Collecting browse for wildlife

A guide to the sustainable collection of browse and enrichment for sick, injured and orphaned wildlife in Southeast Queensland.

V1.2 – November 2020



What is browse?

- The term 'browse' refers to native vegetation that is collected and fed to wildlife whilst in care.
- Many of our native wildlife, including koalas and possums, are herbivorous and feed on a variety of native vegetation, including eucalypt.
- Other species, such as gliders, gleam the vegetation for insects.
- Providing a variety of good quality browse, collected fresh each day, is essential to the animal's health.

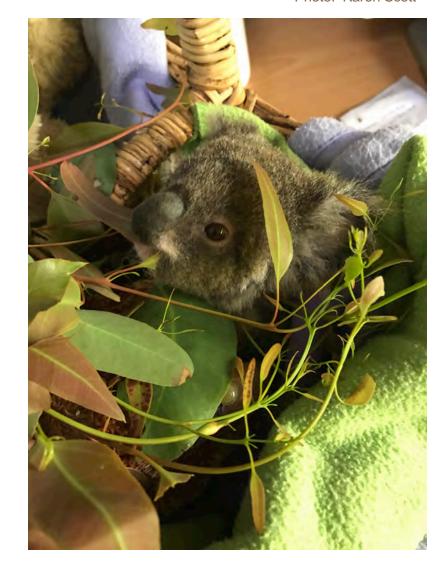


Photo: Karen Scott

Safety first

Key safety considerations when collecting browse:-

- Wear appropriate clothing at all times
 - Thick long pants, long-sleeve shirt and enclosed shoes.
- Keep your mobile phone with you, particularly when out of sight from others.
- Be aware of snakes.
- Be aware of insects e.g. ticks, wasps, leeches
- Keep an appropriate first aid kit in your car.
- Do not climb trees to collect browse.
- Observe insurance restrictions imposed by your wildlife group, Council or the landholder.

Cutting tools

Selecting the right tool for the job Maintaining your tools

Selecting the right tools

- Buy the best quality that you can afford:
 - Cheap tools become blunt quickly, are difficult to sharpen, rarely cut clean (and damage the plant) and are more likely to result in injury as you need to use excessive force to accomplish the job.
- Good quality tools:
 - Cut better, are easier to sharpen and maintain and more comfortable to use.
- Use the right tool for the right job don't use tools that are too small.
- Consider any physical limitations you may have and purchase tools that are appropriate to your needs (e.g. ratchet mechanisms).
- Ask experienced carers if you can try their various cutting tools before purchasing – particularly for more expensive options.

Hand-held secateurs

- Recommended for low branches within easy reach
- Branches up to ~10mm diameter
- Higher quality products available in different sizes and left-handed options.
- Keep 2 pairs one for the car and one for the house/aviary.

Available from hardware stores. Cost - \$8 to \$100





Photo Top: Fiskars
Photo Bottom: Felco

Tree saw

- Hand-held saws suitable for low branches within easy reach.
- Folding saws are compact and easy to carry.
- Available as an attachment to some brands of extendable poles.
- Branches up to ~50mm diameter (dependent upon size of saw).

Available from hardware stores.

Cost - \$15 to \$500



Photo Top: Hortex
Photo Bottom: Silky Hayachi

Long-handled loppers

- Recommended for small to medium branches within reach
- Branches up to ~45mm diameter
- Some have extendable handles
- Some have a ratchet mechanism for easier cutting

Available from hardware stores. Cost - \$30 to \$250



Photos Top Middle and Right: Cyclone Photo Left: Felco

Telescopic tree pruners/loppers

- Recommended for medium to high branches
- Extendable up to ~5.5m
- Branches up to ~35mm diameter

Available from hardware stores.

Cost - \$50 to \$200



Maintaining your tools

Tools in good repair:-

- Are easier to cut with;
- Reduce wrist/hand fatigue;
- Reduce the risk of accidental injury; and
- Help to maintain the health of the tree.

Tools should be kept:-

- Sharp to prevent damage to tree;
- Dry to prevent rust;
- Clean to prevent spread of disease.

