Notes

Collection of Seed of Australian Native Plants

by

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"Seeds for Sowing"

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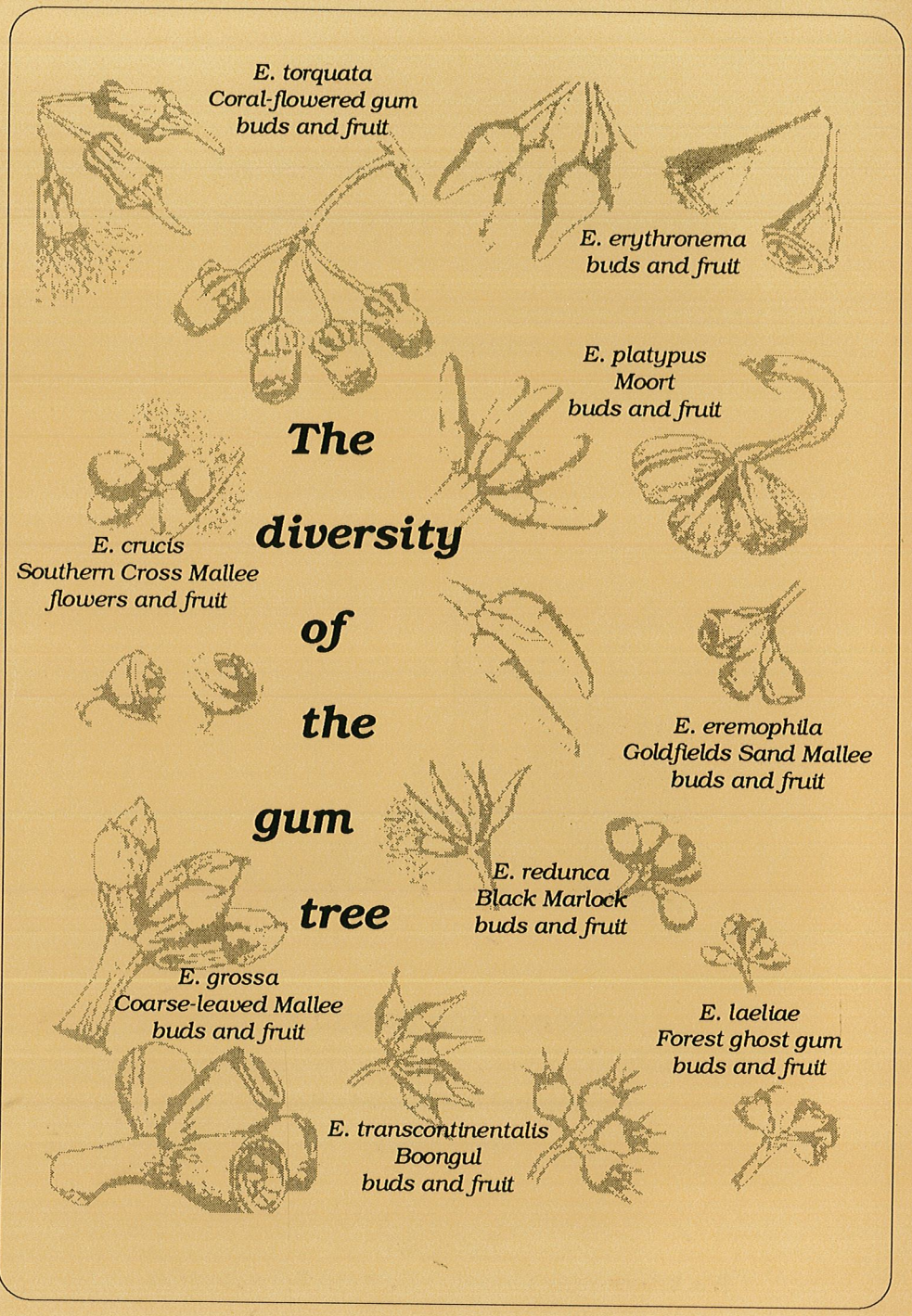

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Hints on Growing Australian Native Plants

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Seeds for Sowing

Foreword

Seeds are precious: they are a work of art in themselves, with built-in adaptations for survival in whatever conditions may occur in the wild. Yet each has its own beauty, and the potential to turn into something marvellous.

Wildflowers have another aspect; besides being both interesting and beautiful they are the basis of the ecosystems. All living things depend on vegetation, and every plant or tree of our native vegetation is a wildflower.

