Far South Coast Landcare Association (FSCLA)

Community SeedBank

Field Notes

Native Seed Collection workshop

9th February 2013

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Introduction

Just the Beginning

This is a very short introduction to seed collection. Seed collection can be a rewarding pastime and there is always something to learn. Contact the seedbank for further information. Read some books or organise a group to collect and learn together, bringing in speakers and others with knowledge and experience.

What is the SeedBank?

The Community Seedbank is an initiative of the FSCLA and supported by the Southern Rivers Catchment Management Authority. It has been established to

1. Provide training and assistance to groups and individuals in seed collection, plant identification and vegetation management issues,
2. Encourage and facilitate the use of locally collected indigenous seed in revegetation, and
3. Raise awareness on conservation and biodiversity issues.

The seedbank has a storage facility in Bega that can be used to store seed collected by individuals and community groups for revegetation projects.

Why collect indigenous native seed?

- The use of indigenous plants in revegetation enables the reintroduction of associated flora and fauna through natural processes as the habitat is re-established.
- Research has shown that plants adapt to local conditions (microclimates). Plants grown from locally collected seed are genetically suited to the conditions and success rates are consequently higher.
- Indigenous native plants do not become weeds (there are some exceptions).
- Areas revegetated with indigenous natives develop the aesthetics and local character that are unique to our environment.

Contacts

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The Basics

A full copy of the "Guidelines for Community Seed Collectors" can be obtained through the FSCLA Community Seedbank.

- First obtain permission from the landowner or manager before collecting seed. Local authorities, aboriginal land councils and government departments may require a request in writing. National Parks and Forestry areas require permits for seed collection. Some plants are 'protected' through state or commonwealth legislation and will require a licence from the National Parks & Wildlife Service regardless of where you plan to collect.
- Treat cultural and heritage values with respect.
- Think safe! Protect yourself from the sun and wear sturdy boots. When collecting in the bush work in groups or let someone know where you are going and when you will be back. Some plants are toxic and some contain irritants. When cleaning seed wear gloves and use a respirator, work in a well-ventilated area.
- Tools used for collection can cause injury if not used with caution.
- Collect from as many well spaced plants as possible; ensure your seed lot contains diverse genetics.
- Do not remove more than 20% of the seed from any one plant or more than 10% of plant material. Leave a source for natural regeneration and a source of food for animals and insects.
- Do not unduly damage plants you are collecting from or trample surrounding vegetation; in particular be careful of the groundcover. Keep your vehicle on formed tracks.
- Do not disturb habitat for fauna, eg hollows, birds nests, wasp or ants nests.

Different Types of Fruits

There are a variety of fruits or “containers” for seed produced by Australian plants. Often the type of fruit will be a good hint as to approximately when the seed will be ripe and ready to pick.

- Woody fruits such as Eucalypts and Tea Trees contain very fine seeds within a hard capsule for protection against the elements over a long ripening period.
- Wattles and peas have a pod similar to the beans and peas we eat. Ripening usually takes 3 to 4 months (longer in some species) from flowering to seed shed.
- Soft fruits are often found on rainforest plants, this is to attract birds and other animals and therefore spread the seed.
- Seeds can be contained in papery capsules like those of the Hop bush (*Dodonaea sp*), Blackthorn (*Bursaria sp.*) or Native mint (*Prostanthera sp.*).
- Plants in the daisy family do not have a seed container; the many small flowers are packed together in a head which breaks up as the seed ripens to be dispersed by wind. Some other plants have the seed held together loosely until ripening when it swells and breaks apart, for example Headache vine (*Clematis sp.*).

- Grasses have papery glumes surrounding the seed head; the seed is a grain (like rice) although most Australian grasses have a smaller seed than rice.
- Sedges usually have a nut like seed or a grain.

