



FREE!
Please take one

COOL desertSMART **MOB**
PowerWater

water wise

ACTION IN
CENTRAL
AUSTRALIA

* quick guide to water savings

Hardware	Action	Cost (without rebates)	Savings litres (L) per year	Savings (\$/year)
Showerhead	Replace old showerhead with water efficient model ¹	\$18 to \$100+	60,000L	\$65
Reused 2L water bottle	Fill and put in toilet cistern	Free	4,400L	\$5
Four minute shower timer	Reduce shower time from seven minutes to four minutes ²	\$5	30,000L	\$32
Shower level	Install instant on/off flick lever to turn off water during shower ³	\$55	9,800L	\$11
Hot water recirculation	Install a device that recirculates hot water so hot water is instantly available ⁴	\$500 to \$900	11,000L	\$12
Bucket	Use a bucket to catch cold shower water and put on plants	\$5	11,000L	\$12
Flow restrictors	Fit flow restrictor to taps ⁵	\$2	10,000L	\$11
Tap aerators	Fit tap aerators ⁶	\$8	10,000L	\$11
Dual flush toilet	Replace single flush toilet with dual flush toilet ⁷	\$150+	38,000L	\$41
Tap timer	Install tap timer on irrigation system ⁸	\$20 to \$100+	10,000L	\$11
Trigger nozzle	Fit a trigger nozzle to hose for garden watering/car washing	\$20 to \$50	4,000L	\$4
Washing machine	Replace top loader with water efficient front loader ⁹	\$500+	18,000L	\$19
Dishwasher	Replace old model with water efficient model ¹⁰	\$800	4,000L	\$4
Pool cover	Cover pool when not in use ¹¹	\$450	44,500L	\$48
Rainwater tank	Connect a 9kL tank and plumb into a toilet or hot water system ¹²	\$1,700	40,000L	\$43
NT approved greywater system	Divert greywater from laundry and shower to garden ¹³	\$3,000+	62,000L	\$67
Hose	Temporary greywater diversion from washing machine	\$50	13,500L	\$15
Lawn irrigation	Reduce irrigation to match lawn needs ¹⁴	Free	80,000L	\$86
Synthetic grass	Replace lawn with synthetic grass (savings exclusive of reduced fertilizer and mowing)	\$70/m ²	2,000L/ m ²	\$2/m ²
Irrigation	Remember to reduce in cool months ¹⁵	Free	75,000L	\$81

* Based on a three person household. Hardware installation costs not included. Costing quoted in September 2009 from Alice Springs retailers. Price of water is costed at \$1.079/kL (per 1,000L) as at 1 July 2010. Not all items listed are appropriate for all households. An average household uses 1,458L/day. Gardens use 950L (65 per cent of total daily household use).

1 Based on five minute showers and replacing 20L/minute shower rose with 9L/minute water efficient shower rose.

2 Using a 9L/min shower rose.

3 One minute/ day less water.

4 30L/day is wasted waiting for water to heat up.

5 Indoor tap use is 73L/day (5 per cent of total daily use). Flow restrictor reduces tap use by 40 per cent.

6 Indoor tap use is 73L/day (5 per cent of total daily use). Aerator reduces tap use by 40 per cent.

7 Single flush toilets use 12L/flush. Dual flush toilets use 4.5L/3L.

8 Saves 10 minutes of irrigation per week at 20L/ minute.

9 Old top loaders use around 150L/wash. Water efficient front loaders use around 65L/wash.

10 Dishes washed every day and 10L/wash 20L/wash saved with new machine.

11 7m x 4m pool, covered 50 per cent of the year. Annual evaporation 3175mm.

12 Roof area 200m².

13 Daily five minute showers with a 9L/min shower rose and four 65L loads of washing per week.

14 Lawn is 7m x 7m. Good existing sprinkler layout. Reduce from 3,650mm/year/m² to 2,000L/m².

15 Five cool months/year. 500L per day reduction.

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introduction

This booklet has been put together to show you some simple and effective ways to lower your water use, including ideas that have worked for members of desertSMART COOLmob.

Reducing your water use is not only good for the environment; it's good for your wallet.



act now!

desertSMART COOLmob surveys show that time is the greatest barrier to creating a more water-efficient home. But as they say, if you want something done, ask a busy person!



Water saving ideas are indicated by this icon. We have estimated how long each action will take.

where our water comes from

Alice Springs' water supply comes from the Roe Creek Borefield, 14 to 18km south of town. Eighty per cent of that water comes from the Mereenie Sandstone, the rest from the Pacoota and Shannon formations. These all lie within an enormous aquifer – the Amadeus Basin.

Since pumping at Roe Creek began in 1964, the aquifer has dropped from 90m to 150m below ground level – about one metre per year. If water use continues at the current rate, Alice Springs will need a new borefield in 20 to 50 years.

Before 1964, drinking water came from the Town Basin aquifer, which is still used for irrigating parks and ovals unless the water level drops below 8m.

In Tennant Creek, surface water is scarce so the town's water supply is drawn from a borefield at Kelly Well 20km south. Water was first found there in the mid 1800s when a stock well was dug for the Overland Telegraph Line.



how much water is left?

The Roe Creek and Rocky Hill aquifers have enough water to supply Alice Springs for 200 to 400 years depending on demand for water. However, as the water levels drop it becomes more expensive to pump it to the surface.

water and climate change

You might be surprised by the amount of greenhouse gas emitted:

- pumping water from 150m below the ground
- treating the water
- pumping the water 15km from Roe Creek Borefield to your home
- pumping and treating the resulting sewage.

In Alice Springs, this adds up to about 8,400 tonnes of greenhouse gas per year. That's 0.7 tonnes of greenhouse gas per house, equivalent to a 4,000km flight (close to a return trip from Alice Springs to Sydney).

So, saving water also helps combat climate change. It delays the need to drill new bores and helps preserve a finite resource for future generations.

water costs in central australia

Water is cheap in the Northern Territory (NT) – \$1.079 per kilolitre (kL) compared to \$1.87 per kilolitre in Sydney.

	Alice Springs (2008- 2009)	Tennant Creek (2008- 2009)	Broken Hill (2008- 2009)	Adelaide (2008- 2009)
Annual household water use	532kL	663kL	284kL	190kL
Daily household water use	1,458L	1,815L	778L	520L
Per person daily use	576L	457L*	391L	228L
Yearly household CO ₂ emissions for water supply	0.659 tonnes	0.681 tonnes [^]	0.549 tonnes	0.432 tonnes
Yearly household CO ₂ emissions – water and sewerage total	0.701 tonnes	0.693 tonnes [^]	0.604 tonnes	0.601 tonnes

National Water Commission (2010). *National Performance Report 2008–09: urban water utilities*, Australian Government Canberra. Power and Water Corporation, pers comm., June 2010

* Australian Bureau of Statistics population census data.

[^] (Approximate. Based on Northern Territory power generation average of 622 tonnes CO₂ emitted per gigawatt hour of electricity).

how much water does a waterwise house use?

It depends! Consider these desertSMART COOLmob homes...

Robbie's house in Larapinta has two adults and one baby (lots of nappy washing!) and a native garden. They use an average 480L per day.

Julia's house in Braitling has two adults and two kids. They have a small lawn, five fruit trees and a large native garden, they use an average 1,200L per day.

know your water use

Water is charged by the kilolitre (kL).