Great care should be taken by those who collect seed. Keep in mind the need to protect and care for the plants, not only those from which seed is being collected but also others round about which may be trampled or broken.

"Tread softly on the land"

Introduction

This publication is for those people who are not already versed in the ways of plants and their seeding.

Australian wildflower plants have developed many and diverse ways of producing flowers and seeds all, in some way, directed towards pollination and eventual dispersal of seed for the continuation of their species.

These differences mean that many plants will need different methods of harvesting their seeds. When it is seen how a plant carries its seeds, a method of harvesting can be considered and usually becomes obvious.

The seed of plants is formed in capsules which are generally referred to as fruits. If you examine a plant you will see that the seed capsules or fruits have formed where the flowers have been.

Licences are required for collecting on land which is in a Conservation and Land Management Department Reserve. No collecting is allowed in National Parks and **no collecting** of Declared Rare Flora, wherever it may be. A collecting licence may be obtained from the Department.

Some Methods of Seed Bearing

Flowers and seed capsules of some plants may be terminal on branchlets, in which case the plant usually makes a shoot through the growing end. Melaleuca and Kunzea are such examples, whilst Calothamnus flowers along the stem and therefore the seeds are to be found within the plant. Others such as Petrophiles and many Hakeas bear flowers and seeds in the leaf axils. Still other plants such as peas and wattles grow a flowering scape which bears the seed.

In regard to seed bearing there are two main categories of plants: DEHISCENT - those species which shed their seed annually as soon as it is ripe; and INDEHISCENT - those which form woody capsules (fruits) which remain on the plant for a year and sometimes many years.

(a) Dehiscent

Dehiscent fruits will shed their seeds as soon as they are ripe, only a few weeks after flowering. These plants need to be watched or the seed will be lost. A stocking or cloth bag may be tied over the seed capsule to catch the seed.

Among the plants that shed seed are:

Acacias (wattles), Cassias, the Daisy family including Everlastings, Grevilleas, Hibiscus, Synapheas and members of the Lily Family. and the pea family.

A notable family in the seed shedders is the Legume family. This includes all the pea flowers (e.g. Bacon and Eggs) and wattles. All of these plants produce their seed in pods and it is very easily collected provided you are there at the right time, otherwise it will shed and be lost. Therefore observation is very important. The pods have an infinite variety of shape and size. They start to form directly after flowering and take two to three weeks to ripen. As most of these plants flower in the spring they are ripening from early November to December with many species ripening two or three weeks before Christmas.

(b) Indehiscent

Indehiscent fruits may open and shed their seed after a period of time or may remain on the plant indefinitely and are usually finally shed after a fire. Incidentally, that is one of the reasons for such good regrowth after burning. Seed collection may be carried out at this time provided it is done straight away and getting black is no deterrent.

Plants in the indehiscent category include: Banksias, Callistemons, Eucalypts, Hakeas, Isopogons, Leptospermums, Melaleucas and Petrophiles, and many others.

These seeds may be harvested at any time of the year provided they are ripe. Twelve months after flowering should be allowed for the ripening of most of these seeds. This time is easy to judge as the plant will be coming into flower again. Some may be ripe earlier but it is too difficult to generalise so the longer period is needed to be on the safe side.

Harvesting

When harvesting seeds, the seed pods or fruits may be removed from the plant by hand but sometimes it may be better to cut twigs e.g. if a large amount of seed is required for revegetation purposes. Most plants are not hurt by a light pruning.

Some dehiscent plants, dependent on wind dispersal, have special adaptations such as small parachutes to enable them to float on the wind (e.g. everlastings). These plants, like the legumes, require careful observation in order to collect the seed.

Still other plants are not entirely dependent on seed and will sprout from rootstock if damaged by fire, bulldozer or other agency. Seed of some of these plants e.g. Leschenaultia and Hibbertia, is often difficult to germinate.

Fertile Eucalyptus seeds are usually mixed with infertile ovules known as chaff or packing. Sometimes these infertile seeds seem indistinguishable from the fertile seeds but in the main they can be distinguished with a magnifying glass. However the seed does not necessarily have to be separated from the chaff.