A Season for All

There are some very general rules for when seed will be ripe. Every area will have slight variations on this timing. Seasonal change and perhaps climate warming alter the timing for seed ripening. The following list is very general. It is best to keep records of when plants flower and when you find seed ripe, you can slowly build up a list for your own area.

Woody fruits tend to be ripe towards the end of winter and into spring.

- The Eucalypts flower up to a year before ripe seed is on the tree, they will often flower before last years crop is ripe and ready to drop. Some stringybarks will hold a couple of years worth of seed at a time. Seed is not necessarily shed at a regular period and may sit ripe on the tree for some time.
- The Sheoaks (*Allocasuarina* sp) will hold 3 or more years' worth of seed and unless the Glossy black cockatoos beat you to it you will always find some ripe seed.
- The occasional woody fruited plant, for example Tick bush (*Kunzea sp.)* and the River oak (Casuarina sp.), will have pods ripening and opening at a regular time each year and therefore have to be watched closely if you wish to collect.
- Banksia and Hakea will hold ripe seed for some time, there are of course some exceptions and these species drop seed at regular times.

Fleshy fruits including berries (Native Raspberry and Sarsaparilla) and drupes (Lilly Pilly) – A couple of general rules (although there really should not be any of these)

- Rainforest fruits are ripe over winter for example the Lilly Pilly,
- Berries on plants growing in drier areas tend to be ripe over summer for example Sarsaparilla (*Smilax sp.*), Flax lily (*Dianella sp*) and Raspberry (*Rubus sp.*).

Pods and Capsules

- If it flowers in late winter or very early spring it will probably be ripe early summer. Examples are Coast wattle (*Acacia longifolia subsp sophorae*), False sarsaparilla (*Hardenbergia violacea*) and Sunshine wattle (*Acacia terminalis*). One exception is Austral indigo (Indigofera australis) which flowers in late winter and is not ripe until mid-late summer.
- If it flowers later in spring it will be ready in late summer for example Black wattle (*Acacia mearnsii*) and Bitter pea (*Daviesia sp*).
- Plants with paper capsules may flower in summer and be ready in autumn or very early winter for example Native mint (*Prostanthera* sp). Some wattles may flower late in summer and not be ripe for a year- this is not common, but includes plants such as Hickory (*Acacia implexa*).

Daisies and other packed seed heads

- Most of these will have ripe seed in summer. Some weedy daisies may have ripe seed in all months but the coldest.

Grasses and Sedges

- Most grasses will be ripe in from mid to late summer. Some grasses like Weeping grass (*Microlaena stipoides*) can produce seed very quickly after rain if the weather is warm enough and will therefore produce seed in all but the coldest months.
- Most sedges also produce ripe seed in summer. Mat rush (*Lomandra longifolia*) is generally ready in late summer with ripe seed resembling rice and is housed in a capsule which splits when ripe.

Is this seed ripe?

- Woody-fruited species such as Eucalypts, Melaleucas and Hakeas should have that dry sunburnt look. The capsules will become harder as they ripen.
- Seeds enclosed in soft fruits are ready when the fruit changes to the ripe colour and softens. This varies with individual species.
- Seeds enclosed in pods are ripe when the pod becomes brittle and starts to split. This has to be watched carefully as many species open and shed seed quickly, especially in hot weather.
- Grasses and sedges also undergo a colour change. The seed will become larger and hard to compress; ripe seed often falls off when you run your hand up the flower head.
- Compound seed heads such as those found on daisies are ripe when they start to break apart and become loose.

Harvesting

There are many tricks and methods to harvesting seed. It is a good idea to keep a record of what methods you use and how successful they were for different plants.