One kL = 1,000 litres (L) and takes up one cubic metre.



reading your water meter

Water meters come in a few shapes and sizes and can usually be found in the front corner of your property on the boundary line.

To read the meter:

1. Locate the water meter on your property.
2. Lift the protective flap. The engraved number on the metal casing of the meter is the meter serial number which identifies which property the meter belongs to. This number also appears on your water bill.
3. Read the meter dials from left to right. Generally, the kilolitre reading is shown in the first four numbers on the left and litres reading is the last four numbers on the right. Only kilolitres are used to read your bill.

1	2	3	4	5	6	7	8
Mega Litres	100s of KILO LITRES	10s of KILO LITRES	KILO LITRES	100S of LITRES	10S of LITRES	LITRES	TENTHS OF LITRES
BILLABLE DIALS							

For example, the dials above show that this household has used 1,234 kilolitres of water since the meter was installed.



Check your bills for the past year.

How much water do you use per day?

100 to 200L per person per day – excellent!

200 to 600L – good but there is room for improvement.

600 to 1,000L – you can probably make significant savings.

More than 1,000L...get set for huge water savings!

Use the quick guide to water savings table in the inside front cover to set some waterwise goals.

buying water efficient products



WELS stands for Water Efficiency Labelling Scheme. The WELS water rating label provides water efficiency information for water-using household products (i.e. taps, toilets). The label carries two important pieces of information to help you compare products – stars and water consumption or water flow figures. The more stars and the lower the number means the better the product. Compare products at www.waterrating.gov.au



SAWM stands for Smart Approved WaterMark. It is a voluntary label used on outdoor products such as pool covers or trigger nozzle hoses. It indicates that the product is water saving but does not give it a rating. For more information visit www.smartwatermark.org



WaterMark confirms that a product complies with the Plumbing Code of Australia. Products certified under the WaterMark scheme include innovative designs that are specifically aimed at reducing water usage.



rebates

Rebate schemes change frequently. At time of publication rebates are available from the following organisations.

The Federal Government

National Rainwater and Greywater Initiative – providing rebates of up to \$500 for households to install rainwater tanks or greywater systems – www.environment.gov.au/water/programs

The Northern Territory Government

NT Waterwise Central Australia Rebate Scheme (supported by Power and Water) – waterwise products and plumbing rebates – www.nt.gov.au/waterwise

Eligible items and services include:

- rainwater tanks
- greywater diversion and treatment systems
- toilets
- plumbing in new appliances and fixing leaks
- shower roses
- washing machines
- pool covers and more.

Rainwater Tank Rebate NT – rebates of up to \$1,900 for the purchase, installation and plumbing of a rainwater tank to residences and other dwellings – www.greeningnt.nt.gov.au

Alice Solar City

Solar hot water and other incentives
– www.alicesolarcity.com.au

For up-to-date rebate information call desertSMART COOLmob on (08) 8952 0299.



it's simple

Saving water doesn't require fancy technology. Adopting water smart habits like taking four-minute showers, maintaining plumbing and irrigation systems make significant savings.

around the house

how much water does a leaking tap waste?

It depends on the leak. One drip per second wastes 1,000L over a year. Leaks generally get worse with time so fix them quickly!

maintenance

Fix leaks early. As calcium builds and dries up it eats into metal, breaking down thread and ruining seals. It is better to replace washers and re-seat taps early than to use a lot of force to turn them off.

finding leaks

Use these tricks to find hidden leaks:

- Listen to your toilet when the cistern is full (not straight after a flush). If it hisses, you have a leak.
- Put a couple of drops of food colouring in the cistern. Don't flush. Colour will appear in the bowl after a few minutes if you have a leak.
- Be alert to any water hissing, dripping or running when all appliances are off.
- Read your meter before you go to work. Make sure all water appliances are off. Check it again when you return. If the readings are different, you have a leak.
- Look out for wet patches in your yard or unusually vigorous/green garden growth. If you see these, a main or irrigation pipe may have split or burst.



Ring a plumber to fix those leaks. Alternatively, get a handy friend to teach you how to fix them (will take about one morning).

taps

The amount of water from a tap depends on water pressure and tap type. An outdoor tap runs at about 20L/minute. An inefficient indoor tap can use almost as much. A 3-star indoor tap uses 6L/minute.

Tap aerators screw onto the tap opening and restrict flow without affecting pressure. Check whether your tap needs a male or female fitting before you go shopping.

Flow restrictors are small plastic disks inserted inside a tap, valve or water meter fitting or added as an extra piece to pipework. They restrict flow by up to 50 per cent.

You do not need to install both on the same tap, particularly in high calcium water. Neither is necessary on your bath. You will fill it to the same level, using the same amount of water, it will just take longer!



Look at your taps and shower roses. Are they low flow? If unsure, check with a 10L bucket. Less than a bucket per minute (around 9L/minute) is considered low flow.

is it right for my house?

Calcium scale from hard water can quickly build up on flow restrictors and block the tap. Before kitting out every fixture, see how much the tap is using – if your water pressure is low you may not need restrictors. If a restrictor is needed, try installing just one and check for scale after a month.

Some old hot water systems cannot handle low-flow devices and will cut out. Some garden irrigation control boxes won't work well if flow restrictors are in place. Speak to a plumber for further advice.



in the bathroom

Simple actions add up. Things you can do:

- Use a cup for rinsing when brushing teeth instead of letting water run.
- Partly fill basin when shaving, don't run water.



Toilets

Old-fashioned single flush toilets can use a whopping 12L per flush. In contrast, a 4-star dual flush toilet uses 4.5L for a full flush and 3L for a half flush.

Single flush toilets can be replaced, however modern dual-flushes have a different shaped pan and you may need a new cistern as well. Check at the plumbing shop.

Other things you can do:

- Put a brick or full 2L water bottle in the toilet cistern to reduce the flush size.
- “If it’s yellow, let it mellow. If it’s brown, flush it down.”
- Don’t flush rubbish (e.g. tissues) down the toilet.

Composting toilets can be used on rural properties not connected to a sewer. Contact NT Environmental Health about approved models.

what about water conditioners and calcium build up/scale?

Water conditioners soften hard water. There are two main types: the first replaces calcium salts with sodium. This reduces calcium scale, but is a problem for people on low sodium diets. The second type uses magic, er, magnetism. You can find dozens of explanations of how they work. Scientific trials show mixed results.

Showers

3-star shower roses, which use less than 9L/minute come in lots of styles. If you would rather not buy a new shower rose you can install a flow restrictor in your old one, which might be using up to 20L/minute.

Things you can do:

- Challenge everyone in your household to shower in less than four minutes.
- Catch water from showers in a bucket while waiting for it to warm up and use it on your garden.

How to replace a shower rose

1. Turn off shower taps (you don't need to turn off the mains water).
2. Remove existing showerhead (turn anti clockwise), using a spanner and cloth at the base next to the wall. Do not force it or use the shower arm for leverage.
3. Clean and dry the thread of supply outlet.
4. Wind several rotations of teflon tape around the supply outlet, keeping the outermost thread clear of tape.
5. Place a flange over the supply outlet.
6. Screw a new showerhead arm onto the supply outlet (turn clockwise to tighten).

Visit the Savewater! Alliance website (www.savewater.com.au) or search the internet to view a short film demonstrating the process.