Other plants have seeds which contain some form of inhibitor causing dormancy which prevents early germination. Seedlings of these plants may often be found in the bush, but prior to germination the seed may have undergone exposure to many seasons of varying temperature and climatic changes e.g. bushfires, heavy rain, cold etc. which may break the dormancy. Experience has shown that the following genera are difficult to grow from seed:

Boronia	Dampiera	Persoonia
Calytrix	Goodenia	Pimelea
Chamelaucium	Hibbertia	Styphelia
Correa	Leschenaultia	Verticordia
Crowea	Leucopogon	Anigozanthus (Kangaroo paw)

Care and Preparation of Seed After Collection

In many cases whole fruit will be collected and seeds need to be extracted from them for storage before planting. To do this:

1. Place the fruits in a warm place on a suitable paper, plastic or open cardboard box. Most seedcases will open in a few days. Some fruits such as cone flowers e.g. Isopogons and Petrophiles, take a good deal longer. Banksia fruits need special treatment (see illustration pages 12 and 13).

   Most fruits collected in winter may need to be kept in paper bags until the weather is warmer. Do not use plastic bags as they encourage mould.

2. Make sure ants or mice cannot reach the seeds or fruits at any stage as they will carry it away.
3. After fruits have opened, separate seeds from seed covers and other rubbish. Various grades of sieves will be found useful for this purpose. Winnowing is also often possible.
4. Make sure seeds are absolutely dry before storage.
5. Store in jars or plastic containers with lids, in a dry, cool, dark place or refrigerator, until required for planting.
6. Add a little insecticide e.g. a pinch of tomato dust or a flake of Napthalene, to deter weevils and other pests.

Seed from wattles and pea plants retains viability indefinitely, while seed from plants such as Eucalypts, loses viability over a period of a few years.

Wattle and pea seeds need special treatment before sowing. The drying pods should be kept in a paper bag, as they often explode and scatter the seed. As already mentioned, these seeds have a very hard seed coat (testa) and may not germinate for some years if not treated. There are alternative methods of treatment:

1. The most commonly used method is to dunk the seed in boiling water for a few moments. This may be done by putting the seed in an old stocking or cotton bag and dunking, or by dropping the seed into boiling water and straining off after one minute. In this method the seed may be dried and stored for sowing at the time desired.

   Pour water just off the boil over the seed and leave it to soak overnight. By this method the seed will often swell and it is necessary to plant immediately.

2. Scarify the seed by putting it into a tumbling barrel with sand, or rub it between two pieces of fine sandpaper until the seedskin is weakened. It may then be stored again ready for use.

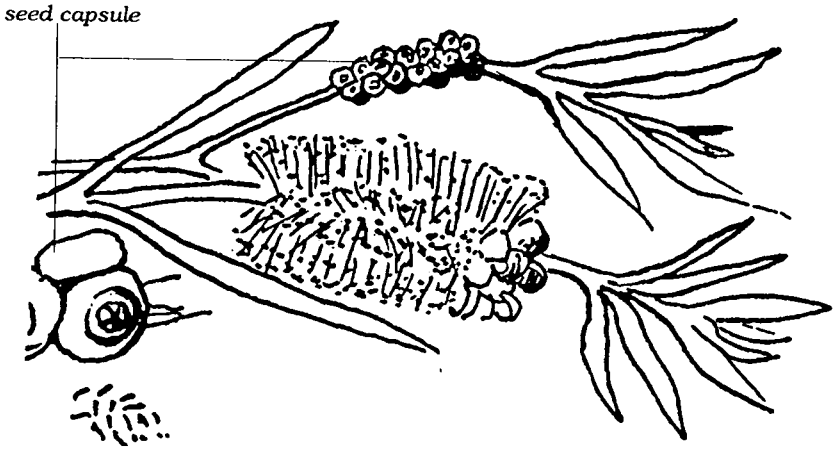
   There is some doubt over the best method of treatment. This arises because some seed which is actually boiled might be damaged in the process. However, repeated success has been achieved by Alcoa and ourselves using the boiling method.