Photo: gardenersworld.com



Cleaning your cutting tools

- Wipe blades with a damp cloth regularly.
- To clean thoroughly, soak secateurs for several minutes in a container with hot water and dishwashing liquid.
- Scrub lightly (and carefully) with an abrasive pad to remove sap and other plant matter.
- Avoid rubbing vigorously to prevent cutting yourself and to avoid dulling the blades.
- Rinse and dry well.
- Rub the blades lightly with a lubricant to prevent rust (oil lubricant or vegetable oil).
- Sharpen the blades as required.

Photo: gardenersworld.com

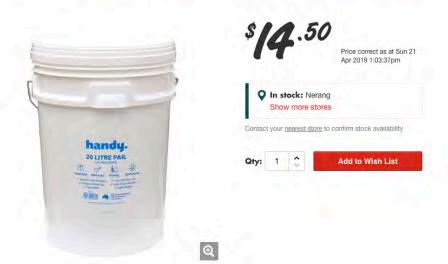


Other equipment required

- Buckets for leaf storage for example:-
 - 20L buckets with lid (good for transporting leaf and storage indoors)
 - 85L bucket (good for storing large quantities at home
- Bungee cords (for securing leaf, small pots etc)



Handy Pail 20L White Plastic Pail With Lid



All Set 85L Storage Bucket with Rope Handles

Price correct as at Sun 21
Apr 2019 12:18:30pm

Not available: Nerang
Show more stores

Contact your nearest store to confirm stock availability

Add to Wish List

Photos: Bunnings Warehouse

Where to cut

...and where not to cut.

Where NOT to cut

- National Parks
- All Council Parks and Reserves
- Zoo/Sanctuary plantations
- Re-vegetated areas
- Private property (without owner's consent)
- Roadside (where Council prohibits it)









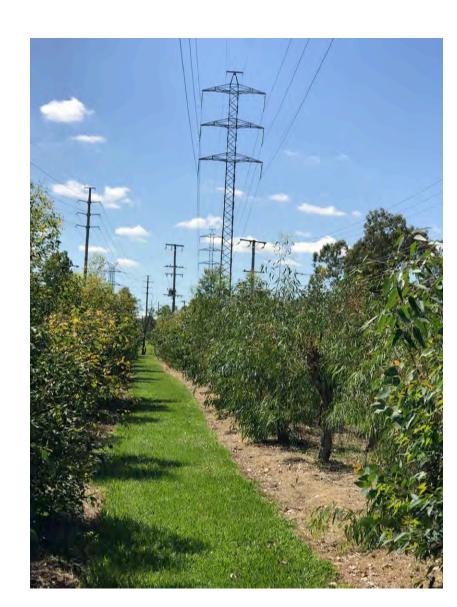


Examples of locations where fodder collection is prohibited.

Where to cut

- Dedicated fodder farms/plantations
- Private property (with owner's consent)
- Roadside (where Council does not prohibit it)
- Natural bush areas (excluding those listed previously)
- Storm-fallen fodder

Photo: Plantation/fodder farm established and maintained by Logan City Council



Hygiene and Leaf Longevity

Hygiene

Keeping leaf fresh

Hygiene

- It is essential that browse remains as fresh as possible to ensure it remains edible and our wildlife gain the most nutritional value from it.
- Many species of wildlife smell each leaf before eating.
- Contaminated browse may be unpalatable and carry disease.

To avoid contamination:-

- Do not use creams/perfumes on hands/arms.
- Avoid placing leaf on the ground to reduce exposure to bacteria.
- Wrap or lay branches on a large, clean sheet.
- Do not spray insect repellent near food trees or cut browse.

Keeping leaf fresh - Collection

- Cut early morning or late afternoon (particularly in summer).
- Cut fresh browse every day in warmer months to avoid leaf spoiling on the second day (unless you can store in a cool place).
- It is believed that toxin levels in many species enhances as the leaf ages after being cut and may become unpalatable.

Keeping leaf fresh - Collection

When cutting large quantities, use a garden trolley or a large empty bin (where possible) to avoid placing leaf on the ground.



Photo above: A garden trolley is a great option for transporting leaf when cutting at fodder farms. It helps to keep the leaf from being contaminated and reduces physical strain.