Go to your local hardware shop, claim the \$50 NT waterwise shower rose rebate and install as per the instructions (right).



“some keen people catch their shower water in one or more buckets and then pour the greywater into their toilet cistern. the cistern's tap is turned off so no mains water ever gets into the cistern.”

- kay

Baths

If you feel like a really long wash, partially fill the bath instead of having a long shower. A half-full bath uses about 100L.

Some like it hot

Reducing your hot water use is a great way to save power used to heat the water. If you have a solar hot water system, you can still take action.

- Insulate your pipes with lagging to help keep the water hot.
- Install a hot water recirculator that keeps water in the hot tap hot, so you don't waste cold water.
- See desertSMART COOLmob's Greenhouse Friendly Action book or Power and Water's Green Guide publication for more ideas.



my solar hot water system keeps dumping water. is it meant to do that?

Yes. Water is purged when older-style solar hot water systems overheat. However, excess purging is wasteful and it can be dangerous to have all that hot water coming off the roof. Try:

- Having the valve checked/replaced at the next service.
- Cover half of the solar panel with shade cloth in summer.
- Replace your system with a newer one designed not to purge (although even these release a little water if they overheat).

“if you usually have a morning shower, try having your shower after breakfast. you'll enter the shower in a more alert state, wash yourself more quickly, and be less likely to use the shower to wake up.”

- sarah

“go vegan! it’s easy, it’s ethical, and it’s healthy. quality plant protein uses a tiny fraction of the water needed for beef.”

- renata



in the kitchen

Do dishwashers really use less water than washing by hand? It depends how you wash and rinse. A sink holds 10 to 20L. Dishwashers use 10 to 20L per load - older models use more. If you only use one or two sinks for a load, it's a similar amount of water and less power.

Things you can do:

- Only wash dishes when you have a full load/sink.
- If handwashing, rinse dishes in a tub or in half a sink of hot water, or wipe them with a damp cloth instead of rinsing.
- Use the dishwasher “eco” setting if it has one.
- If buying a new dishwasher, look at the WELS star rating – www.waterrating.gov.au
- Wash veggies over a bowl and use the leftover water on the garden.
- Compost your food scraps to cut down on landfill and improve your soil productivity (see page 22 for more information).
- Cut down your “water footprint” by eating less farmed meat and dairy.

embodied water

Embodied water is the amount of water used growing, processing and transporting goods and services we use or consume.

In Australia in 2001, producing:

- \$1 of rice (in the husk) used 7,459L of water
- \$1 of dairy products used 680L of water
- \$1 of wine used 503L of water
- \$1 of vegetables and fruit used 103L of water

The same goes for industrial appliances (clothing consumed 90L/\$1).

In general, reducing, reusing and recycling will minimise your water and your ecological footprint.

Source: Australian Bureau of Statistics

in the laundry

Front loaders use less water than top loaders (typically 100L compared to 160L). A 5-star front loader uses about 60L/wash. When purchasing a new machine, check the WELS rating.

Other things you can do:

- Wait until you have a full load before washing.
- Use the “water saving” function if your machine has one.
- Divert the greywater onto plants, but make sure you are using a “green” phosphate-free washing product. Products like fabric softeners, brighteners and bleach are not good for your garden.
- Install a flow restrictor on your laundry tap if it is used for lots of hand washing and rinsing.

“Use the ‘dry pail technique’ (also known as ‘dry soaking’) for babies’ nappies. We have discovered with our baby that you don’t need to soak cloth nappies in water – just put them in an empty bucket with tight lid before washing,”

- jessica



greywater

The shower, bath and washing machine water are good sources of greywater. Water from the kitchen sink is usually unsuitable as it contains a lot of fats and oils.

Do it yourself (DIY) greywater diversion

Ways of collecting greywater include:

- Running a hose from your washing machine to the garden. Move the hose around; don't always water the same patch.
- Bucketing greywater from your bath/shower.
- Siphoning water from a bath or laundry tub (don't suck to create the siphon!).
- Pumping water out of the bath with a small low-voltage pump.
- Divert from exposed outlets using a rubber funnel or diversion valve.

Permanent greywater diversion devices

Most commercially available greywater systems are greywater diversion devices (GDDs). They take the greywater from your house, store it in a surge tank and deliver it to the garden. This greywater is essentially untreated. Large things like hair and lint are removed but bacteria, chemicals and nutrients are not. It is important to follow the Environmental Health guidelines.

Installation is easiest where greywater pipes are accessible (not under a concrete slab) and are separate from blackwater pipes.

Greywater treatment systems

Untreated greywater is unsuitable for indoor use. If you want to use greywater to flush toilets or wash clothes, you could install a greywater treatment system. Treated greywater is better quality and you can store it. However, these systems cost more to set up and service.

“recycle bath water (with no greywater system in place) by bucketing water onto garden/pot plants,”

- susie

greywater regulations

Regulations are set by Environmental Health (NT Government Department of Health and Families).

Permanent systems must be installed by a licensed plumber and the model must be NT approved. Check www.health.nt.gov.au/Environmental_Health for an up-to-date list.

Some important requirements include:

- Don't let greywater puddle on the ground.
- Use greywater within 24 hours of collection so bacteria doesn't breed.
- Bury dripline (or crates or slotted flexi pipe) under at least 10cm of soil or mulch.
- Don't use it on root vegetables or let it come into contact with the parts of the plant you eat.
- Use lilac-coloured pipe to show where greywater is being used.
- The irrigation set-back is 1.5m from buildings and 1m from the property boundary.
- Divert greywater back to sewer if it is too dirty/contaminated, don't use on the garden.

Find out all regulations before using greywater!
Contact the Alice Springs Environmental Health office on (08) 8955 6122.



Ways to put it on the garden

Gravity feeding may be possible if the greywater source is high above the garden. If not, you will need a pump. Feed diverted greywater into:

- irrigation cones or crates
- gravel trenches
- slotted flexi pipe
- sub-surface dripline (use a filter!)
- bucketing or hose diversion (temporary systems only).

Never use greywater with sprinklers. Remember to alternate greywater with tap water or rain water.

Garden friendly greywater

Greywater can contain salts, chemicals and nutrients. This can cause soil problems if the garden relies totally on greywater.

Older citrus and mulberries can often tolerate up to three washing machine water loads a week in the warmer months.

Some plants (indoor plants, ferns and some natives) are too sensitive for greywater.

To care for the garden:

- Minimise use of products like detergents, fabric softeners, brighteners and bleaches.
- Look for biodegradable, low phosphorus "greywater safe" detergent. Laundry liquids contain less salt than powders.
- Remember that greywater tends to be alkaline. Don't put it on acid loving plants.
- Use greywater on well-draining soils.
- Alternate the plants you use it on.
- Supplement with mains or rainwater.
- Don't use greywater if you have put chemicals in it.

pools and evaporative air conditioning

pools

Pools can account for nearly one fifth of a household's water use. Some evaporates, some leaks and some goes to backwash. If you have a pool:

- Shade the pool to reduce evaporation.
- Use a pool cover to reduce evaporation and keep the pool clean.

- Keep the pool clean and empty the skimmer basket daily to reduce filter back flushing.
- Try a cartridge filter.
- Experiment with how little you can run the filter pump and still maintain a healthy pool.
- Consider turning the system off over winter and rebalancing for summer.

How much water is lost through backwashing?

Sand filters: 400 to 450L per backwash.