Illustrations and Information Concerning some Commonly Collected Species

Calothamnus (One Sided Bottlebrush)

(Family Myrtaceae [Myrtle])

Flowers : Red along one side of the stem. **Fruit** : Capsules remain on plant indefinitely. Gather at any time after maturity, which usually takes 7 -12 months. **Seed** : fine



Callistemon (Bottlebrush)

(Family Myrtaceae)

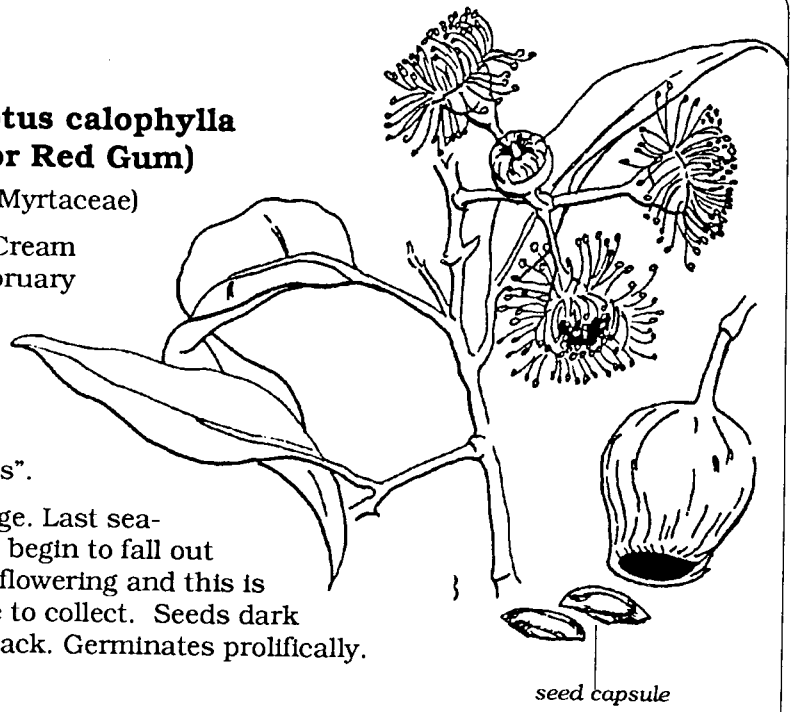
Flowers : Red Bottlebrush. **Fruit** :Capsules may remain on plants for many years. Usually ripe after 12 months. **Seed** : Fine.

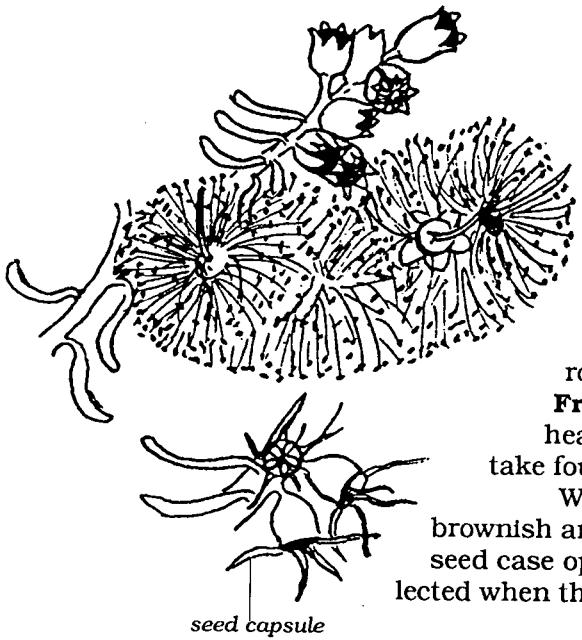
Eucalyptus calophylla (Marri or Red Gum)

(Family Myrtaceae)

Flowers : Cream flowers February to March.
Fruit : Very large, commonly known as "honky nuts".

Seed : Large. Last seasons' seeds begin to fall out just before flowering and this is a good time to collect. Seeds dark brown to black. Germinates prolifically.

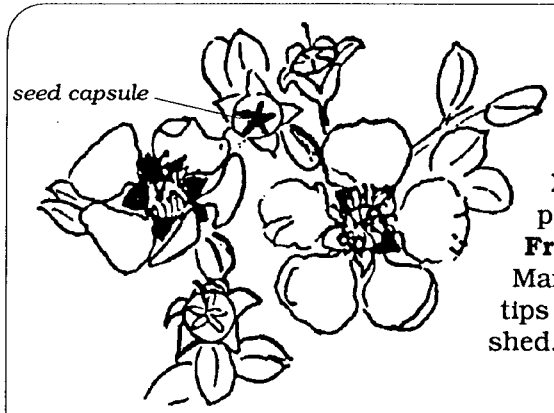




Kunzea

(Family Myrtaceae)

