merely a convenient supply of stock plants.

8. *Give sufficient notice of relinquishing OPCAA registration or total responsibility for the Collection, so that the collection may continue, subject to the collector's approval, by the transfer of plants or by propagation.*

OPCAA is anxious to ensure the continuity of collections in the event of ill-health or changes to the site. Security of tenure of the collection is important. The assessor will discuss these issues.

9. *Relinquish OPCA registration, if OPCA considers that these conditions have not been carried out satisfactorily.*
10. *By prior arrangement you will make your collection available to OPCA Members and the general public.*

It is desirable that collections are, at least occasionally, open to the public but this may not always be possible because of the danger of damage to plants or garden.

11. *Co-operate with OPCA in providing plant material for shows, lectures and displays.*

OPCA arranges talks and information stands that may occasionally require plant material for publicity and display from registered collections.

12. *Become a member of the OPCA*

Note: Another collection of the same taxon may be registered by OPCA.

This occurs when two good collections are submitted for registration. The collectors are usually known to each other. It is valuable to have two collections in different climatic conditions.



Telopea speciosissima (Sm.) R. Br.
Waratah
drawing by Anita Barley

3.0 HOW TO START A NEW COLLECTION

Some people have an interest in starting a collection but do not know what to grow or what OPCA considers important. Others have space and horticultural skills and would like to develop a collection. OPCA wishes to help both groups and is particularly interested in establishing collections in public or institutional gardens which have plenty of room and some horticultural skills. These gardens may be able to hold collections of trees or large shrubs. **Write to or ring OPCA and explain your situation.**

Our priorities, apart from security of tenure and good maintenance, relate to our objectives (see appendix), that is the conservation and use of ornamental plants and the dissemination of information about them. We think it most important to save taxa that are in danger of disappearing. Other priorities include fashionable genera in which many new cultivars are being produced but which may well go out of fashion: keeping track of the various names used in the Nursery Trade is valuable. Collections useful for plant breeding, research or revegetation are also high priorities. Gardens in special climatic zones may be suitable for plants that will not grow elsewhere. Plants, especially cultivars, which were used in the past in gardens but have subsequently gone out of fashion are high on the priority list. Once popular groups like violets or cannas require a great deal of research in order to identify what is currently available or can be found in old gardens.

A list of priority taxa is given Section 5.0, page 15. The second Genus article by Peter Lumley and the one by Rodger Elliot discuss other priorities and give suggestions. (See Bibliography page 31).

OPCA does not own collections in need of a home. People who have space will be expected to develop a collection with the help of advice and expertise from OPCA.

OPCA is also interested in registering collections nominated by specialist plant societies.



Rosa ‘Sunny South’
from the Alister Clark Rose Collection
drawing by Anita Barley

4.0 RECORDS

4.1 DOCUMENTING YOUR COLLECTION

Keeping good records preserves details of the origin of plants and provides a systematic way of noting information on growing media, growth rates, flowering and a whole range of matters that a dedicated collector tends to hold in his or her mind. The OPCA is keen that as much as possible is written down so that others may learn.

4.2 THE NEED FOR RECORDS

Keeping records is an obvious way of ensuring that other people can benefit from your knowledge and experience.

However, the kinds of records you keep will depend both on the kinds of plants you are growing and your own particular interests. As holder of a single collection you will soon become an expert in your group but your interests may be completely different from those of other members. Perhaps you simply want to study the botanical differences between your plants (taxonomy) or do some plant breeding (genetics) or study the times when they flower, fruit or come into leaf (phenology). You may be happy to experiment by trying to find the optimum conditions for cultivation or propagation with a view to making unusual plants more available to others.

One method of recording your collection is to keep record cards for your individual plants. You can obtain cards with a whole range of basic data entry categories from OPCA and this may be a good way to start. However, this approach may not appeal to you. Another method is to keep a diary of observations during the year or, once a year, to do a kind of stocktake of facts and figures that you think could be useful to others.

It is always well to bear in mind that, when you are ready, it would be well worth while telling the story of your collection, including both triumphs and failures, in an article for the newsletter Genus.

4.3 MINIMUM REQUIREMENTS

OPCAA does not keep your records in a central records office - this creates a lot of expensive work and so members are encouraged to maintain their own record system. Many collection holders will be "doers" rather than "recorders" and it is well understood that it is not always possible to keep up with good record-keeping intentions.

There is no compulsory feedback of information to OPCA: the only request the Association makes is that collection holders be in a position to supply them with a list of the plants within their collection (species, cultivars and unknowns) together with, if possible, their original source (generally referred to as the **provenance**) and time of acquisition.

A list of species, cultivars and unnamed plants to be given to OPCA and updated regularly.

A record of accessions, that is, as plant material is received as seed, cuttings or plants, details are kept of exactly when and where and under what name the material came from. The simplest way is to keep the records in book chronologically and give each new accession a number. Some people prefer to use a computer. Information on provenance (where the plant came from) is often useful or even essential in the identification of the plant or the verification of a name.

Plants should be labelled in such a way as to make it easy to match plants to your records. This is particularly important for plants with no name or a dubious name.

Some indicator of the reliability of a name should be kept. A number scale is most useful e.g.

1. The name is what the plant came with and should be regarded as doubtful.
2. This plant has been checked and the identification is uncertain at present but probable.
3. This plant is wild-collected or of other reliable provenance and its identification has been checked by an expert, perhaps yourself - you know your limitations.