Dichotomous earth: 100L.

Cartridge filter: 0L.

The cleaner the pool, the less backwashing needed!

“I've redirected the evaporative cooler water that used to go down the drain, by integrating it into the dripper system that is part of my garden. I can switch it over to the back or the front garden.”



“use a two litre juice or cordial bottle to catch the water from the hot tap when running it before it heats up. then use it to water pot plants.”

- rosalie

evaporative air conditioning

Ah! Cool air from the swampy! But did you know swampies can use 30L per hour (720L a day)? Refrigerative air conditioners don't use any water, but can dry the air and use a lot of power.

To increase the water efficiency of your swampy:

- Have the pads cleaned regularly.
- Adjust bleed to five to eight litres per hour (Alice Springs town water. Bleed needs to be higher if water is saltier).
- Use bleed on salt-tolerant plants or to top up the pool.
- Turn off bleed if rainwater is used.
- Close down the house at start of day (shut windows and pull down blinds etc) to keep cool and to minimise amount of time air conditioning needs to run.
- Get a home energy survey for more tips on keeping the house cool. Contact Alice Solar City for more information.

renting

Whether you are renting or own your home, you can always act waterwise!

Get permission to install these temporary items:

- tap aerators
- a laundry greywater diversion hose
- water efficient shower roses
- a brick in the toilet cistern.

You might need to negotiate more permanent items like rainwater tanks. Emphasise the water bill savings and offer to contribute to the project. At least source quotes and research rebates.



in the garden



Draw up a map of your existing garden. With your family, figure out where water savings could be made and plan the changes. You might like to get a garden professional to help.

More than two thirds of water in Alice Springs households goes on our gardens - nearly 1,000L per house per day compared to only 20 per cent in Melbourne. Most (estimated 80 per cent) of Alice gardens are over-watered. Overwatering adds salt to the soil, increases soil pH, can leach out valuable nutrients and is really a waste of precious water.

Water-efficient gardens can be healthy and happy with the right combination of planning, soil building, mulching, irrigation and plants.

protect and build the soil

Keeping your soil healthy is essential. Soils with a good level of organic content will hold moisture longer.

Soil types

The majority of soils in and around Alice Springs are very low in nutrients, particularly nitrogen and phosphorous, essential for growing fruit and veggies. Many native Australian plants have adapted to low nutrient soils.

Soil types in Alice Springs range from river sand to clay. Sandy soil might need organic matter added to improve water retention, poorly draining clay soil could need sand.

In Alice Springs, most soils are alkaline (pH between 7 and 10). The pH of a soil determines its capacity to provide nutrients to plants. Optimum soil pH is 6.5.

Compost and organic matter can usually reduce the alkalinity. Contact your garden centre for advice.

planning

Before heading to the garden centre or hardware shop to buy plants, have a clear idea about the sort of garden you want.

What have you got to work with?

- soil type and condition
- shade from nearby structures/trees
- wind exposure
- sun exposure: west-south-west facing gardens should be native and/or incorporate shade trees. Thirsty plants are better on the eastern side
- competition for sunlight, nutrients and water from established plants.

What do you want from your garden?

- fresh produce
- a children's play area
- an area that is attractive to wildlife
- shading or screening for a house.



Find out about your soil type. Take soil samples from a few places around the garden. Kits for testing pH can be bought from pool shops and garden centres. Most garden centres will provide pH soil testing as a complimentary service for their customers.

“use local materials in the garden. i harvest buffel grass to mulch my veggie patch. the grass seeds sprout but are easy to get rid of.”

- chris



Mulch

Mulch is a protective layer that is added to the top of your soil. About 10cm of mulch is recommended. Don't use plastic sheeting under mulch as it suffocates the soil.

Organic mulches include straw, hessian, hay and woodchips.

Inorganic mulches include riverstones, aggregates and sand. They protect the soil but don't add nutrients.

Mulch can:

- Reduce evaporation so you can reduce watering.
- Stabilise soil temperature, keeping it cooler in summer and warmer in winter.
- Improve soil structure and provide nutrients. Organic mulch adds nutrients and nitrogen for healthier plants. Mulch, ideally, should be composted or aged to reduce the risk of burning and depleting nutrients from the soil.
- Reduce weed growth.
- Look attractive and give character to the garden.

Choosing and applying mulch:

- Greenwaste mulch can have unwanted seeds and pests in it, make sure it has been well-composted.
- If using inorganic mulch protect plants from reflected heat by using well-composted organic mulch directly under the plants.
- Regularly check beneath mulch to make sure moisture is getting through. Thick, compacted mulch can stop gas exchange and water from getting to the soil.
- Don't put mulch right up to the plant stem to prevent collar rot, slater and larvae damage.

Compost, manure and organic matter

Adding organic matter, such as compost or manure, is one of the best things you can do for soil. Compost and manure add nutrients needed for plant growth and improve soil structure. Manures can be alkaline, which should be considered if you have acid-loving plants. Worm farms (vermicomposting) work but you need to protect the worms from summer heat and keep them moist.

When composting in an arid environment, you might need to add moisture. Check out the compost factsheet from www.desertsmartcoolmob.org

what are wetting agents?

Wetting agents help water sink into hydrophobic (water repelling) soils instead of pooling on the surface. Some people say greywater or detergent can do the same job.



Compaction

Compaction is bad for soil health. Water doesn't penetrate compacted soil and can starve plant roots of water, air and nutrients.

If soil is compacted:

- Break it up with a garden fork.
- After aeration apply a mix of coarse sand, organic fertiliser and gypsum.
- Add mulch to keep moisture in and control temperature.

Fertiliser

Poor plant growth can be due to nutrient deficiencies, not lack of water. Healthy soil with lots of organic matter is good, but your plants may need fertiliser for specific nutrients. Take a sample of your plant to your garden centre and seek advice.

where does leached salt go?

Leached salt has to go somewhere - the water table. When the water table rises after a big rain, it brings that salt back up into the root zone or soil surface. Minimise the amount of salt by not over-watering.

salt in centralian soils

All soils contain salt but Central Australian soil has more than most. So does our tap water. That means the more water you add to the garden, especially greywater, the more salt will be in the soil.

Signs of salt

- "Bull-dust" that puffs up if you step on it.
- White crystalline crust around drippers or watering zone.
- Reduced plant growth. Salt blocks plant nutrient up-take and damages roots so leaves have burned edges or drop off.
- Brittle ground surface with loose soil beneath and fewer or no new plants.

Dealing with salt

Reduce the amount of salt in your soil by:

- Using rainwater when possible.
- Applying gypsum. The calcium in gypsum binds to the soil, freeing up salt so that it can be flushed out.
- Digging in or adding organic mulch or compost.
- Plant salt-tolerant species such as members of the *Atriplex* species (Old Man Saltbush), *Eremophila maculata* (Spotted Fuchsia) and *Melaleuca glomerata* (Inland Teatree).

Deep watering to flush salts

Give the garden a big drink in early December and February to flush down the salts.



watering

There are different sources of water that can be used to irrigate the garden:

- rainwater
- bore water
- greywater
- town water supply.

Rainwater is healthy for gardens, but generally too irregular to sustain a garden. Bore water and greywater can be high in salts and should be supplemented with rainwater or town water. Most people will water with the town water supply, which can be slightly alkaline and contains lots of salts, including calcium (although less salt than greywater and most bore water contains).

