



Description

Native grasses and plants are a key component to a healthy, functional vegetation community and provide protection to the soil while reducing the potential for weed invasion. On land where grazing, vehicular traffic and development have a high impact, native vegetation vanishes in the process. This leaves the soil bare and prone to erosion and invasion by weeds.

Application and Function

Native vegetation communities provide food and shelter for native animals and birds as well as protecting the soil from erosion.

To restore vegetation to a site, the ideal choices are:

- The species that grow in the surrounding areas or what grows on similar sites.
- Grasses from which you can get seed (i.e. are there any existing stands to harvest?).

Due to the lack of commercial supply, seed must be collected from naturally occurring stands. Keep in mind:

- That most seed is produced following summer rain.
- Ensure you get mature seed; harvest when some seed is just beginning to drop from the plant.
- Seed drop usually begins about one month after seed heads begin to develop.
- Harvesting seed by hand is a simple matter of pulling seed heads off the stand.
- Collect as clean a sample as possible to avoid the need for seed cleaning.

Examine a sample of the seeds for seed fill. Pull the outer layers away and see how many have a small hard grain inside (some may have more than one) usually this is good viable seed. If seed is to be stored, ensure that:

- If the freshly harvested seed is moist then spread it out in an open area for a few days to air dry.
- It is stored in a cool, dry area.
- It is stored in a container or bag that allows some air movement.

The ability of most native grass and plant seed to germinate improves during storage over the first one to two years. After about four years storage the seed quality begins to decline.

When sowing, it is best to use seed that is at least a year old due to fresh seed having a high

dormancy rate. When determining sowing rates, it is tempting to spread seed thinly to make it go further. However, in the field, only a very small percentage of seed will successfully germinate and establish.

Some seed will require treatment to assist in germination. Further information can be obtained from Greening Australia Northern Territory.

The key requirements for sowing are:

- A sowing depth of 5-10mm.
- A close seed-soil contact.
- Hand broadcast seed onto ripped, cultivated soil and lightly cover seed with a rake or mesh towed behind a vehicle.
- Agricultural seeders can be used to sow seed, but check that the sowing depth is in the 5-10mm range.

Seed germinates during the warmer months. The best time to sow is just before rain during warmer months. Based on historical rainfall data the best time to sow is:

- November in the arid regions.
- September in the semi-arid regions.

If sown seed can be irrigated by sprinkler, the chance of success is greatly improved. Germination usually occurs within eight days of rain if the following conditions are present:

- Healthy seed.
- When the soil remains wet for three or more days.
- Warm soil which is why germination is restricted to the warmer months.

Not all of the seed germinates when the right conditions arise, some will lay dormant in the ground until next time. This is the seed's natural defence against false starts, because it ensures that if the first seedlings do not survive then there are more seeds ready to germinate when the right conditions arise again. Keep in mind that:

- High seedling death is normal for the first few weeks.

Limitations

Certain native species have specific soil, nutrient and water requirements. Depending on the location of the land, the amount of available water and/or rainfall, the choice of species may be limited.

Advantages

Vegetation is the cheapest form of protection against soil erosion. Vegetative cover and surface litter absorb energy from raindrops, thus reducing the amount of splash (raindrop) erosion. Vegetation also reduces the direct contact between raindrops and the soil. Having a good cover of vegetation reduces the susceptibility of soil to wind erosion and enhances the infiltration of water.

Alternatives

Some introduced species of grasses and plants grow surprisingly well in the arid zone and have been used successfully in dust suppression and erosion control projects. Be careful not to plant species that are recognised weeds or are likely to become invasive (e.g. Athel Pine, Mossman River Grass, etc). If you are not certain about a particular species speak to your Regional Weeds Officer.

Maintenance

The success of revegetation, using native grasses and plants, is dependent on root development before a dry period. To maintain the vegetation ensure that:

- Grazing by feral animals (e.g. rabbits, camels), is controlled.
- Grazing by livestock should be deferred until after the first growing season when the plant has produced seed.
- The first grazing should be light.

Unfortunately, there is no guarantee of success where re-seeding in arid areas is concerned. Maximise opportunity for success by selecting the right grasses and plants, sowing good seed, and paying attention to details like sowing depth.

When the right rainfall is received germination will most likely occur and over time healthy and persistent native grasses and plants will establish. Sensible management will allow the established stand to persist and spread.

The attached lists have been prepared from a variety of sources to aid in the selection of species of native grasses and plants suitable for Central Australian conditions.