These categories overlap, of course. The overall aim is to distinguish between names that are highly probable from those which are highly improbable. Much confusion can result from the assumption that seed from other collectors is not the result of hybridisation. Many plants may remain uncertain for years but one of the advantages of holding a good collection is that you gradually become an expert on their identification and can clear up errors entrenched in the nursery trade or even botanic gardens.

4.4 RECORD CARD

The aim of the record card is to create accurate records of the plants existing in Ornamental Plant Collections. (Record cards are available free of charge). The record will then act as a comprehensive reference of the species and cultivars contained in the Collections. The data compiled in the records may also help in other ways such as in identifying optimum growth requirements. All of the information may not be at hand initially, so the cards can be completed progressively.

If difficulties arise with any aspect of completing the cards, please do not hesitate to contact the Ornamental Plant Collections Association.

1. **ACCESSION NUMBER** - The accession number has been designed so that it will be suitable as a computer access number. The number will contain five groups of numbers, each representing specific information as follows:

001 002 87 01 01

Number given to individual plant

Number given to a batch of seed/cuttings of the same provenance

Year plant obtained

Genus of Collection eg. *Rosa*

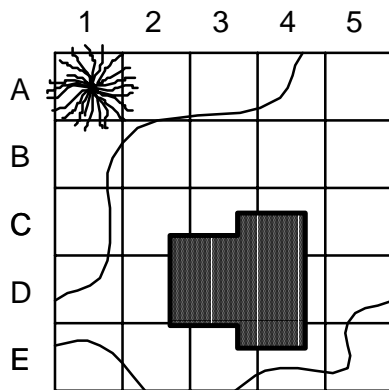
Site where the Collection is located

For each Collection the site and Genus numbers will not change, but these numbers will still be important for accessing information on the computer.

2. **BOTANICAL NAME** - The currently accepted Botanical name under the rules of the International Code for Botanical Nomenclature is to be given.
3. **VERIFIED BY** - Name of the person who verified the identification of the plant
4. **SYNONYMS** - List all other Botanical names which have been used to identify the plant
5. **COMMON NAMES** - Vernacular names that have been applied to the species/cultivar/hybrid.
6. **FAMILY** - The currently accepted Botanical family into which species/cultivar/hybrid has been placed.

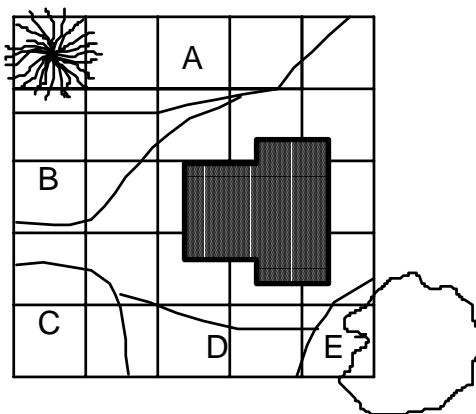
7. **LOCATION** - It is desirable to have a garden plan with imposed grid system for an accurate description of location.

Example:



Alternatively, the garden can be divided into broadly designated areas.

Example:



8. **DISTRIBUTION** - List the areas where the species is found naturally.
9. **DISTINGUISHING FEATURES** - Features of the species/cultivar/hybrid which distinguish it from other species/cultivars/hybrids.
10. **AVAILABILITY**
- CURRENTLY AVAILABLE** - Whether currently available in the nursery trade in Victoria.
 - EARLIEST NURSERY RECORD** - The first recording of the species/cultivar/hybrid in Victoria.
 - OTHER LOCATIONS PLANTED** - Other locations that the species/cultivar/hybrid has been planted in Victoria.
 - NOTABLE SPECIMENS** - Representatives of the species/cultivar/hybrid which are particularly good for showing its characteristics or that are of historic value.
11. **RARE & ENDANGERED** - Refer to rare and endangered listings kept at the Royal Botanic Gardens, Melbourne.
12. **DATE PLANTED** - When planted at the Collection site.

13. SIZE - Height and width of the specimen in metres
14. GROWTH/Form/HABIT - Give a generalised description of the species/cultivar/hybrid.
15. SOIL CONDITIONS Depth of topsoil
 Soil texture (eg. clay clay/loam/sandy loam etc.)
 Moisture content (eg. saturated in winter)
17. PH - Soil samples to be measured by a laboratory pH meter.
18. HORTICULTURAL USES - Describe how the species/cultivar/hybrid can be used to best advantage in ornamental horticulture.
19. PHOTOGRAPHS - Indicate whether photographs of the specimen exists and where they are located, and date of print or slide.
20. FLOWER COLOUR CODE (RHS/1966) - Flower colour is to be determined using the Royal Horticultural Society Colour Charts published in 1966.
21. HERBARIUM SPECIMEN - Indicate whether a pressed herbarium specimen of the plant exists, and its location.
22. TOLERANCE - Use the following symbols:

+	:	to indicate tolerance to the condition
x	:	to indicate lack of tolerance to the condition
23. PROPAGATION - Use the following symbols:

+	:	to indicate a suitable method
x	:	to indicate the method is unsuitable
24. FLOWERING SEASON AND FRUIT/SEED SEASON - Tick the months corresponding to the flowering period and the period of fruit maturation (ie. when the fruit is visible on the plant).
25. NOTES - The plant provenance and the collector of the seed/cuttings etc. should be noted here.
 Any other relevant information not yet recorded can also be included in this section.
26. PLANT PROGRESS RECORD - Periodical completion of this record will assist in improving horticultural practises and maximising the plants potential in horticultural situation.
27. REFERENCE - List any literature from which information to complete this card has been obtained or that describes this species/cultivar/hybrid. References for Botanical name changes should also be listed if available.