Good soaks less often

Longer, less frequent watering is better than short daily watering in most cases. It encourages hardy plants to establish deep root systems and pushes any existing salt past the root zone.

There are exceptions. Plants with shallow root systems, like seedlings and vegetables, need frequent light watering. See the suggested watering schedule on page 26. Very sandy soils will not hold water and need frequent light waterings.



Water at the right time

Water your garden in the early morning (preferable) or late evening when it is cool. If you water during the day, too much water will evaporate.

Water growing plants only

Don't water parts of the garden that don't grow. It is too common to see overspray and run-off onto concrete. Set up irrigation to deciduous trees and vines so it can be turned off or reduced when they are dormant.

Zoning

Good zoning means placing plants with similar water needs together, so that they are all on one irrigation line. You can then control the amount of water that goes to plants on different lines. If zoning is poor, i.e. if citrus trees and natives are on the same line, the citrus will be under-watered and the natives will be over-watered.

Drip irrigation

Drip is the most efficient watering method. It is ideal for catering to individual plant needs. See section on page 28.



Watering more in summer and less in winter makes sense. But it's easy to forget to adjust your irrigation controller. Write a reminder on your calendar to turn it down when the seasons change!

Sprinklers

Pop-up sprinklers are generally used for lawns. Single movable sprinklers can be used but are usually inefficient. They need to be manually moved and are prone to overspray. Sprinklers are different to micro-sprays and misters - most water from micro-sprays is lost to evaporation.

Sub-surface dripline

Sub-surface dripline can be used for lawns and general landscaping. It is very water efficient but should be professionally designed. Some extras like air release valves are required.

Hand watering

Hand watering is ideal for introducing new plants to an established garden or for gardens with just a couple of plants. It is labour intensive and relies on you being home - no long holidays. Use a trigger nozzle on the hose to save water.

Weaning

Most people overwater their plants! However, plants will not enjoy a sudden change to their watering. Reduce watering slowly and watch your plants to ensure they are coping. Wean over the cooler months for best results and hand water the more sensitive ones if needed.

If you are watering established natives every day:

- Reduce watering to every second day.
- After two months, water twice a week.
- After another two months, water once a week.
- Consider adding more drippers to thirsty plants.
- If most other plants are thriving, accept the loss of a few non-hardy plants.

A lawn watered for 10-15 minutes a day can be weaned (with correct management) to 25 minutes about once a week. It will take about a year.



Check that plants with similar water needs are zoned together. If not, realign irrigation.





watering schedule

Native garden and drought tolerant exotics						
4L/hr drippers	Summer		Winter		Spring/Autumn	
	How much?	How often?	How much?	How often?	How much?	How often?
First 2 – 3 weeks	1 hour *	Daily *	1.5 hour	Every 2-3 days	1 hour	Daily
3 weeks – 3 months	2 hours	Every 3 days	2 hours	Every 4 days	1.5 hours	Every 3 days
3 months – 12 months	3 hours	Every 4 days	4 hours	Every 6 days	4 hours	Every 4-5 days
Established plants 1 to 2 years old	5 to 8 hours	Weekly moving towards watering every 2 weeks	5 to 8 hours	Every 2 weeks	6 hours	7 - 10 days
Well established over 3 years***	8+ hours **	Monthly **	8+ hours**	Every 2 months**	8+ hours	Every 4 - 6 weeks

* It is better to plant in the cooler months.

** For a habitat style garden, natives over six years should be self sustaining with an occasional drink. They can be watered less during years three to five.

*** Large deep-rooted trees such as Eucalypts can be disconnected from drippers after a couple of years.

This table is a general guide and estimates are based on a garden with loam soil. Sandy soils require smaller amounts of water more often. Clay soils will require less water less frequently. Plant species, competition for water from other plants, age of plants, drainage, shade and wind will all affect water need.

Citrus trees and grapes						
Adjustable drippers*	Summer		Winter		Spring/Autumn	
	How much?	How often?	How much?	How often?	How much?	How often?
Established citrus	200L per tree	Every 4 days	250 – 300L	Once a week	200L per tree	Every 5 - 6 days
Established grapes	40L	Every 3 - 4 days	40L	Once a month	40L Spring 25L Autumn	Every 4 - 5 days Every 5 - 6 days

* Watering regime is based on using eight adjustable drippers per tree each producing 25 litres per hour. Watering time required equals one hour for 200 litres.

Established lawn						
Sprinklers	Summer		Winter		Spring/Autumn	
	How much?	How often?	How much?	How often?	How much?	How often?
Pop-up sprinklers	20 – 25 minutes	Every 3 - 4 days	20 - 25 minutes	Every 5 - 7 days	20 - 25 minutes	Every 4 - 5 days

drip irrigation

Drip irrigation wins the water efficiency game but only if it's installed and used properly.

Water is delivered to the root zone where it is needed, encouraging deep strong roots. Fewer weeds grow because water is applied very specifically and best of all drip is versatile; you can add or remove drippers as needed.

Drippers and subsurface dripline

Drippers release water slowly so the soil can soak it up. Choose flow rate depending on plant water needs. They can come in 2, 4 and 8 litres per hour. Adjustable drippers can water 20 to 120 litres per hour.

Subsurface dripline is polypipe with inline drippers at regular intervals. Subsurface dripline is particularly good for veggie gardens or watering lawns. Installing and cleaning a filter is essential to keep the system blockage free.

In drip systems (not subsurface dripline), individual drippers are installed where needed along the irrigation line. Pressure-compensated drippers have a consistent flow rate. Other drippers have variable flow rates depending on the water pressure. Once again, use a filter.



Other useful irrigation parts

Pressure regulators give you the right pressure, so you know the dripper produces what it is set to. They also reduce the chance of pipes bursting.

Timers/automatic controllers ensure your garden is watered at set times and frequencies such as early in the morning or when you are away.

There are a wide variety of timers/automatic controllers. Some can be confusing but learning how to use them is well worth the water and time savings.

Inline valves allow you to switch between different irrigation sections.



3mm irrigation drip-line



Inline filter



Adjustable dripper head



4L/hr drippers



8L/hr drippers



how much water am i using?

Measure an individual dripper by catching the water in a cup.

Measure the whole system by taking a water meter reading before and after you irrigate and calculating the difference.

Don't be a drip

Lots of water (and time) can be wasted if your drip system isn't installed properly.

- If you run a long line up a hill, the drippers at the top will not have enough pressure to work. Run the mainline up the side of the garden and feed laterals across the slope.
- Long lines with too many drippers can result in similar problems.
- Forming loops with the main line will help equalise pressure in uphill or long systems. Join the end of the mainline back to the start instead of leaving the end loose.
- Avoid putting drippers with very different flow rates on the same line.

Looking after dripper systems

- Check lines at least once a year for leaks and blockages.
- Cover pipes with mulch or soil. Sun exposure increases calcium build-up and plastic deterioration.
- Drippers can get blocked by ants, dirt, calcium and more. Clear blockages by dismantling drippers and soaking in vinegar.
- Drinker diaphragms corrode and get eaten by ants, look for ant-resistant ones. Labyrinth-style drippers have no diaphragms but get blocked easily.
- Salt builds up on the edge of the dripper zone in some soils if there has been little rain to wash it down. Give a deep flush watering (about 20-30L) once a year to help reduce this.
- If you cut through the pipe, fix it immediately. Flush any dirt out, cut the pipes cleanly and splice with a joiner and clamps.
- Install a filter and clean it regularly.