Contact details

For further information contact the DLRM Land Management Unit in your region. Additional Technical Notes and Erosion and Sediment Control Guidelines are available on the website: <http://www.lrm.nt.gov.au/soil/management>

Land Management Unit - Rangelands Division

- Darwin:** Phone (08) 8999 4572
Level 3, Goyder Centre,
Palmerston
- Katherine:** Phone (08) 8973 8838
32 Giles Street, Katherine
- Alice Springs:** Phone (08) 8951 9208
Tom Hare Building, Alice Springs

**PERFORMANCE OF NATIVE GRASSES
USED IN RE-SEEDING TRIALS IN CENTRAL AUSTRALIA**

SPECIES	SEED COLLECTION	GERMINATION & ESTABLISHMENT	PERSISTENCE	POTENTIAL FOR USE IN RE-SEEDING PROGRAMMES
Barley Mitchell Grass <i>Astrebla pectinata</i>	★★★★★ Grows in large open stands. Ripe seed retained on plant. Seed easily removed.	★★★★★ Seed germinates readily. Not too sensitive to sowing depth. Seedlings are hardy.	★★★★ Plants tolerate dry conditions and mature rapidly.	★★★★ Broad application on heavy soils.
Desert Blue Grass <i>Bothriochloa ewartiana</i>	★★★ Dense stands in open areas can be found. Ripe seeds drop rapidly.	★★★★ Seed quality is sometimes poor. Good seed germinates readily.	★★★★★ Seedlings are very hardy. Mature plants are drought tolerant.	★★★★ Broad application on heavy soils. Poor palatability may be an inhibiting factor.
Native Millet <i>Panicum decompositum</i>	★★★ Large pure stands uncommon. Seed easily removed, but cleaning required.	★★★ Germinates readily. Seedlings grow rapidly, but will not tolerate dry conditions.	★★★ Will form dense stands, but requires favourable conditions to persist.	★★★ Good in a mix with more persistent grasses.
Native Oatgrass <i>Enneapogon avenaceus</i>	★★★★ Grows in large open stands. Timing of harvesting is important because mature seeds drop rapidly	★★★ Seed fill is often poor. Seedlings will tolerate dry conditions and mature rapidly.	★★ Normally behaves as an annual, but may persist longer under favourable conditions.	★★★ Especially useful on sandy soils, but poor persistence is a problem.
Queensland Bluegrass <i>Dichanthium sericeum</i>	★★★ Timing of harvest is important because mature seeds drop rapidly. Does not occur in large stands.	★★★ Germination is sometimes poor. Seedlings will not tolerate dry conditions.	★★★ Requires favourable conditions to persist.	★★★ Useful in a mix with more persistent grasses.
Windmill Grass <i>Oxychloris pectinata</i>	★★★★ Occasionally occurs in dense pure stands. Seed is easily removed. Seed forms dense clumps which makes handling difficult.	★★★ Germinates readily. Matures rapidly.	★★ Short lived annual. Spreads rapidly.	★★★ Useful on hard-setting scalds where it establishes readily. Good in a mix with more persistent grasses.
Curly Windmill Grass <i>Enteropogon acicularis</i>	★★ Seed difficult to remove. Does not occur in open stands.	★★★ Germinates readily. Most seedlings die.	★ Plants do not persist.	★★ Seed availability and high death rate of seedlings are major constraints.
Silky Brown-top <i>Eulalia aurea</i>	★★★ Grows in pure open stands. Timing of harvest is important because mature seeds drop rapidly.	★★ Seed fill is often poor. Good seed germinates readily. Most seedlings die.	★★ Established plants will persist, but only at wet sites.	★★ Poor seedling survival, but may find use at wetter sites.
Cotton Panic <i>Digitaria brownii</i>	★★★ Seed is easily removed from plants. Open stands are uncommon.	★★ Seed does not germinate readily. Most seedlings die.	★ Poor persistence.	★ Establishment rate is very low.
Woollybutt <i>Eragrostis eriopoda</i>	★★★ Grows in pure open stands. Seed often needs cleaning.	★ Seed is very difficult to germinate.	★ No persistence	★ Germination is too difficult.