- Secateurs can be used to cut off fruiting bodies on grasses and compound seed heads.
- Running your hand gently up the flower head will release ripe grass seed and leave the unripe seed for nature or later collection.
- Remove smaller branches or individual fruits for the woody fruit species. Trim leaf material off before placing in collection bags. Taller trees can be difficult and options include extendable pole pruners, shooting, or using a cherry picker.
- Pods can be pulled off by hand or cut off using extension handled secateurs for taller plants. Tarps and traps can be used, though these are usually used for large collections only.
- As many peas open explosively whilst on the plant yet refuse to open when picked it is a good idea to use old stockings gently pulled up around fruit bearing branches to catch seed. The light and air can still get to the pods to keep the ripening process going yet you will not have to sweep seed up off the ground or manually pick open pods.
- Once again think safe. Watch for fallen branches that may be just trapped in the canopy.

Preventing the Spread of Plant Disease

- Avoid spreading disease between plants on secateurs and other tools, dip secateurs in methylated spirits between use on different plant species or the same species in different areas.
- If a limb must be removed from a tree to collect seed ensure that this is done with the least possible damage to the tree. Use sharp saws to make cuts cleanly and if possible treat the cut surface to prevent the entry of pathogens. This is why pulling or shooting limbs from trees are not good options for parent tree health.

Transporting Collected Material

- Use material (hessian/calico) or paper bags as plastic "sweats" causing fungal growth on fruit. Plastic bags may be used if it is all that is available, leave out of the sun with the top open and transfer out of plastic as soon as possible.
- Label the collection with the date, species name, and location of collection, number of plants sampled, name and contact for collector. Give it a collection number, eg your initials and a number.

Identification of species

- Unless you have definitely identified the species collect a specimen for later identification. A specimen should include as much information on the plant as possible, fruit, leaves, flowers, bark and a written or photographic description. Give your specimen the same number as the collection number.

Post Harvest

Drying seed (woody fruits, pods and grasses)

- Many home collectors dry seed in warm rooms, near heaters or on sunny windowsills in paper or material (calico) bags or in open dishes.
- Banksia species may require heating in a fire or oven (seek advice for this).
- Grasses and sedges can be laid out on tarps to dry. The seed heads can also be left in the material or paper collection bag to dry but make sure they are not tightly packed or they may not dry.

Extracting seed

- Many pea pods can open explosively sending seed in all directions, eg Hardenbergia, Kennedia and Indigofera. Place closed paper bags of seedpods in the sun to hasten the opening yet contain the released seed.
- Wattle pods can be left in the sun on a large tarp to open and release seed. Keep them out of the wind and rain. After all pods are open give them a shake and clean through a series of sieves.
- Once dry and open, woody capsules will need a good shake followed by sieving to separate seed from the trash.
- Papery seed covers may need to be physically rubbed off. Often it is effective to rub capsules through a coarse sieve. Rubbish can be 'winnowed' off by blowing gently, the light capsule will blow away and the heavier seed stays put.
- Soft fruits can be fermented for a couple of days then rubbed to remove the flesh from the seed. Running water and a sieve may help this process.
- Remember there are many exceptions to these basic rules: try experimenting and read up in the suggested reading for more ideas.

Seed Storage

- Store seed in airtight containers, jars, bottles, and plastic bags.
- Eradicate as much air from the storage container as possible. With plastic bags this is achievable, if using solid containers choose the right size for the seed lot.
- Keep seed in cool, dark and dry conditions. The Community Seedbank uses a dry refrigeration unit to store seed. Some seeds become dormant in the cold and need to be taken out for a period of time prior to germination, this includes some grasses.
- Label your seed. Label the stored seed with all the collection details including the collection number. Label the outside and use a tag on the inside of the container.

Resources

- Try exploring with your favourite search engine entering plant's botanic name + seed collection or seed germination
- *Botanic Gardens* websites, such as:

  www.anbg.gov.au

  www.plantnet.rbgsyd.nsw.gov.au

- *FloraBank*

  www.florabank.org.au

Further Reading - Just a start

Bonney, N.B., (1995), What Seed is That? A field guide to the identification, collection and germination of native seed in South Australia. Finsbury Press Pty. Ltd.

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