4.5 DATABASE RECORD

With advances in recent years, collectors are encouraged to establish their own computer database and one compatible with that used by the OPCA allows for rapid transfer (import) of data.

The OPCA uses a Macintosh computer with the software program FileMaker Pro 4.1. A list of the fields and field order used can be obtained on request.

Field formats for import are FileMaker Pro 2.0, 2.1, 3.0 or 4.0 file, or export to another FileMaker Pro 3.0 or 4.0 file; Tab-Separated Text - exchange data with most applications Claris Impact using tab-separated text; Comma-separated Text - exchange data with Basic programs and applications like Claris Impact; SYLK: DIF; WKS - exchange data with Lotus 1-2-3; BASIC - exchange data with Microsoft BASIC programs, Merge HTML; Edition File; Claris Works 2.0/3.0/4.0, DBF - exchange data with dBase III & dBase IV, Excel - import from Microsoft Excel 4.0 through 5.0.

SAMPLE RECORD CARD

4.6 RECORD SUPPORT

Apart from data-entry cards OPCA has a Scientific and Collections Committee convened to assist collection holders - so you are not on your own. Some of the areas where the Committee can help are in finding literature about the taxonomy or nomenclature of your group, designing experiments, publishing new cultivars and the like. Contact the Secretary of OPCA for further information about assistance.

4.7 PLANT IDENTIFICATION

OPCA is able to provide some assistance with plant identification. The Scientific and Collections Committee can research the appropriate literature to use and it may be possible to have limited numbers of plants identified through the Royal Botanic Gardens identification service.

4.8 HERBARIUM SPECIMENS

Where specifically requested or required herbarium specimens of collections are being made. These are, at present, stored in the National Herbarium independently of other herbarium collections. It is possible that they will ultimately be stored with the Horticultural Reference Herbarium. Advice on plant pressing may be obtained either by purchasing the small booklet on the subject written by David Albrecht and available from the National Herbarium, or by contacting botanists within the organisation.

4.9 PLANT LABELS

There is no ideal method for labelling your plants. Generally a compromise must be reached between durability, appearance and cost and the best solution for one situation may not suit another. As new methods come to light we will keep members informed so that they are aware of methods that have been found effective. In the meantime the following notes are provided to give you some idea of the range of options available so that you can may choose something suitable for your collection.

There are three broad approaches to labelling: embossing, engraving and painting/writing. We will consider these in more detail as there are several approaches within each category.

Embossing

This method leaves a permanent indentation or imprint on a material by punching or impressing letters into it. The lettering may thus be seen as an impression or stand out on the surface in relief. Perhaps the most familiar and simple of these methods is the Dymo tape which presses letters into narrow plastic strip. The act of pressing out the letters also stretches the plastic to produce letters in a different colour from their background. The plastic strips with the lettering on them can then be fixed on to a backing plate - which can vary from a nursery tag to some kind of stake.

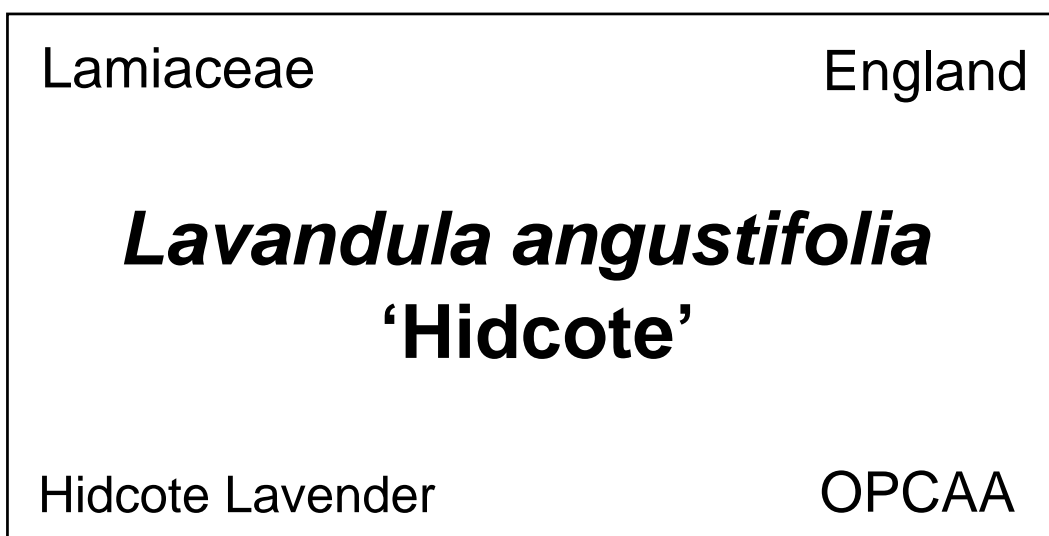
The advantage of embossing plastic is that it is long-lasting and more or less vandal/weather proof. The disadvantage is that the material may deteriorate.

