

Pimelea spinescens Recovery Team

Coordinating the recovery of Spiny Rice-flower (subsp. *spinescens*) & Wimmera Rice-flower (subsp. *pubiflora*)

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Seed Collection Protocol v5/2018

Before collecting seed from any native species, please contact the Department of Environment, Land, Water and Planning (DELWP) to obtain the required permits. Seed collection may require a permit under all or any of the Federal EPBC Act, Flora and Fauna Guarantee Act and planning schemes. When planning your seed collection, determine which permits may be needed and allow sufficient time for them to be issued.

Background

Pimelea spinescens sbsp. *spinescens* (Spiny Rice-flower) generally flowers between the months of May and August. At sites around Melbourne, flowers and seed have been seen as early as April. Soon after flowering commences the ovary of female flowers starts to swell and the seed begins to develop (Figure 1A). Over time the seeds become a brown colour (Figure 1B) and sometimes, in high-rainfall seasons, they may become white (Figure 1C). Depending on local conditions and if the plant is observed to have seed, late July to August is the best time to start the seed harvesting process. This time frame will vary depending on the local conditions (rainfall, temperatures) and should be used as a guide only.



Figure 1A - Developing seed, photo taken early May.

1B - Older seed, photo taken mid-August.

1C - The drupe fruit form of seed, photo taken in early October.

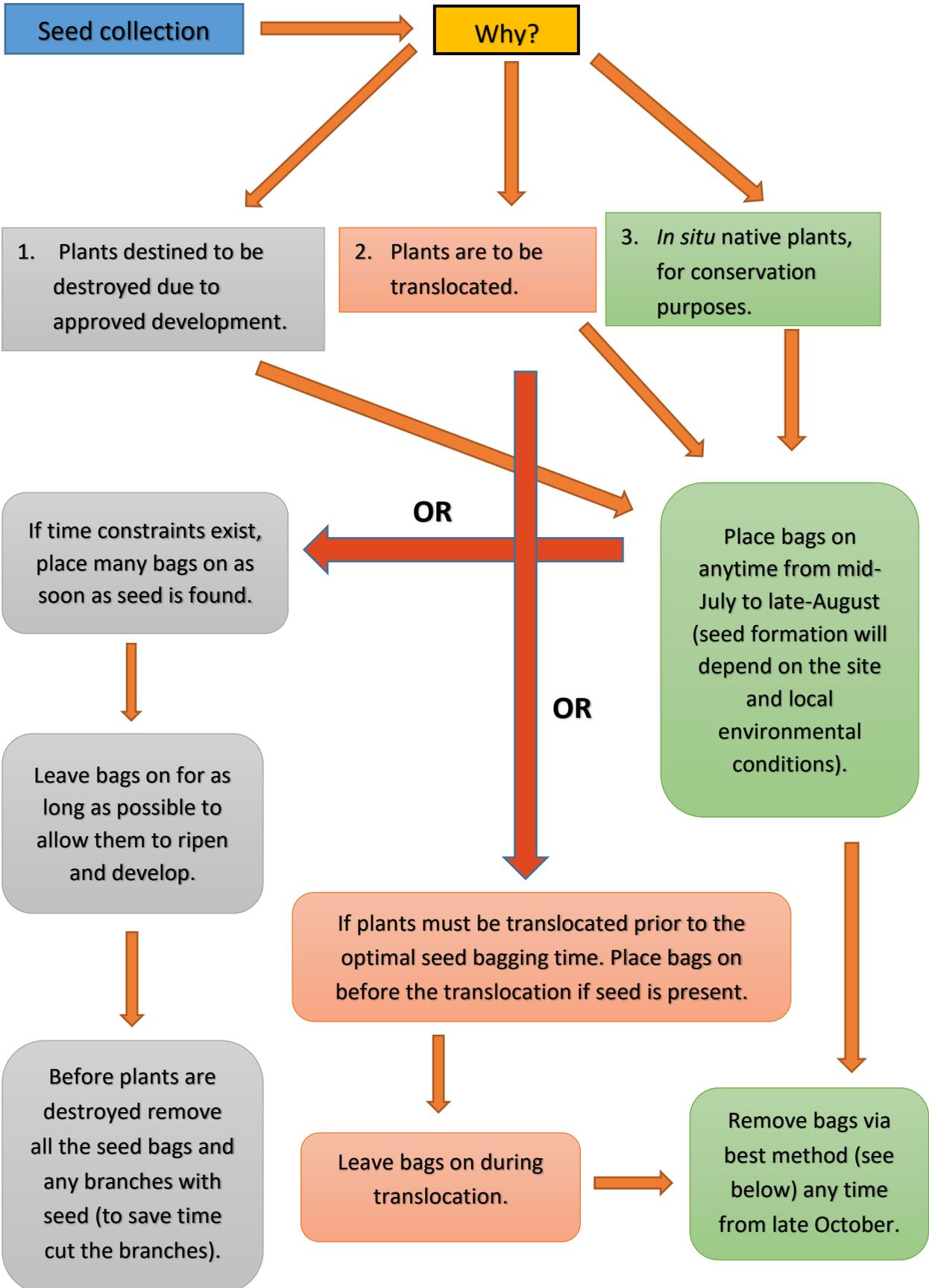
The method of seed collection is determined by the reason for seed collection. See the flow diagram on page 2 for the recommended steps during the seed collection process depending on the reason for its collection.