★	Very Poor	★★★★★	Good
★★	Poor	★★★★★	Excellent
★★★	Reasonable		

NATIVE PLANTS OF CENTRAL AUSTRALIA

ON THE PLAINS

Trees

<i>Acacia aneura</i>	Mulga
<i>Acacia estrophiolata</i>	Ironwood
<i>Acacia kempeana</i>	Witchetty Bush
<i>Atalaya hemiglauca</i>	Whitewood
<i>Corymbia opaca</i>	Bloodwood
<i>Corymbia papuana</i>	Ghost Gum
<i>Eucalyptus microtheca</i>	Coolibah
<i>Grevillea striata</i>	Beefwood
<i>Hakea eyreana</i>	Forkleaf Corkwood
<i>Hakea leucoptera</i>	Needlebush
<i>Hakea suberea</i>	Longleaf Corkwood

Shrubs

<i>Atriplex nummularia</i>	Old Man Saltbush
<i>Dodonaea viscosa</i>	Sticky Hop Bush
<i>Grevillea winpara</i>	*
<i>Grevillea olivacea</i>	*
<i>Senna artemisioides</i>	Silver Cassia
<i>Vitex purpurea</i>	*

ROCKY GROUND OR ROCKY SLOPES

Trees

<i>Acacia aneura</i>	Mulga
<i>Acacia kempeana</i>	Witchetty Bush
<i>Acacia pendula</i>	*
<i>Atalaya hemiglauca</i>	Whitewood
<i>Corymbia opaca</i>	Bloodwood
<i>Corymbia papuana</i>	Ghost Gum
<i>Eucalyptus gillenii</i>	Mallee Red Gum
<i>Eucalyptus orbifolia</i>	Round-Leaf Mallee
<i>Eucalyptus sessilis</i>	Finke River Mallee
<i>Eucalyptus trivalvis</i>	Victoria Spring Mallee

* Not native to Central Australia

Shrubs

<i>Capparis spinosa</i>	
var. <i>nummularia</i>	Caper Bush
<i>Eremophila freelingii</i>	Rock Fuchsia
<i>Gossypium sturtianum</i>	Sturts Desert Rose
<i>Senna artemisioides</i>	Silver Cassia

REASONABLY SALT TOLLERANT PLANTS

Trees

<i>Acacia ligulata</i>	Umbrella Bush
<i>Acacia murrayana</i>	Colony Wattle
<i>Acacia pendula</i>	*
<i>Brachychiton gregorii</i>	Desert Kurrajong
<i>Eucalyptus gongylocarpa</i>	Marble Gum
<i>Eucalyptus intertexta</i>	Bastard Coolibah
<i>Eucalyptus gongylocarpa</i>	Marble Gum
<i>Eucalyptus intertexta</i>	Bastard Coolibah

Shrubs

<i>Atriplex nummularia</i>	Old Man Saltbush
<i>Callistemon</i>	Bottlebrush sp.
<i>Enchylaena tomentosa</i>	Ruby Saltbush
<i>Eremophila maculata</i>	Spotted Fuchsia
<i>Melaleuca armillaris</i>	*
<i>Melaleuca glomerata</i>	Inland Titree
<i>Melaleuca linarifolia</i>	*
<i>Myoporum acuminatum</i>	Boobiella *
<i>Senna artemisioides</i>	Silver Cassia

RIVERINE (WATER ACCUMULATION)

Trees

<i>Eucalyptus camaldulensis</i>	River Red Gum (See Picture 4)
<i>Eucalyptus microtheca</i>	Coolibah

Shrubs

<i>Melaleuca bracteata</i>	Black Titree
<i>Melaleuca glomerata</i>	Inland Titree

PLANTS FOR SCREENS AND WINDBREAKS

Trees

<i>Acacia aneura</i>	Mulga
<i>Acacia kempeana</i>	Witchetty Bush
<i>Acacia ligulata</i>	Umbrella Bush
<i>Acacia salicina</i>	Cooba
<i>Allocasuarina cunninghamiana</i>	River Sheoak *
<i>Eucalyptus mannensis</i>	
<i>Eucalyptus orbifolia</i>	Round-leaf Mallee
<i>Eucalyptus oxymitra</i>	Sharp-capped Mallee
<i>Eucalyptus sessilis</i>	Finke River Mallee
<i>Grevillea robusta</i>	Silky Oak *

Shrubs

<i>Acacia holosercea</i>	*
<i>Acacia iteaphylla</i>	*
<i>Acacia retinodes</i>	*
<i>Atriplex nummularia</i>	Old Man Saltbush
<i>Eremophila</i> sp.	Fuchsias
<i>Grevillea winpara</i>	*
<i>Grevillea olivacea</i>	*
<i>Melaleuca</i> sp.	*
<i>Myoporum insulare</i>	*
<i>Myoporum montanum</i>	*
<i>Senna desolata</i>	Grey Cassia
<i>Westringia</i> sp.	*
<i>Vitex purpurea</i>	*