



WORKING BEE REPORT February 2-4, 2018

FRIDAY, February 2

A relatively late start for the core team this month. Liz, Carolyn, Chris and Peter arrived mid-afternoon. Carolyn and Liz did a site visit to see what seed was available for collection and to check the status of plants and weeds. It was disappointing to see so many 50-70 cm *Acacia cyclops*, the feral wattle from WA. We haven't had a cyclops blitz for a while, so that will have to be on the agenda soon. Plants were faring quite well give the lack of rain. Muntries fruit (*Kunzea pomifera*) was prolific this year.



Liz checking out one of the mature muntries plants along the Heysen Trail. Note the pesky *A. cyclops* bottom right. This one was too big for hand pulling so we will need to go back with loppers. We don't carry loppers on these site visits or we would spend all our time "cycloping" and not planning.

SATURDAY, February 3

Weird to not be getting all the 'on ground kit' together in the morning. Usually it's pack the car with brush cutters, PPE, gloves, water, loppers, etc etc. This time it was computer, data projector, and other stuff for our workshop "Start with grasses and saltbushes! Direct seeding using a ground up approach". The workshop was presented by experienced restoration ecologists Briony Horner and Glenn Christie from Succession Ecology (<http://www.successionecology.com.au>).



We learned about the importance of understory plants, such as grasses, salt bushes and daisies, which account for 80% of the plant species in a healthy, functioning ecosystem. A rich understory is correlated with high biodiversity and provides food, shelter, space and reproductive opportunities for a variety of animals and insects. Here are just a few examples of the insects we have seen while out seed collecting in preparation for our trial of direct seeding of understory plants.



Just a few of the bugs we have found while out seed collecting. A beetle (on knobby club rush, *Ficinia nodosa*), a weevil (on sea-berry saltbush, *Rhagodia candolleana*) and a yellow spider (knocked out while collecting seed from claspng goodenia, *Goodenia amplexans*).

The workshop had booked out quickly and we had a great turnout with participants from groups across South Australia including Friends of Onkaparinga Park, Friends of Newland Head, COOTS (Conservation of our Threatened Species/Australian Plant Society), Second Valley Environmental Group, Permaculture SA, Cape Jervis CFS/Cape Jervis Coastal Community Club Committee), Friends of Dry Creek Trail, Hindmarsh Island Landcare Group and of course CJCCG. The morning was spent with a presentation from Briony and Glenn, with lots of questions from the audience. Morning tea and lunch gave the participants a chance to network, and it's always amazing to see the buzz in the room at these events.

Briony and Glenn shared examples of their recent experience of direct seeding at iconic sites such as Monarto Zoo, Inkerman Landfill and Port Augusta. The key to success of this ground up approach is that the seed mix (up to 20 + different species) includes a mix of coloniser, builder and climax species. Ideal coloniser species will grow and set seed rapidly, often producing seed more than once per year, and therefore they can effectively compete and smother any weed seeds that germinate. One particularly promising example was at Inkerman where Ward's weed was pushed out within two years, using a mix of 2/3 *Austrostipa* spp (spear grasses) and 1/3 *Rytidosperma* spp (wallaby grasses).



After lunch we car-pooled down to the Coastal Display Garden / Lower Loop / Ferry Terminal / start of the Heysen Trail, for a demonstration of seed collection on a grand scale.



A few of the participants had their first taste of muntries. It's one of the under appreciated bush foods, that tastes great straight from the bush. One day this spicy apple tasting berry will be an "everyday" fruit on the shelf.



No more hand collecting a few seed into a small paper bag! When you need the equivalent of 20 kg per ha (or 2 g per m²), what you need is a plastic rubbish bin lid and a broom head to whack the seeds off the plant.



Here is some of the feedback to our open question via Survey Monkey “What were the best aspects of the workshop”?



“Information content. Samples of seeds that were distributed for a close look. Well organised & a friendly atmosphere”

“openness, team presentation, food”

“Clear but concise explanations of principles and practice by presenters, and their willingness to share their knowledge”

“learning planting lots of trees is not the answer to reveg but the ground cover that is most important.”

“I firmly believe in the concept that was discussed, and will definitely put it into practice. These workshops are very valuable source of information, and to hear other people’s experiences are quite rewarding. Keep the workshops happening.”

Special thanks go to Moira Knight and team from the Cape Jervis Community Club for allowing us to use their wonderful venue and organising excellent catering – as always. We also thank Natural Resources Adelaide and Mount Lofty Ranges for providing us with the grant funding and additional funds to cover the costs of this workshop.

Now all we have to do is prepare a site by removing all the weeds, and collect, clean and sow the seed. A summary of the main points of the workshop will be provided at the end of this report.

SUNDAY, February 4

Up early and the car packed with stuff for seed collecting, slashing and general site maintenance. Liz elected to walk to the lower loop / coastal display garden and to pick muntries on the way. Lots of bending to get that much seed for our “ground up” direct seeding trial. What a sweet smell in the bucket too!



Chris started removing tree guards and Pedro watered the very thirsty plants. A few casualties after the long summer, but most of the 2017 seedlings were hanging in there. Carolyn started brush cutting to remove scabiosa around the “base of the knoll”, which was selected the previous day as a good place to try the direct seeding. Clearing the weeds is a necessary part of preparation prior to direct seeding.



Unfortunately the brush cutter got a weird wobble and attempts to fix the problem failed. It was due for a service anyway, so that will make sure it goes back to Adelaide for its service. Carolyn switched to helping Liz with the seed collecting and they were soon joined by Claire and Jess. Some of seed collecting was easy, but collecting the summer active grass, *Setaria constricta*, was more time consuming as the seeds lie flat across the plant at ground level. Our allotted 3 hours went very quickly and it was soon time to pack up.