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Optimal method of seed collection for *In situ* plants

Choose a predominantly female plant that has been well pollinated and appears to have individual branches with copious amounts of seed developing on them. This ensures the effort put into harvesting the seed yields the greatest return. This will obviously depend on the size of the population and availability of female plants (Figures 3 & 4).



Figures 3 & 4 Ripening seed, ready for the harvesting process.

Cut the legs off a pair of stockings into lengths that will cover a branch or multiple branches of a single plant. Tie a knot at uppermost end of the cut stocking length and place the open end over the branch. Stockings make the best bags, but you can use any material as long as it is breathable and practical to work with. For example, gauze may also be suitable. Organza pouches with drawstrings, such as those used for wedding 'bonbonnières' can be a good (and economic) option.

Using plastic coated wire/string/wool to tie-off the open end at the base of the branch or at a convenient location to capture the largest amount of seed possible (Figures 5 & 6).

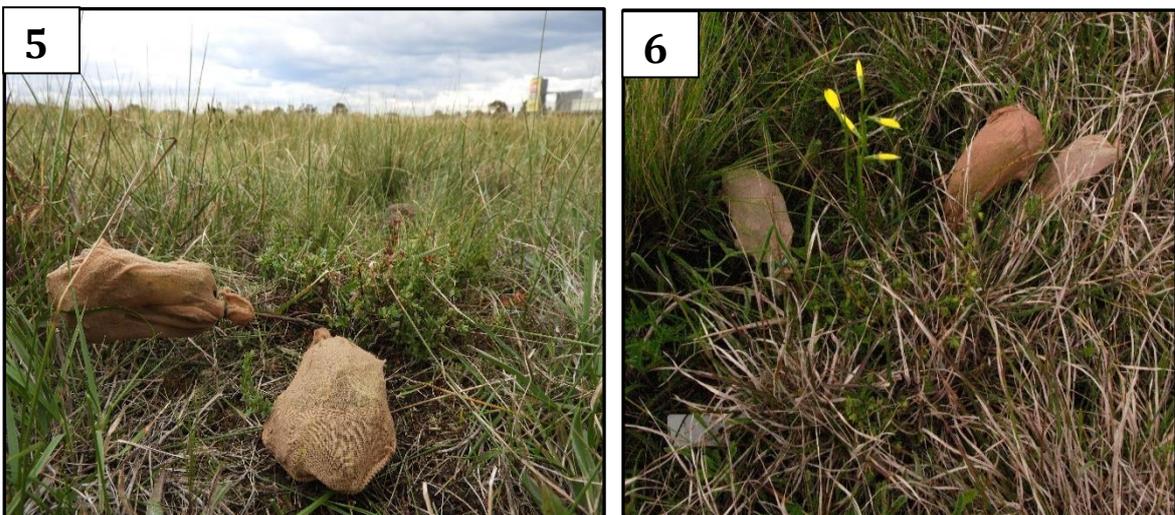


Figure 5 & 6 – Stocking seed collection bags on *P. spinescens* in the field.