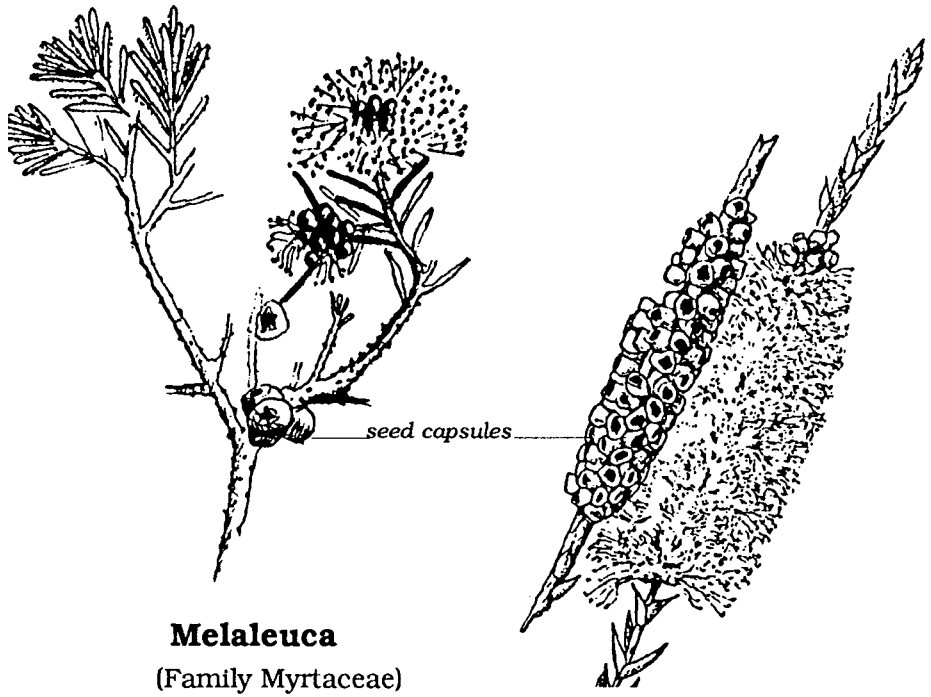
Flowers : Red, pink, yellow or white. Some species are smaller and rounder than illustrations. **Fruit** : Forms where flower head has died back. Usually take four to six months to ripen. When ripe the seed head is brownish and the small valves in the seed case open. Seeds should be collected when this happens. **Seed** : Fine.



Leptospermum

(Family Myrtaceae)

Flowers: Small white or pinkish flowers in spring. **Fruit** : Generally ripen from March to June, Trim branch tips and spread on tarpaulin to shed. **Seed**: fine.

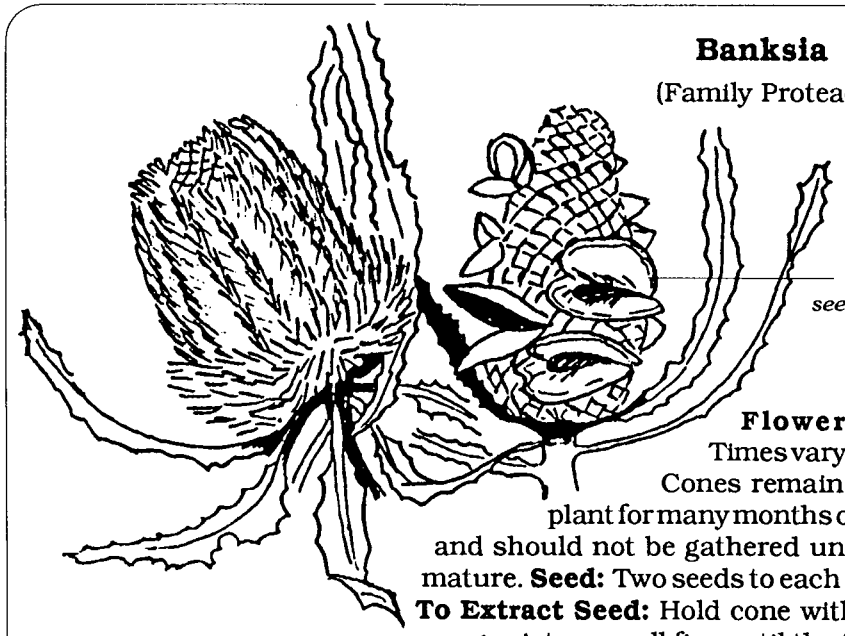


Melaleuca

(Family Myrtaceae)

Two species are illustrated to show different characteristics.