Check your drippers for redundant outlets. Seal them up or move the dripper to a more useful location. Fix any leaks.



plants

When it comes to plants, have a think about your garden as a whole. Will the plants be in the shade or full sun? Ask how much care and water the plants need and for any growing hints – talk to your garden specialist. For greater success, buy new plants in season and sun hardied.

We recommend local natives – they are hardy, water efficient and attract wildlife.

How to plant natives

A well-prepared planting hole is critical to the success of new plants. Plant in autumn (except grasses – plant them in spring).

1. Dig a hole about five times bigger than the plant's current root system.
2. Fill the hole with water and let it drain away completely. Repeat (in clayey soils it could take half a day to drain).
3. Backfill with the soil mixed with a couple of handfuls of blood and bone (or another organic fertiliser) and other organic matter such as good quality potting or planting mix. Water this thoroughly.
4. While the soil is still moist (but not wet) dig a hole big enough for the seedling's roots. Make sure all of the roots are under the soil level, but don't bury the stem beyond the level of the tube or pot.
5. Pack the soil back in around the plant and press in firmly. Keep the finished level slightly lower than the surrounding area so that you have a shallow basin that will hold a half-bucket of water for any supplementary watering you may need to do over the first summer.
6. Water in with approximately 8L of water.
7. Connect a dripper (4L/hr) and check that the system delivers the right amount of flow, then cover the basin with mulch (keeping it clear of the seedling's stem).

native gardens

Native gardens are hardy, low maintenance and attract wildlife. Most importantly, they can be very water efficient! Australian plants that aren't indigenous to Central Australia can also grow well here but choose species suited to hot summers and infertile soils.

Local native plants don't need much water after they're established. For the first three or four years give them a regular soak. Large deep-rooted trees (like Eucalypts) don't need watering after the first couple of years.

Don't worry if natives don't grow much in summer – it's their slow time.

Lovely locals for Central Australia

There's a beautiful local native for every type of garden!
For example:

	Scientific name	Common name
Shade trees	<i>Corymbia apparrerinja</i>	Ghost gum
	<i>Acacia salicina</i>	Coobas
	<i>Atalya hemiglauca</i>	Whitewoods
	<i>Acacia aneura</i>	Mulga
Low decorative ground cover	<i>Solanum ellipticum</i>	Native Tomato
	<i>Swainsona formosa</i>	Sturt's Desert Pea
	<i>Frankenia serpyllifolia</i>	Salty Heath
Wind break	<i>Melaleuca glomerata</i>	Inland tea tree
Herbs	<i>Stemodia viscosa</i>	Sticky Blue Rod
Grass (decorative not lawn)	<i>Cymbopogon ambiguus</i>	Native Lemon Grass
Scrambling vine	<i>Ipomoea costata</i>	Rock morning glory
Fruit, bush foods	<i>Santalum acuminatum</i>	Desert Quandong
	<i>Marsdenia australis</i>	Bush Banana
Shade tolerant shrub	<i>Eremophila ovata</i>	Krichauff Ranges Fuchsia
Barrier plant with prickles	<i>Hakea leucoptera</i>	Needlewood
Salt tolerant groundcover	<i>Frankenia cordata</i>	Sea Heath

For more local native plants see Greening Australia's publication *Native Plants for Central Australian Gardens*.



Join "Gardens for Wildlife" to find out which wildlife attracting species are local to your area. The registration form is available online at www.lowecol.com.au

exotic plants that love dry conditions

There are a variety of hardy exotics suitable for planting in the region and offer an alternative to a wholly native garden or will complement native plants to create an interesting arid land or contemporary style garden.

Plant varieties include:

Agave	Lavender
Yucca	Duranta
Dwarf Bougainvillea	Crepe Myrtle
Murraya	Buddleia
Roses	Plumbago
Frangipani	Tecoma

Plants are tough in Central Australia!
Rainfall is low and evaporation is high:

- Alice Springs' average yearly rainfall: 278mm
- Alice Springs' average yearly evaporation: 3,175mm
- Tennant Creek's average yearly rainfall: 452mm
- Tennant Creek's average yearly evaporation: 3,980mm

Australian Government
Bureau of Meteorology.
Climate data online
<http://www.bom.gov.au/climate/averages/>



waterwise fruit and veggies

Growing your own veggies is economical and ensures you have nutritious, delicious and fresh food. It also means you control what you eat: you don't have to put pesticides on your food and you can grow vegetables and fruits that you can't buy from shops.

Alice Springs soils are great for growing a range of vegetables and fruit trees like citrus, mulberries, figs and grapes. Summer can be tough - it's hot and pests flourish - so consider doing the bulk of your veggie growing in the cooler months. In summer, just grow hardy edibles such as spaghetti squash, watermelon, corn, pumpkin, zucchini, rosella, basil, and snakebean with plenty of mulch and shade if needed.

Good soil preparation and plenty of organic material are essential.

Vegetables

- Use inline dripper line for best water delivery, spacing drippers close together.
- Using on/off valves, create several irrigation sections so you can choose whether to water the entire veggie patch or sections.
- Use seeds grown and adapted to local conditions - visit Seed Savers online at www.seedsavers.net
- Water three times a week in summer and twice in winter. Water daily in the peak of summer.
- Plant on the eastern side to get morning sun and afternoon shade.
- Poor health and growth can be due to pests (eg nematodes) or not enough nutrients, not necessarily a lack of water.
- Consider companion planting. For example, pumpkin likes to be planted with corn and not potato.

Permaculture principles

Permaculture is sometimes described as a sustainable living system.

It is the basis for designing integrated systems of food production, housing, appropriate technology and community development.

See the following website for more information - www.milkwoodpermaculture.com.au

Fruit

Citrus trees need a lot of water and are happy with greywater. The roots grow near the surface and are generally about as wide as the canopy, so put a circle of drippers under the tree and keep the soil moist as salt builds up where drippers don't reach. Alternatively, you can do weekly or fortnightly deep soaks from the hose slowly onto the root zone in the late evening in the warmer months.

“Tip water from boiled eggs and water used to steam veggies on the garden (there is not a lot of water used for these activities but we eat a lot of boiled eggs and steamed vegies!)”

- jessica



- For citrus, increase water between August and May when budding fruit develops.
- Citrus can require 150 to 300 litres per week. It's worth it for the fruit. Too little water will reduce the quality and quantity of fruit.
- Decrease water when citrus fruit is ripe.
- Decrease water for mulberries and grape vines when dormant (about April to August).
- Start watering again as leaves emerge.
- Stone fruit is not as successful in Central Australia as citrus and mulberries.

lawn

Lawns can use a lot of water, time and money. Alternatives to lawn include:

- sand or soft mulch play area
- old carpet play area
- shaded paved area
- groundcovers.

Lawns can have a cooling effect on the house (compared to concrete, which stores and radiates heat) and make good play areas. If you don't want to remove your lawn, reduce the area. Go for drought and salt tolerant species.

- Couch grass (pronounced "cooch") invades and is difficult to remove, although some of the hybrid varieties are not as bad.

How much water?

The amount of water your lawn needs over the year is listed below. The amount of water in millimetres is equal to the amount of litres over a square metre. For example, each week in January in Alice Springs, apply 60mm or 60L/m² of lawn.