Another simple embossing technique is the tie-on label made of thin metal film. It is possible to write (emboss) on the metal strip with a pointed object such as a pencil and the resulting imprint is permanent. Again this is relatively cheap but the results are not necessarily very pleasing to the eye.

Engraving

This produces a permanent mark by actually carving or cutting out the lettering from a surface. Large park signs are sometimes produced by engraving directly into wood. More frequently engraving machines are used on metals and plastic. In many public gardens this is the preferred method. Extruded aluminium strips or laminated plastic is engraved to reveal lettering in a different colour from its background. If necessary the material can then be fixed to a stake. This is neat, attractive and relatively cheap. The disadvantage is that not many people have access to the engraving machines needed to do the job and plastic, in particular, tends to deteriorate when exposed to the elements for more than a year or two.

Using 2-Plex, a weatherproof laminate material, the Scientific and Collections Committee have arranged for the production of garden labels. These labels are 140mm x 70 mm, face colour ivory (light sandy colour) etched to the following specifications in deep brown lettering (backing colour). Double sided polyester tape will attach the label to the aluminium stake.



For further information on garden labels contact the OPCA Office.

Painting/writing

This is a very general heading for a whole range of methods varying from, in its simplest form, the use of permanent marking pens on white plastic nursery labels, to sophisticated methods such as enamelling, photo-etching and silk-screening. If you feel that you have sign-writing skills then painting your names onto prepared metal or wood can be extremely attractive and give a personal touch to the work.

There are a whole range of approaches that you will be able to think of in this category. The important points to bear in mind are the disastrous effects of weathering and general wear and tear on your materials. It is staggering how quickly some materials, paints and inks can fade or disappear altogether. Also beware of using labels that are attractive to animals, birds and pets. I remember being told of a collector who satisfactorily labelled his plants with permanent black ink on the traditional white plastic pot label for many years until one day a Blackbird took exception to them and pulled out the lot.

4.10 PHOTOGRAPHY

Collection holders are encouraged to keep a photographic record of their plants. All photographs should be identified and dated. This will help collectors with identification, talks, publications etc. Slides are the preferred method. The OPCA maintains slides of collections and these serve not only as a valuable record for the future but also as a source of income from users outside the organisation. Photographic techniques, information and experiences are being recorded so that general advice on plant photography can be passed on to members.

A *Photographic Guideline* has been prepared to assist collectors in photographing their collections. See *Appendix 7*. Separate booklets can be purchased from the OPCA office.

5.0 GENERA OR OTHER COLLECTIONS IN NEED OF REGISTRATION

Achillea	Iresine
Acmena	Isopogon
Agapanthus	Leptospermum cvs.
Agave	Leschenaultia cvs.
Agonis	Lilium (Aust. cvs.)
Aloe	Limonium & Statice
Alternanthera	Lonicera
Anemone	Mahonia
Anigozanthos	Malus
Anthurium	Mentha
Aster	Myosotis
Australian grasses	Narcissus (Aust) cvs. & spp.
Azalea (Indica) cvs.	Nerine (Aust) cvs. & spp.
Bamboos	Nerium
Banksia	Olearia
Berberis	Osmanthus
Bergenia	Paeonia
Borya	Pandorea
Bracteantha	Pelargonium (old cvs; Aust.)
Brugmansia	Penstemon
Buxus	Philadelphus
Callistemon spp. & cvs.	Phlox
Canna	Pieris
Chamelaucium	Pittosporum
Chrysocephalum	Primula
Conostylis	Prostanthera
Cordyline	Prunus (not Sato-zakura or cerasifera)
Correa	Prunus cerasifera & cvs.
Cotoneaster	Pterostylis
Crataegus	Punica
Crowea	Pyracantha
Cymbidium (Aust. cvs.)	Resurrection plants
Dahlia	Rhododendron (Aust.)
Dampiera	Rhododendron (Vireya)
Darwinia	Saintpaulia spp. & cvs.
Dendrobium	Scaevola
Dianella	Spiraea
Dianthus spp.	Stylidium
Diuris	Syringa
Dryandra	Thymus
Epacris	Tillandsia
Epimedium	tropical gesneriads
Eremophila	Ulmus
Erica (esp. Aust. cvs.)	Verbena
Erigeron	Viola
Eriostemon	Vitis (ornamental)
Escallonia	Watsonia
Fuchsia (Aust. cvs)	Weigela
Gladiolus (Aust. & spp.)	Zantedeschia
Grevillea spp & cvs	Note:
Hardenbergia	Helichrysum (Aust. spp.) are now
Hebe	- Bracteantha
Hedera	- Chrysocephalum
Hedychium	- Ozmanthus
Hemerocallis	Notes:
Hibbertia	• Any Collection used for breeding new cvs.
Hibiscus syriacus cvs.	• Collections of indigenous ecotypes etc.
Hosta	• Collections of plants selected for tolerance to salinity, disease resistance etc.
Hydrangea cvs.	
Ilex	

APPENDIX 1 : OPCA OBJECTIVES

The objectives of the Association are to:

1. identify and register existing plant collections and individual plants of significance to ornamental plant collections.
2. foster and participate in the assembly of a data base of plants that represents the species and varieties of plants of ornamental value in Australia.
3. identify from the data base plants of particular value to ornamental horticulture because of their aesthetic, historical or other cultural or scientific significance with a view to including them in a Reference Collection.
4. identify and register individuals and organisations who either manage or own significant collections of plants useful for identification or propagation purposes or who have specialist knowledge of a particular group of plants.
5. give due recognition to, encourage, and liaise with those organisations and individuals who own or care for the Reference Collections.
6. facilitate the retention, extension and provision of new Reference Collections and to see that they are to maintained and recorded in the best possible manner.
7. encourage the development of Reference Collections on sites experiencing the most appropriate climatic, edaphic and cultural conditions and where good management and care of the plants can be provided.
8. encourage and, where appropriate, organise the reintroduction of significant ornamental plants which have been lost from Australian horticulture and to include them in Reference Collections.
9. encourage the propagation, introduction and maintenance in cultivation of rare and endangered ornamental species to avoid the need for re-collection from the wild.
10. facilitate the supply of propagation material from plants in Reference Collections to nurserymen, institutions and other interested parties.
11. facilitate the photographing and documentation of the characteristics and performance of the plants in the Reference Collections.
12. organise or facilitate the accessibility of Reference Collections to specialists and to the general public according to conditions agreed to in writing between the owner and the Association.
13. provide assistance at the discretion of the Policy Committee, which may include financial support or help with voluntary labour, to enable the Reference Collection to be maintained and recorded to a satisfactory level.
14. make arrangements with owners of Reference Collections regarding the care and function of the Reference Collections and to set out the conditions required to be observed by the owners or persons entrusted with the care of Reference Collections.
15. remove from the Accreditation Register the Reference Collections which have been neglected or managed in such a manner, which, in the opinion of the Association, would warrant their removal from the Register.

16. inform and educate interested amateur and professional horticulturists and related disciplines and the general public as to the scope and purpose of the Reference Collections.
17. encourage publication of material of both scientific and general interest for the information of specialists and the general public.
18. collate and disseminate information on taxa included in the Reference Collections that have demonstrated or may demonstrate a potential to become environmental weeds.
19. liaise with the Royal Botanic Gardens and other government departments and organisations to assist in achieving the objectives.
20. liaise with specialist groups who have particular interest and knowledge of a plant group.
21. initiate, promote, support or oppose legislative or other measures connected with or affecting the aforesaid objectives.
22. initiate, promote or support research and development of the taxa held in the Reference Collections.

APPENDIX 3 : APPLICATION FORM FOR REGISTRATION

I/We
(name)

of
.....
(address)

Phone No. Fax No.

hereby apply to OPCA for registration of my/our collection of:

.....
(name of plant group)

located at
(site of collection)

I/We understand and will abide by OPCA's "Conditions of Registration"

Signature
.....

Date:

* Note: A person applying on behalf of an organisation should state their name and position, and the name of the organisation they are representing.

- Attachments**
1. List of species/cultivars you hold
 2. Description of the Collection Site (area, climate, soil type, etc)
 3. Any other information you may consider relevant

APPENDIX 4 : ASSESSMENT FORM

NAME OF COLLECTION

Name of applicant

address

.....

GENERAL COMMENTS

.....
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.....
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.....
.....
.....

ASSESSOR'S RECOMMENDATION

.....
.....
.....
.....
.....
.....
.....

DATE

NAME **SIGNATURE**

Office Use

Scientific and Collections Committee Action : **REGISTER** **RESERVE** **REJECT**

Notification Date :

- 1. Is the collection maintained in good health?**
 How much space is there
 Is the climate suitable
 Is the soil suitable
 Is there sufficient cultivation knowledge
 How long has the collector been growing these plants
- 2. How does the collector intend to expand the collection?**
 Is there space for expansion
 Overseas contacts (if relevant)
- 3. How will the collector maintain accurate lists and records?**
 What literature is available
 Are the plants labelled at all
 Are the plants labelled correctly
 Are accession records kept
 What other records are kept.
 Is the collector familiar with the basic literature
 Discuss how OPCA can help.
- 4. Will the collector cooperate with OPCA records and labelling?**
 Discuss how OPCA can help
- 5. Has the collector provided a list of species and cultivars?**
 How many taxa are there
- 6. Will the collector provide herbarium specimens and allow photography?**
 Discuss how OPCA can help
- 7. Will the collector make reasonable quantities of propagating material available**
 Does he/she sell plants
 Will he/she contribute to auctions
- 8. How will the collector ensure conservation of plants in event of ill health, death or moving.**
- 9. Does applicant understand about deregistration?**
- 10. Is the garden open to the public - regularly?**
 - occasionally?
- 11. Will interested individuals or groups be able to visit?**

APPENDIX 5 : ANNUAL COLLECTION REPORT

DATE

NAME OF COLLECTION

Name of collection holder

Address of collection

PHONE FAX

1. How many species/cultivars are in the collection?
species cultivars

2. Have any new species/cultivars been added to the collection? If so, what?
.....
.....
.....
.....
.....

3. Have any species/cultivars been lost from your collection?
.....
.....
.....
.....
.....

4. Are there any problems with identifying any species/cultivars in the collection?
.....
.....
.....
.....
.....

5. Have you any cultivation problems? If so, what is the most likely explanation for them?
.....
.....
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.....

6. Which species/cultivars of the collection are most successful in your garden this year?

.....
.....
.....
.....
.....

7. Have any species/cultivars from your collection been propagated this year. If so, is propagation easy or difficult?

.....
.....
.....
.....
.....