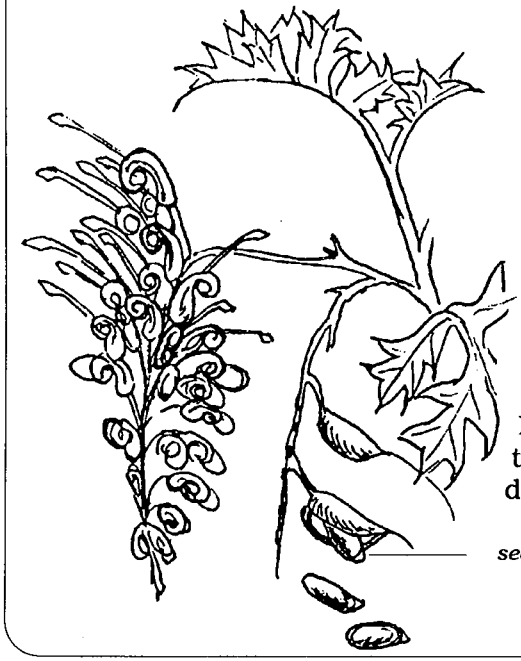
Flowers : Are sometimes round and sometimes a spike. Colours vary. **Fruit** : Capsules remain on plant, Gather at any time after maturity, which usually takes at least 12 months. **Seed** : Fine.



Banksia

(Family Proteaceae)

Flowers : Times vary. **Fruit**: Cones remain on the plant for many months or years and should not be gathered until fully mature. **Seed:** Two seeds to each follicle. **To Extract Seed:** Hold cone with tongs over gas jet or small fire until the follicles start to open. Dunk in cold water and leave overnight. Dry in sun. Repeat process if necessary. Protect from wind.



Grevillea

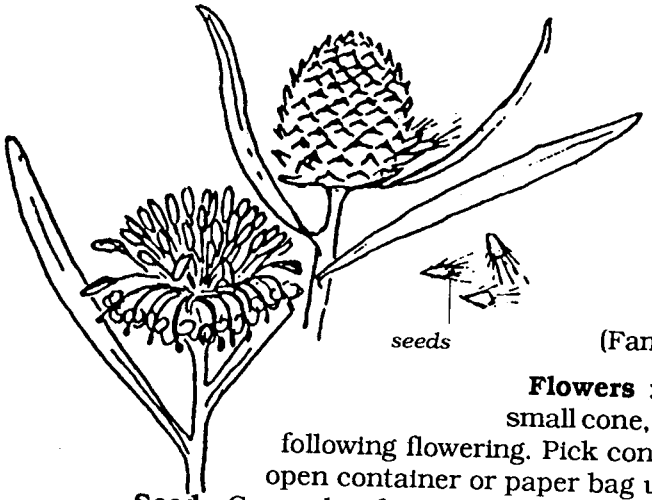
(Family Proteaceae)

Flowers : Colours of flowers and flowering times vary considerably. **Fruit** : Green seed pods form on the flower spikes. Pods turn brown or black when ripe. Ripening times from two to four months. **Seed** : Difficult to collect so place an old stocking over the green pods. Seeds are often difficult to germinate.

Hakea

(Family Proteaceae)

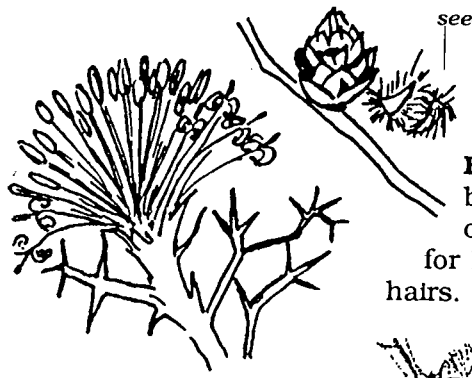
Flowers : Times vary. **Fruit** : Seed is carried on the branches in woody follicles.In most cases they remain on the tree for 2-3 years and take up to 12months to ripen. Some species ripen earlier. **Seed** : Two winged seeds per fruit.



Isopogon

(Family Proteaceae)

Flowers : Spring. **Fruit** : A small cone, ripe in the autumn following flowering. Pick cones and leave in an open container or paper bag until disintegrated. **Seed** : Covered in fine hairs.