Millimetres per week (rain or irrigation) for lawn growth in Alice Springs and Tennant Creek. Apply in one or two waterings												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alice Springs	60.8	54.9	46.6	34.8	22.1	17.6	19.1	26	34.8	46.6	53.4	58.8
Tennant Creek	56.4	53.4	53.9	51	39.7	30.9	32.8	39.7	48	55.9	61.3	56.8

Agnotes- A7(2006) and 82/57 (1983). Lawns- Establishment and Maintenance, Northern Territory Government

Treat it mean and keep it green

But not too green! Lawn can be pretty tough. It's good at absorbing nutrients (handy for greywater disposal but check pH). Overwatering encourages disease and can waterlog the roots.

- Periodic and deep uniform soaking is best as it encourages roots to grow deep. Daily light watering encourages surface roots that become heat-stressed, although it can be useful in winter to break up the frost. Clay soils hold more water. If your soil is very sandy you will need to water more frequently.
- Don't water when windy, the water will blow away.
- Use gear-driven sprinklers with fat drops, not fine mists, to reduce evaporation and overspray.
- Make sure your sprinklers are evenly distributed or you will be tempted to overwater most of the lawn so that the dry patches get enough. The edge of one sprinkler spray should hit the next sprinkler.
- Mow to 4cm or higher to reduce evaporation.

A properly designed sprinkler system will save you money and trouble in the long run. Based on your garden design and the size and location of plants and shrubbery, choose the size and style of sprinkler head that best suits your needs. Different sprinkler heads deliver different amounts and pressures of water. Consult a local garden centre for your own garden needs.

Does it need more water?

A sad-looking lawn can prompt us to pour on more water. Don't be fooled! Check the following before turning up the tap:

- Being careful of irrigation, use a lawn aerator or garden fork to aerate compacted soil.
- Fertilise if needed in spring and autumn. Don't fertilise when the lawn is not growing (winter). If your lawn is green, it doesn't need to be fertilised.
- A thin thatch layer retains moisture and prevents weeds. Too much is a problem. De-thatch in spring so it has time to re-grow. Vigorous raking with a wire rake works for small lawns.

how much water am i using?

Check your sprinkler water use: take a water meter reading before and after you water and calculate the difference.

Another method is to place several cans on the lawn and see how much water you catch (1mm = 1L/m²). If the cans have very different levels, take an average and think about re-doing your sprinkler system for more even distribution.

Sub-surface dripline and lawn

You can use sub-surface dripline under lawn instead of sprinklers. It is very water efficient if done properly, but some people find it difficult to find leaks and dripper blockages.

- Space the lines to suit your soil. If lines are too far apart you will get brown, dry stripes.
- Keep a map of the lines so you can avoid them when aerating.



pot plants

Pots are a great way to grow a portable garden in a small space. However, pot plants tend to dry out quickly.

- Use a premium quality potting mix (made to the Australian Standard) and mulch.
- Select a large, deep pot - small pots can heat up, damaging plant roots.
- Seal terracotta or use plastic.
- Shade.
- Place in the rain to flush out salt.
- Use a wetting agent to ensure potting mix re-wets easily and retains moisture when watering.
- Only add as much water as the potting mix can hold. The more water drains out, the more nutrients are leached and the more fertiliser you have to add.
- Give sulphur drinks to reduce pH.
- Re-pot at least annually to ensure optimum plant health.
- Self-watering pot plants have a water reservoir at the bottom. No water is lost via drainage. Search the internet for DIY options.



how do other plants cope in central australia?

Some exotics thrive in the arid zone. Unfortunately, very hardy exotics, such as Buffel grass and Prickly Pear, thrive so well they become noxious weeds, choking out local plants and devastating ecosystems.

Non-hardy exotics that need a lot of extra care and water are not suitable for waterwise gardens.

If you plant exotics, go for something drought tolerant, yet non-invasive. Useful, hardy exotics include lavender and rosemary.

To find out which plants will go feral, see www.weeds.gov.au



water harvesting

Rainwater is fantastic for plants. It is:

- low in salt
- not alkaline like mains water.

Unlike our mains supply it is “soft”. Rainwater is good for:

- Washing clothes or hair - more suds with less soap.
- Using in a hot water system or evaporative air conditioner to prevent scale.
- Supplementing mains groundwater supply to help conserve supplies for the future.
- Taste! Many people prefer the taste.

Water harvesting covers a range of techniques that allow you to collect, store and use the rain that falls onto your block.



Download desertSMART COOLmob's rainwater tank calculator from www.desertsmartcoolmob.org Calculate how much water you could catch. Compare the savings to actions listed in the front of this booklet.

drinking rainwater

Rainwater tastes great and is usually fine to drink - as long as you take care of the tank.

If you don't, the water could contain anything that ends up on your roof - bird droppings, dead animals and algae - yuck!

If the rainwater is suspect, boil or chlorinate it before drinking.

Enhealth, 2004. *Guidance on the use of rainwater tanks*, Australian Government, Canberra

landscaping

Direct and channel water run-off from roofs and other hard surfaces. Swales (contoured ditches), low ridges and sumps add interest to a garden and also channel and collect rainwater. Rainfall is unlikely to sustain a garden, but you can still make the most of it.

- Divert run-off from roofs, paved areas and driveways with shallow spoon drains or simulated creek lines to high water usage areas like garden beds or under fruit trees.
- A dry creek bed with a large central sump can be a landscape element and a large reserve for water run-off.
- Install gravel or sand ditches.
- Plants that need more water should be put in swales.
- Terrace sections of slope to hold run-off.
- Build paved areas slightly higher than garden areas so water runs off instead of puddling.
- Put pot plants outside when it rains.
- Create dishes around trees and channel water into them.

When creating water harvesting structures keep in mind that big rainfall events will create large water flows - make sure water flows end up in channels or spoon drains low to avoid erosion.

rainwater tanks

How much water?

Using the rainwater tank calculator (downloadable from www.desertsmartcoolmob.org), it's calculated that installing a 10,000L tank on a medium sized house would save an average 40,000L/year.

To compare: you could save 30,000L/year just by reducing showers from seven minutes to four minutes (based on a three-person family).

Types of tanks

There are many tank styles - big, small, round, tall and rectangular, underground tanks (to save space) and bladders for storing water under the house. Materials include concrete, fibreglass, galvanised iron and stainless steel. Think about how much space you have and how much storage you need.

Other things you need

As well as space for the tank, you will need: gutters, a first flush diversion device (this stops the dirtiest roof water from getting into your tank), lead guards and insect screens. If you plumb the tank to a fixture, you will probably need a pump and a filter. A filter will help prevent drip irrigation from getting clogged.

Approvals

Building approval is needed for tanks on stands, but not tanks sitting on the ground.

Tank maintenance

Tanks should last at least 20 years – shade it from the sun to extend its life.

- Check screens are in good condition to keep animals and insects out.

- At the end of a dry period and between big rain events clean gutters and screens and flush out first flush tanks.
- Make sure the roof is clean.
- Clean out sludge in the bottom of the tank every few years.



“connect your rain water tank to your swampy air conditioner,”
- robert

local organisations

Arid Lands Environment Centre (ALEC)

ALEC is a community-based environmental organisation in Alice Springs. Visit www.alec.org.au or phone (08) 8952 2497.