As always we meet a few of the local critters. The bearded dragon was sunning itself against one of our wire cages (we had a similar photo last year!), and Liz found this moth on her snake gators.



ERRATA: Thanks Corey Jackson for spotting the error in our December 2017 report, and reading through to the end of the report! Carolyn apologises for the brain fade when putting the finishing touches on the report.

See below for correct matching photos and names of these lovely daisies.



Common Yellow Button
Chrysocephalum apiculatum (above)



Satin Everlasting
Helichrysum leucopsideum (above)

**Notes from “Start with grasses and saltbushes!
Direct seeding using a ground up approach” Workshop**
(draft – Carolyn’s notes – apologies for errors of act and typos!)
Held 3 February 2018

Presented by experienced restoration ecologists Briony Horner and Glenn Christie from Succession Ecology. Workshop covered direct seeding to create sustainable, resilient plant communities, including: theory and design; collecting and cleaning seeds efficiently (grasses, chenopods and other species). site preparation and sowing; follow-up maintenance

Success story – one of many

- Inkerman site, with mix 2/3 *Austrostipa* and 1/3 wallaby grass, sown at 20 kg/ha, Ward’s weed was pushed out within 2 years.

Why it’s important

- understorey represents 82% of the plants in a healthy ecosystem, and provide key “ecosystem functions”
- rich understorey is correlated with high biodiversity
- provide food, shelter, space and reproductive opportunities for animals/insects etc.

Plants to start with

- grasses and chenopods (saltbushes etc) as these are the colonisers of arid areas and cover the ground quickly
 - in higher rainfall areas would be (peas eg *Kennedia*)
 - other good species for arid areas include daisies (*Vittadinia*)
- Looking for plants that cover the ground quickly
- rapid cycling with seed set in 4-6 weeks (eg *Chloris* (4 weeks) and pop saltbush, 6 weeks)
- Include mix of all seed from “colonisers” (eg *Austrostipa* spp), “builders” (wallaby grass) and “climax phase” (*Themeda*) plants
- Can include small acacias, eg *A. cupularis* (no more than 0.5% weight) and larger *A. sophorae* (0.05 to 0.1% by weight).

Aids for seed collection

- Wacking seed into a big plastic bin (or bin lid, or large paper bag)
 - use Tennis racquet, or dust broom
- Grass seeds can be collected using a converted lawn mower with BMX wheels
- Grass grabber good for *Austrostipa*)
 - <http://grassgrabber.com.au/grass-grabber.php> cost \$ 5000

Site and seed collection / preparation

- **Site** – Weed removal (burns and/or 1-2 sprays – depending on the site)
 - ideal to remove the biomass (this is where burning can be useful)
 - don’t do patches – do the largest area for the available seed
 - patches are issue for weed invasion
- Seed is dried (and “mulched” for some), then blended together in tumble type compost bin
 - seed does not need to be ultra clean – extra plant matter provides compost / helps improve soil structure
- Check seed for viability using a cut test

- use plant snips to test seed before collecting if possible (a new skill that needs developing – and a good eye)
 - white inside = really good.
 - yellow = may or may not be OK
 - grey / black – bad
- Can dry seed
 - in a hot house / polytunnel
 - in paper bags clipped to ropes in roof of shed
 - turning daily is important if working with large volumes of seed – don't let things rot.
 - don't want too dry
 - can use bicarb or silica gels (with colour indicators) to keep seed dry
- Cleaning seed – where required (eg for sale / high purity)
 - winnowing with a fan
- Storage of seed – cool temperature – old fridges can be good
- If adding *Acacia* seed (remember < 0.5%), can scarify first, but will tend to germinate over several years anyway.

Sowing

- Sowing – need lots of seed ($\approx 20 \text{ kg / ha} = 2 \text{ g / m}^2$)
 - can hand distribute seed
- Need to disturb the soil in some way (eg disc seeder)
- Can turn in with
 - a power-rake
 - prickle chain
 - hand rake
- **Contact between soil and seed critical for success**
- Need to firm seed into soil, aka walk back and forth over area to ensure good contact between seed and soil
 - not too firm, can use water filled rollers
- If working on a slope, sow more heavily at the top

Timing

- sow in autumn while soil is still warm, winter is too cold/slow germination

Maintenance / follow-up

- Come in later to sow the rarer plants
- wick wiper / boom on quad bike
- Important to know what weed and native seedlings look like at the juvenile stage

Other tidbits

- *Themeda*, cut off stems with ripe seed heads and lay on ground where you want them as a mulch (Bob Myers / John Stafford) – cool fire may also assist germination

List of species mentioned as being suitable during the talk

	NOTES
Atriplex spp	
Chloris	mulch the seed ^a
Clematis	keep tails on seed (helps germination?)
Dianella	rot fruit/seed (whole head)
Enchylena	just dry the seed
Enneapogon	a colonise
Ficinia	
Goodenia amplexans	
Goosefoots	
Hardenbergia	
Kennedia	
Kunzea pomifera	just dry the seed
Logania	
Leucaphyta brownii	
Leucopogon	
Maireana brevifolia	really low viability (or longevity?)
Oleiria	
Nitraria	dry with flesh on (more of a climax species). Max of 1% in the seed mix To increase germination of Nitraria for tube stock, can try increasing salt levels in the water (Peri Coleman), or germinate in a black bag ^c .
Rhagodia	just dry the seed
Threlkedia	
Vittadinia	

^a information on mulcher – not a blade type – need more info from Briony (eg model number and any modifications)

^b To rot fruit/seed, place whole seed heads in a barrel with water, and can leave for several months, outside. Suitable for Dianella, Leucopogon.

^c Black bag germination. Can try for recalcitrant seed also (eg Lepidosperma – not worth putting in the mixes)