Petrophile

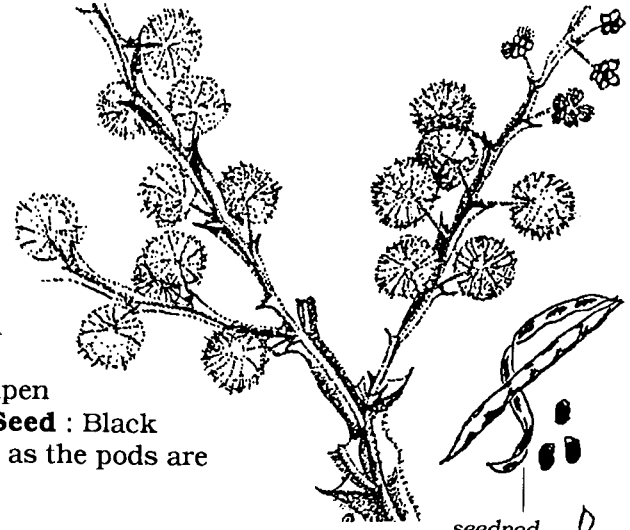
(Family Proteaceae)

Flowers : Spring. **Fruit** : Similar, but smaller than Isopogon, and occur in the leaf axils. Collection as for Isopogon. **Seed** : covered in fine hairs.

Acacia (Wattle)

(Family Mimosaceae)

Flowers : Yellow. Flowering times vary. **Fruit** : Various shaped pods, brown to black when ripe. Generally ripen November-December. **Seed** : Black or brown. Pick as soon as the pods are ripe.



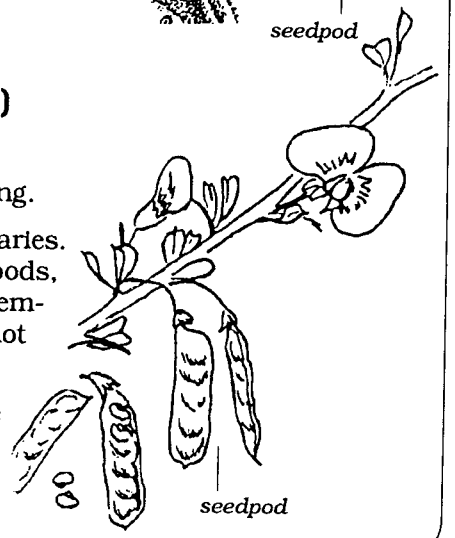
Legumes (Pea Plants)

(Family Fabaceae)

These plants are all nitrogen fixing.

Flowers : Pea flowers. Flowering time varies. **Fruit** : Seeds found in a variety of pods, small to quite large. Usually ripen November - December. Pods still green are not yet ripe.

Seed : Brown or black. Collect before the pods shed.



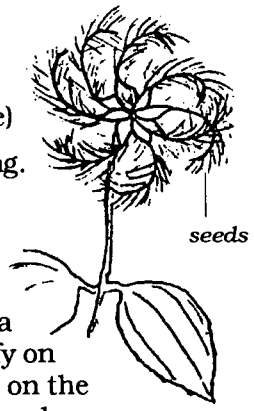
Clematis (Old Mans Beard)

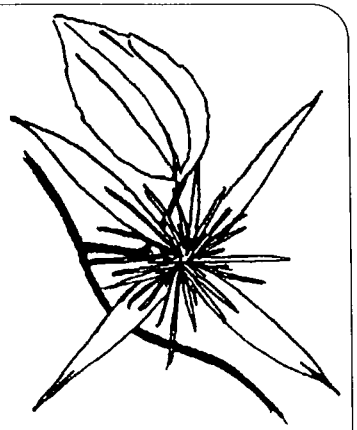
(Family Ranunculaceae)

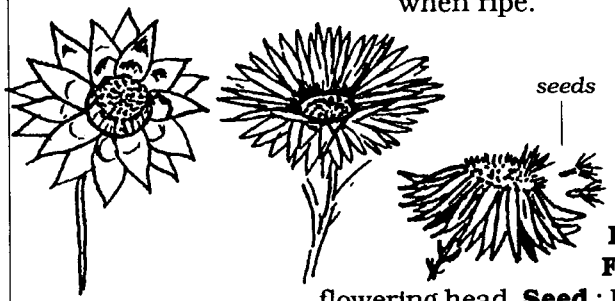
Flowers : Winter-Spring. Flowers white.