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This method allows maximum harvest with the lowest input of labour as the stocking will catch all the seed that falls from the covered branch. The stocking material provides enough air movement around the seed to avoid rot or mould developing on the seed. However if heavy rainfall occurs between applying the stockings and harvesting, it is best to check the stockings for a build-up of moisture amongst the fallen seed and leaf litter.

Allow at least four to six weeks before returning to the plants to harvest. The seed will naturally fall off the plant as warmer weather occurs. By mid-October to early November, all of the seed should have fallen (depending on local environmental conditions).

Depending on the size of the population, the size of the harvested plants and the fate of the population (e.g. is it being destroyed for industrial development), use discretion in regards to the way the seed is collected from the stocking. Recommendations regarding timing and methods for these situations are:

1. Plants unlikely to be salvaged

Place many seed collection bags on at the recommended time or whenever seed can be found on the plant. Try to collect as much seed as possible (though seed collection permits recommend only 10%) as this is likely to be the last chance to collect this plant's genetics. Leaving the bags on the plant as long as possible will ensure that the seed has ripened to a viable stage. To remove the seed bags, the easiest and quickest collection method is to remove the branch from the plant using secateurs with the stocking still tied to it, and the seed/stocking can be emptied into a paper envelope or calico bag for short-term storage.

2. Plants destined to be translocated

Place seed collection bags on at the recommended time or whenever seed can be found on the plant. If the translocation is likely to occur before the optimal timing recommended to remove the seed bags, leave the seed bags in situ during translocation and remove during the optimal timing period.

Seed harvesting methods

The first method of seed collection involves a repurposed ice-cream container with a split cut into it at one end (Figures 7 & 8). Branches with the *in situ* seed bag can be slid into the slit, resting in the slightly larger circle opening at the end. The bag is then carefully opened allowing the seed to fall safely into the container. Harvested seed should then be placed into a paper bag labelled with species, collector, date, site and plant ID (if it has a discrete ID tag).



Figure 7 & 8 – Using a container to harvest seed from *P. spinescens*.

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The second method of collection involves undoing the tie while holding an envelope, calico bag or paper bag underneath the stocking to catch the seed.

These methods ensure that the plant is not damaged, with usually the only side-effect being a small amount of defoliation to the covered branch.

As a general rule of thumb, no more than 10% of the seed from a population should be collected. Again, this may vary depending on the longer term fate of the population or as specified in the conditions of the seed collection permit.

Also, it is important to collect from as many clearly separate plants as practicable and possible from across the geographic spread of the population, rather than focusing your efforts on a small cluster of plants. This ensures that the highest level of genetic diversity is sampled in the seed stock collected.

Ensure that the plants intended for harvesting are temporarily marked in some way to ensure the plants are easily identified upon return to collect your harvest. Pin flags or attach flagging tape has proven to be sufficient previously (Figure 9 & 10).



Figure 9 & 10 – Pin flag and tape marking of *P. spinescens* in the field.

Be wary of collecting from sites that may be subject to grazing by domestic stock, or from roadsides where stock movement is a regular occurrence. Sheep and cattle may remove or tear the stockings, trample the pin flags and the plant you are collecting from (Figures 11 & 12).



Figure 11 & 12 – Ripped stockings caused by cattle browsing.

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Seed storage

When collecting seed in the field placing it in paper bags is the best method for storage of seed from different plants and sites. Label each bag including the species name, date, collector, plant ID number (if it has one) and site/location. For both short and long term storage it is advisable to:

- Keep the seed dry, avoiding storage options which retain moisture and areas high in moisture.
- *Pimelea spinescens* seed would naturally be exposed to high temperatures over the summer period, therefore a warm environment would not be detrimental.
- Ensure that the storage conditions do not harbour insects and if in doubt place insecticides (moth balls or pest strips) in the storage container with the seed batches.

Seed has been germinated up to six years after collection.

Always ensure that proper approval has been obtained, including relevant permits and landholder permission. A related translocation, introduction or augmentation plan should always be produced before seed collection begins, outlining the purpose and intended outcomes of collecting *Pimelea spinescens* seed.



Figure 13 - Collected seed at the end of the harvesting process.

Photos 1A, 1B, 1C, 5, 6, 7, 8, 9, 10 & 13 were taken by Debbie Reynolds.