8. Which is the best time of the year to view the collection? Were flowering times different this year?

.....
.....
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.....
.....

9. Are there any specific areas in which assistance is required?

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10. Any other comments?

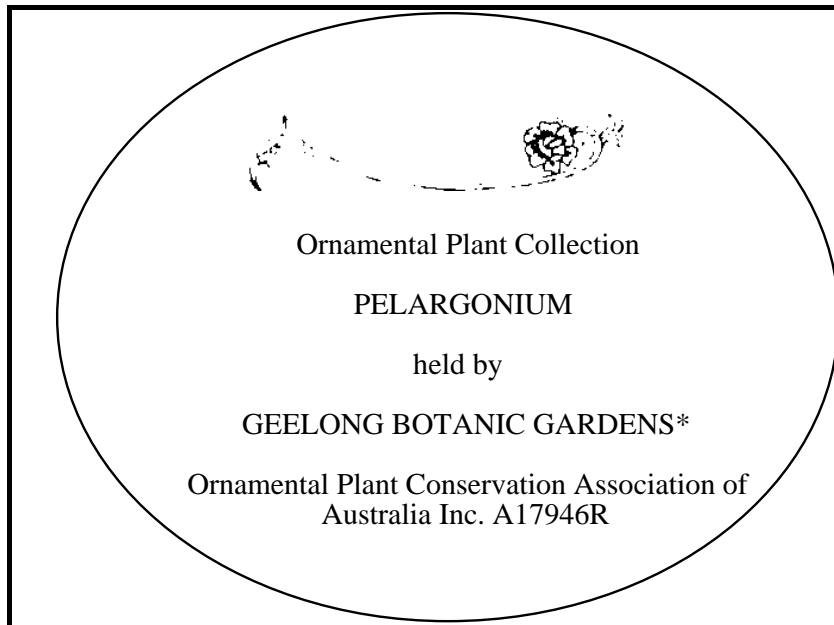
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APPENDIX 6 : PLAQUE AND ORDER FORM

Recognising the importance of OPCA Plant Collections, the Ornamental Plant Collections Association has designed a plaque for your use.

- The plaque
- is oval with 4 built-in screws for attachment to wood plinth or masonry
 - measures 28.5 cm wide x 22.5 cm high
 - is produced in vitreous enamel on metal using a photographic reproduction technique for the relevant information
 - colours are as in OPCA Newsletter logo on deep cream background
 - will carry the following information:

* This could be the name of the nursery or the collector or the site or omitted



I wish to order a Collector's plaque

Name (Collector)

Address:

Post Code Telephone

Details on plaque:

Name of Collection (Genus).....

*Collector/Nursery/Site.....
(only one of these please)

The cost is \$70.00 payable on receipt by cheque to

OPCAA
C/- Royal Botanic Gardens
Birdwood Avenue
South Yarra Vic 3141

Signature of Collection Holder

APPENDIX 6: GUIDELINES FOR PHOTOGRAPHY AND OPCA SLIDE COLLECTION

Photography is an essential component in establishing plant records. The subject, its scale and proportion can be recorded objectively on film.

1 OPCA REQUIREMENTS

1.1 One master set of colour transparency photographs (slides) is required for each plant.

This Master Set consists of **4 views**, either landscape (horizontal) or portrait (vertical) of each plant:

- i Take 1 close-up detailed (full front) photo of flower. Include 5cm scale in picture, preferably at base of slide.
- ii Take 1 close up photo at 90° angle to the above. This may be required to show flower detail. Include 5cm scale.
- iii Take 1 photo of flowering stem and foliage. Include 5cm scale at centre base of slide.
- iv Take 1 photo of semi-mature to mature plant to show growth habit and, if applicable, its flowering density.

These photographs may need to be taken over a period of time - from a few months to several years depending on the growth of plants and the particular species.

It should be noted that ideally 4 sets of slides are required since separate transparencies are much cheaper and of better quality than copies. These would then provide:

- 1 set for archival storage
- 1 set for copying and publication
- 1 set for everyday office use - i.e. a general purpose working set.
- 1 set for collector

But being realistic, the OPCA can only expect 1 master transparency set.
(See 3. Storage of Photographic Transparencies)

1.2 Presentation

- i Clearly identify in print (see iii Slide Identification) and number the slide in erasable pencil. Provide an annotated dated list or complete the accompanying photographic record sheet when forwarding to the OPCA.
- ii With slides for your own use, print clearly and use a permanent ink pen (eg Sharpie Pen, fine point, from Zetta Florence. See 5.1, p.6.
- iii Slide Identification (see below)

Botanical Name		No
NAME (of photographer)		DATE (of photography)
Site & Photographic details (film/ratio)		

2 ADVICE

The most important advice is to read the manual and film information carefully. Borrow or buy a good basic photography manual and work through the exercises. Suggestions for texts appear on the last page.

2.1 Film

Colour transparency slide film 35 mm, 100 ASA /19DIN (or lower e.g. 64:32). Kodak Ektachrome EPR 64 ASA has produced good results. Agfa, Fuji and Kodachrome film have been used successfully by OPCA photographers, but care needs to be taken to ensure that colour reproduction is accurate.

2.2 Camera

A good quality 35 mm single lens reflex camera with a through-the-lens metering system is probably the most versatile. A camera with a manual capability is necessary rather than just being automatic. Hand-held light meters are less common, but in the hands of an experienced user yield excellent results.