Fruit : Borne on the old flower head.

Seed : Each seed has a tail which becomes fluffy on ripening. The seeds are on the end of the tail and turn brown when ripe.







Everlastings (Paper Daisies)

(Family Asteraceae)

Flowers : Winter-Spring. **Fruit** : Borne on the flowering head. **Seed** : Ripens a few weeks after flowering and if not watched and gathered as soon as it is ripe it will blow away.

Cassia

(Family Caesalpiniaceae)

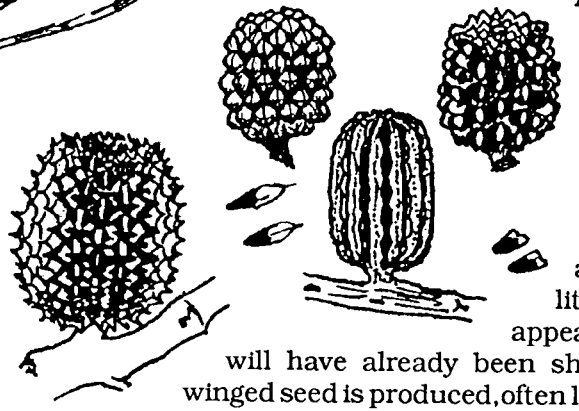
Flowers : spring - yellow. **Fruit** : in pods turning dark brown when ripe.

Seed : black. Plants are very hardy, from low rainfall areas and are nitrogen fixing. Seed needs to be treated.

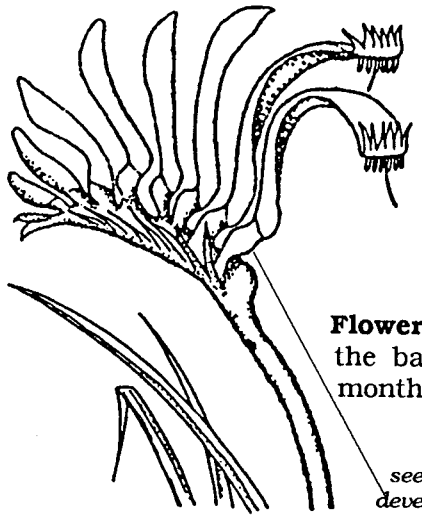
Allocasuarinas and Casuarinas (Sheoak)

(Family Casuarinaceae)

Flowers : Red, small, fluffy, usually on branches.



Fruit:The cones remain on the trees for many years and may be collected at any time after ripening. If the little valves in the fruit appear to be open, the seed will have already been shed. **Seed** : A small winged seed is produced, often likened to a fly's wing. The valves will open in a day or so after collection and the seed will fall out. Sheoaks have male and female trees and only the female trees bear flowers and fruits.



Anigozanthos (Kangaroo Paw)

(Family Haemodoraceae)

Flowers : Spring. **Fruit** : A capsule forms at the base of each flower. Ripens about 4 months after flowering. **Seed** : small

More Important Information

It is best to gather seed from plants amongst a group of the same species as such plants are more likely to be out-pollinated than self-pollinated. Seed from such plants is thought to be more viable and result in stronger progeny.

Seeds should preferably be collected from the most healthy and vigorous plants with the idea of obtaining a strong genetic strain. To maintain genetic diversity choose seeds from plants at a distance from each other.

The number of flowers and fruits produced by plants often varies considerably from year to year, so that some years are especially good with big crops of seeds being produced. These are good times to stock up.

Remember that seed is more difficult to extract from the fruits in cold weather and it may be necessary to store them in paper bags until it is warmer.

It is important to have a **plan** of what you would like to do 6-12 months prior to the opening of the next season so that you can obtain your seed and have it ready when the time comes.

Records: If seed is gathered regularly, it is a help to keep records of dates for times of seed ripening. These dates may not be quite the same each year but will be a useful guide as to when to start watching, especially in the case of dehiscent plants.

Seeds from the Myrtle family are basically very fine and germinate easily. These are good "beginners' seeds".

Exceptions: Experience has shown that Hakea amplexicaulis, H. trifurcata and Grevillea synapheae are found to be ripe when still green, within 4-6 months of flowering.

Note: Some material has been repeated from the booklet *Seeds of the Future* as it is essential to use the information in conjunction with that given here.