Australian Plant Society

Plants are available for sale at their monthly meetings (first Wednesday of each month), 7:30pm at Olive Pink Botanic Garden.

Gardens for Wildlife and Land for Wildlife

Gardens for Wildlife and Land for Wildlife provide volunteer opportunities and easily accessible, free information on how to establish and manage native wildlife habitat. Visit www.lowecol.com.au or email LFW@lowecol.com.au

Greening Australia

Greening Australia is passionate about protecting and restoring the health of our land. Native plants are available for sale from their nursery (Charles Darwin University, Grevillea Drive, Alice Springs) on Thursdays from 9.00am to 4.00pm. Phone (08) 8953 2882.

GreenPlumbers

A GreenPlumber® has undertaken GreenPlumber® training and is aware of best practice water and energy saving technology. A list of Alice Springs qualified Greenplumbers can be found at www.nt.gov.au/waterwise

Olive Pink Botanic Garden

Native plant sales and information. See over 300 species of native plants in the garden (Tuncks Road, Alice Springs). Visit their website at www.opbg.com.au

Waterwise Central Australia

The Department of Natural Resources, Environment, The Arts and Sport (NRETAS) has a water efficiency program including rebates. For more information view the website (www.nt.gov.au/waterwise), call the Water Conservation Officer on (08) 8951 9209 or email waterwise.nreta@nt.gov.au

Garden centres and nurseries

The following Alice Springs garden centres and nurseries can provide you with waterwise garden expertise and have a range of local and native plants for sale.

Alice Springs Nursery

(08) 8952 5055,
Lot 5777 Ross Highway.

Big O Mitre 10

(08) 8953 3141,
Corner Milner
and Wilkinson Street.

Bloomin' Deserts Nursery

(08) 8953 0655,
14 Hele Crescent.

Geoff Miers Garden Solutions

(08) 8953 7477,
13a Lindsay Avenue.

Iparpa Nursery

(08) 895 52 8725,
Lot 7789 Webb Road.

Tangentyere Nursery

(08) 8952 3257,
Lot 1020 Len Kittle Drive.

Watershed

(08) 8952 1844,
43 Elder Street.

further information

Alice Springs plant list

The Alice Springs Town Council has a list of native plants that are suitable for Central Australia.

www.alicesprings.nt.gov.au

Alice Springs water usage patterns and water efficiency plan

Turner, A., White, S. and Edgerton, N., (2007). *Alice Springs Water Efficiency Study Stage III- Implementation of the Alice Springs Water Efficiency Program- Feasibility Study- Final Report*, prepared by the Institute of Sustainable Futures, Sydney for the Northern Territory Government.

Central Australian plant growing information

Greening Australia (2007), *Native Plants for Central Australian Gardens*, Greening Australia, Alice Springs.

www.greeningaustralia.org.au

Greywater and rainwater

Stuart McQuire (2008), *Water not down the drain*. Available from the Alternative Technology Association.

www.ata.org.au

Home water audits

A home water audit involves a trained auditor coming to your house, looking at your water usage and doing a walk-through of your house and garden. Based on the audit, you will work together with the auditor to make a list of priority actions for reducing water use. The auditors have a wealth of knowledge and experience and will try to answer any water efficiency questions you have.

Your auditor will bring the latest rebate information, including rainwater and greywater rebates.

Audits are completed by desertSMART COOLmob trained auditors and take about an hour to complete. Audits are available to Alice Springs and Tennant Creek residents with desertSMART COOLmob members getting a reduced rate - only \$10!

Save water, save money and combat climate change!

Nursery & Garden Industry NT

The Nursery & Garden Industry NT (NGINT) is the peak body representing nurseries and garden centres and a growing number of businesses such as landscaping designers, suppliers and contractors, irrigation services and garden maintenance. The Industry is committed to promoting and educating the industry and community about sustainable water use.

For more information about the NGINT and Wise About Water gardening tips phone (08) 8983 3233.

www.ngia.com.au

savewater!® Alliance Inc

savewater! has a range of water conservation information including a home water use calculator which allows you to see where you are using the majority of water in and around your home and how this compares to the Northern Territory average.

www.savewater.com.au

desertSMART COOLmob

The 750+ members of desertSMART COOLmob work together to reduce their water, power and fuel consumption. Simple actions lead to comfortable homes, saving money on bills and helping combat climate change.

desertSMART COOLmob is free to join. Members receive a monthly newsletter, discounts at local shops, invitations to workshops and many other benefits. Just contact us to sign up!

We are under the auspice of the Arid Lands Environment Centre. We work with and are supported by: The Northern Territory Government, Power and Water Corporation, the Department of Natural Resources, Environment the Arts and Sport and Alice Springs Town Council.

www.desertsmartcoolmob.org

Power and Water Corporation

Power and Water wants Territorians to use water more efficiently. We know that around 60 per cent of household water is used in the garden, so this is where people can make water savings.

Central Australian residents are some of the biggest water users in the country, and we are striving to help our customers reduce their water consumption and impact on the environment.

Power and Water has a range of water wise fact sheets and publications including the Green Guide to help you be more waterwise.

www.powerwater.com.au

contact desertSMART COOLmob

Email: dka.coolmob@coolmob.org
Phone: (08) 8952 0299
Fax: (08) 8953 2988
Web: www.desertsmartcoolmob.org
Post: c/o the Arid Lands Environment Centre
PO Box 2796, Alice Springs, NT 0871
Location: 18 Warburton Street (corner of Lindsay Avenue),
Alice Springs

contact Power and Water Corporation

Email: customerservice@powerwater.com.au
Phone: 1800 245 092
Web: www.powerwater.com.au
Post: PO Box 1521, Alice Springs NT 0871
PO Box 505, Tennant Creek, NT 0861
Location: Shop 8, Alice Plaza, 36 Todd Mall, Alice Springs
Ground Floor, Government Centre, Peko Road,
Tennant Creek

Acknowledgements

Geoff Miers (Geoff Miers Garden Solutions), Colleen O'Malley, Louise Stokes (Bloomin' Deserts), Robbie Henderson (COOLmob), Tanya Howard (NRETAS), Dylan Ferguson (Tangentyere Nursery), Gary Dinham (Alice Springs Desert Park), Sunil Dhanji (COOLmob), Yvonne Brooke-Anderson (Alice Springs Nursery), Phil (The Watershed), Andrew O'Bree, Ilse Pickerd and the Low Ecological crew, Ben Convery (Olive Pink Botanic Gardens), Glenis McBurnie (Greening Australia), Jimmy Cocking, Mark Cowan (Environmental Defenders Office), Kevin Murphy (Environmental Health), Jane Dellow (NGINT) and Power and Water Corporation.

Principal author: Kat Taylor
Editor: Fina Po
Layout and design: Sprout Creative
Photograph credits: Steve Strike, Outback Photographics



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Disclaimer: This booklet is a general guideline about household water efficiency only. It may contain errors and omissions and may not be suitable for the circumstances of many households. The services of a competent professional should always be sought before any actions are taken in relation to household water efficiency. desertSMART COOLmob and individual contributors do not accept liability in any way for any errors or omissions in the booklet and do not accept any liability to any person in respect of anything done directly or indirectly by a person in reliance upon the whole or any part of this booklet.

water wise

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www.desertsmartcoolmob.org
(08) 8952 0299

PowerWater

www.powerwater.com.au
1800 245 092