2.3 Type of lens

Use a lens that will fill the frame with the subject. A lens with fixed focal length, not a zoom, should be used for best results.

- *For close-up photography a macro lens is necessary with fixed a focal lens of 50mm or 100mm. A normal lens (50mm) will render the subject with a minimum amount of distortion.*

- *Use a Macro 50mm lens with extension rings to increase magnification. A compromise can be made by using a macro focusing teleconverter.*

2.4 Tripod

A tripod is necessary to prevent camera shake and to gain good depth of field. It will also alleviate arm ache. Generally a shutter speed of 1/125th of a second will eliminate camera shake. An extension cable release should be used as well as a tripod.

2.5 Film speed

ASA or DIN is a speed rating which reflects a film's sensitivity to light.

64 ASA is convenient with a range of apertures if light is good. An ASA rating of more than 100 should be avoided as reproduction quality is reduced. The lower the ASA the finer the film grain is.

2.6 Shutter speed

A fast faster shutter speed will freeze foliage and flower movement resulting in sharper definition. It is preferable to use a tripod if taking photographs with low shutter speed eg less than 1/125th of a second.

2.7 Aperture, f-stop

f-stop is the term used to describe the amount the lens opens to permit light entering. A lens often has **f-stops** ranging from 1.8 to 22. A numerically high **f-stop**, eg f22, only allows a small amount of light to enter the lens. Such an **f-stop** has a greater depth of field, while a numerically low **f-stop**, eg f1.8, has a shallower depth of field and focusing is critical. An **f-stop** of between f8 and f11 is commonly used.

2.8 Lighting

Use a camera tripod or movable table if light permits shooting outside. Use natural light rather than flash (also see 2.7 Outdoor). Use direction of light at 45 degrees to show up texture if this is important. A lens hood is useful to stop glare.

i Filters

A UV filter improves transparency quality. In early morning or late afternoon use a 81/82 filter. For glossy and water surfaces use a polarising filter. Never combine more than 2 filters.

ii Outdoor

Weather conditions and direction of sunlight play major roles in determining the quality of your pictures. Generally a slightly overcast sky with the sun behind or above you (ie. not backlighting the subject) provides the best lighting. Bright, direct sunlight can create harsh shadows and cause

glare on glossy surfaces. Note the outdoor subject's orientation to the sun and photograph it at the time of day when illumination is best.

The lens should not be pointed towards the sun but rather the sun should be behind the operator and positioned to avoid shadows. A Grey Card which reflects 18% of light can be helpful in determining correct exposure in other than average light situations (ie. backlighting, overall dark or light subjects).

When taking a light meter reading exclude background sky or any other light source from the frame while measuring. Once the correct exposure has been determined, set the camera manually, then reframe the subject and shoot.

iii Indoor

Black velvet cloth is an ideal backdrop in a studio setting and can be used in a table-top setting outdoors.

2.9 Colour Coding

The Royal Horticultural Society's colour cards are available from the OPCA for colour coding the flower. This should be done on same day as the photography.

3 TAKING PHOTOGRAPHS

It is always wise to bracket the exposure of your photographs by taking extra shots one full stop **f-stop** on either side of the light meter reading. A professional photographer takes a shot at indicated exposure, another at less than indicated exposure, and a third shot at more than indicated exposure, and often at 1/2 **f-over** and **f-under**. It is important to remember that film is relatively inexpensive and the perfect image may be lost for ever through inaccurate exposure or only occur again in 12 months time.

4 FILM PROCESSING

There are 2 different processes used in developing colour transparency film:

- **Kodachrome process** used exclusively by Kodak and regarded to exhibit the best archival storage properties (eg. Australian National Botanic Gardens).
- **Ektachrome (E6) process** used by all other film brands and is readily processed by independent photographic laboratories.

Film other than Kodachrome can be processed locally by commercial photographic laboratories including the following:

<i>Latrobe Colourlab</i>	<i>89 Tope Street, South Melbourne</i>	Ph: 03 9695 4710
<i>Lab - X</i>	<i>4 Bond Street, South Yarra</i>	Ph: 03 9826 0484
<i>CPL</i>	<i>11 Wellington Street, Windsor</i>	Ph: 03 9525 2586
<i>Photographic & Electronic Image Service</i>	<i>365 Lonsdale Street, Melbourne</i>	Ph: 03 9670 0351
<i>Vermont Photographics</i>	<i>602 Canterbury Road, Vermont</i>	Ph: 03 9874 3865

5 STORAGE OF PHOTOGRAPHIC TRANSPARENCIES

- 5.1 All slides are to be stored in archival slide sheets. If air conditioned storage is not available, slide sheets should be enclosed in air-proof containers.

Zetta Florence, 187 Gertrude Street, Fitzroy 3065 specialises in archival storage material.
Phone 9416 2236, toll free 1800 247 666 Fax 9416 2360

It has a wide variety of archival polypropylene pocket sheets in various sizes and can provide a product called an Image Portfolio which is an A4 binder holding 50 polypropylene slide pages in a slip case which provides temperature, moisture and dust control (\$49.95 - 1999).

- 5.2 Ideally, one close-up slide is to be included in an 'ARCHIVAL SET' which is to be stored in the dark under controlled humidity and temperature conditions.
- 5.3 Other slides are to be known as the 'WORKING SET'. These are to be used for
 - identification
 - making copies for publication
 - use in lectures, etc.
- 5.4 Copies should only be made on special low contrast copy film. Agfa have an excellent product. High contrast copy duplicates of transparencies are best done by a professional photographic laboratory.
- 5.5 Images can be digitally scanned and stored as computer files.
- 5.6 GOOD LUCK AND HAPPY SHOOTINGS.

6 EXPERIENCES PHOTOGRAPHING A COLLECTION

Don Journet, Collector

It is a common misconception that it is necessary to have expensive camera equipment in order to take photographs of plant collections and their flowers. Although one can spend large sums of money for state of the art camera equipment there are ways of keeping the expense to a minimum. When I started taking *photographs of the Lachenalia collection* I decided to keep one camera loaded with film for the sole purpose of catching the *Lachenalia* in flower. Shortly after this decision one of the lenses on my Practica started to stick giving wrong apertures. While looking for a second hand lens I found an Asahi Pentax with Takumar 1:1.8/55 lens for less than \$50.00. It has been working well now for several years.

I recently went for a quick look around to see what was available in the way of second-hand cameras and found single lens reflexes in the range \$80 to \$150. This was at camera shops. Other possibilities are shops such as the Cash Converters or Pawn Brokers where one may be able to strike a bargain particularly if the camera has some slight external damage. Obviously there is greater risk but it may be possible to get a refund agreement if you take the camera for a check and find serious faults.

What is required in a camera for use in such work?

Camera:	This should be a Single Lens Reflex preferably with through-the-lens metering eg Asahi Pentax Spotmatic, Praktica
Lens:	Good quality removable lens with aperture stops down to f16 or f22.
Extension tubes:	Set of three tubes.
Tripod:	Any simple tripod.
Other accessories:	Shutter release cable, black velvet back cloth.

Other Comments

For close-up work the single lens reflex is essential as the view through the view finder is what you get and focusing can be precise. Bayonet fitting lenses are most convenient but as the screw fittings are largely obsolescent they can be found quite cheaply second-hand.

The through-the-lens metering, although still requiring judgment, gives the easiest assessment of the light levels. In sunny weather a good depth of field is obtainable using f16 or f22 stop settings at perhaps 1/125 of a second depending upon film speed. To avoid hand shake a shutter speed of at least 1/125th second is required for hand held close-up work. Depth of field is the range of distances from the lens that will be in focus for a certain aperture setting. The depth of field increases as the aperture decreases ie. the larger the aperture f stop number. The greatest problem is obtaining a completely stationary subject otherwise fast shutter speeds will be necessary with consequent opening of the aperture and loss of depth of focus. It may be necessary to take the flowers indoors to avoid the breeze. Find a sunny window because when one can ensure the subject is still a tripod can be used with relatively slow speeds and smaller aperture settings (ie. larger f stop number).

Flowers and small plants can be presented to best advantage if the background is uncluttered. To this end a piece of black velvet suspended behind the subject gives the best results. It is surprising how much reflection is produced when such media as black card or paper is used. The black velvet absorbs practically all light and cuts out any possible distractions.

If this type of photography is new to you it is a good idea to use a complete roll of film quickly to view the results before one forgets the particular techniques adopted. Record as much detail as possible such as aperture, shutter speed, film speed, and even conditions such as time of day and how clear the sky. This data will enable you to assess the results and decide upon modifications necessary to improve on the exposure settings dictated by the camera metering. It will be found that some pale flowers need faster speeds or smaller apertures and some dark subjects require slower speeds or wider apertures than those suggested by the through the lens metering which sometimes averages an area of frame. Your skill and judgment will soon increase and your reward and satisfaction grow. Remember even professional photographers have a significant number of photographs that are rejected.

If you need to check a camera for shutter speed and lens function a number of the larger photographic stores can run a rudimentary check for very little cost. I have had checks carried out for no charge when buying film.

To get good prints, with plenty of detail, it is usually best to get close to the flower.. If the effect required is one of an expanse of colour make sure that the colour occupies a reasonable proportion of the photograph otherwise it can get swamped by masses of green. The most lively and bright colour photographs result from using transparency film. In any case if one hopes of having any photographs published transparency film must be used.

It really is not very difficult to get reasonable photographs so have a go and do not be frightened to make mistakes and ask for advice if the results disappoint you.

7 FURTHER READING

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Langford, Michael, *35mm Handbook*. Nelson

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Angel, Heather, *How to photograph Flowers*: Stackpole Books US, 1998

Brück, Axel, *Close-up Photography in Practice*. David & Charles, 1884

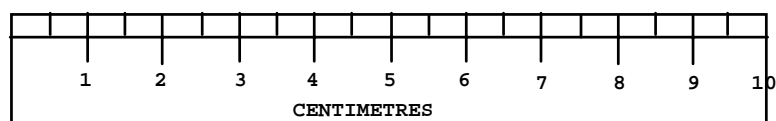
Hedgecoe, John, *Book of Photography*. Viking ISBN 0670858285

Ruffel, Michael, *The Encyclopedia of Photography*. Octopus Books

Close-up Photography, Kodak Workshop Series

John Shaw's *Close-ups in Nature*. Amphoto, Penguin

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- Spencer, Roger, Hawker, John & Lumley, Peter (1991) Elms in Australia, Ornamental Plants 3, Royal Botanic Gardens, Melbourne
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- Taylor, J. (1988), Collecting Garden Plants. Dent, London