Photo: Mark Sanders



Photo above: A large empty bin is another option

to avoid placing leaf on the ground.

Photo: Karen Scott

Keeping leaf fresh - Collection

- Secure deep (20 litre) plastic buckets (filled with a few inches of water) in your car to place browse straight into after cutting. Cover with a lid or towel to avoid water splashing during transit; or
- Wrap or cover browse with a damp clean sheet to keep cool during transit.

Photo right: Deep buckets filled with ~4" of water secured between the front and rear seats ensures that leaf can be placed straight into water after cutting. This improves leaf longevity significantly, particularly in warmer months.

Photo: Karen Scott



Keeping leaf fresh – Blossoms/Berries

- Store in a dry, air-tight container in the fridge.
- Layer berries and blossom on paper towels.
- Beware of fungal and bacterial infections on berries.

Photos: Rachel Lyons





Keeping leaf fresh - Storage

- Store leaf upright up in deep buckets filled with fresh water 1/4 to 1/3 the depth of the bucket.
- Use new buckets clearly marked as "Leaf only" to prevent unintentional use for other purposes.
- Empty buckets each day, clean and refill with fresh water.
- If keeping leaf for a second day, cut the ends to improve longevity.
- Store in the shade and out of the sun away from possible contaminants (e.g. domestic pets, cleaning products).
- In warm weather, spray/mist lightly (1-3 times daily) to keep fresh.



Photo: Michael Wilson

Keeping leaf fresh - Storage





Leaf should be stored in the shade and out of direct sunlight.

Top left: Leaf stored in deep buckets in a tiled laundry (coolest part of the house).

Top right: Leaf stored in an undercover area and a portable greenhouse.

Photo left: Karen Scott Photo right: Michael Wilson

Leaf pots – Large (Outdoor)

Photo: Karen Scott



Glue



Photos: Bunnings





Leaf pots – Small to Medium

Suitable containers include:-

- Smaller versions of outdoor PVC pot (50mm is a good size).
- Cleaned recycled plastic containers.
- Cleaned recycled empty herb/spice bottles.
- Small bunches of leaf can be kept fresh by wrapping base in a damp paper towel, placing into a plastic bag and securing with a reusable zip-tie or bungee cord. Useful for ICU's and small baskets.

Photo: Samantha Longman



Leaf pots – Fixing to enclosures

Leaf pots must be:-

- Securely affixed to the enclosure or tree forks/branches to prevent injury to animals.
- Be large enough to accommodate the large amounts of leaf required by some species.
- Be affixed in such a way that they can be removed <u>every day</u> to be cleaned and refilled.
- Be an appropriate size for the enclosure and the branches being provided.
- Be designed/filled to prevent accidental drowning.
- Kept <u>impeccably clean</u> to prevent disease and to maintain leaf health.



Photo: Karen Scott

Hygiene and leaf longevity

- Leaf pots:-
 - Remove leaf
 - Empty water every day
 - Rinse and refill with fresh water every day
 - Top-up water each morning in hot weather (if required)
 - Refill with fresh leaf each day
- Disinfect leaf pots:-
 - Should be disinfected every 2-3 days at a minimum.
 - Empty, rinse and fill with fresh water with a small amount of disinfectant (e.g. Domestos®)
 - Scrub with a large brush (e.g. cobweb brush or large toilet brush)
 - Rinse well and re-fill with fresh water
- In warm weather, spray/mist lightly to keep fresh.



Collection Techniques

Collection Ethics

Cutting Tips

Correct cutting techniques

Collection Ethics

- When cutting from the wild, remember you are essentially helping yourself to the pantry of the wildlife that live there.
- Ethical cutting assures that the plants will have enough reserve to thrive and reproduce.
- Over-harvesting will have a negative affect on the plants and may even lead to the plant dying.
- Do as little damage as possible to the plants you are gathering from.
- Use sharp cutting tools do not rip or tear at branches.
- Reduce your impact on any surrounding flora and fauna.
 Don't trample on other plants to get to the ones you want.

Collection Ethics – Branches/Tree Forks

When foraging for branches and tree forks for enclosures:-

- Do not cut healthy trees (unless they are imminently destined to be felled);
- Look for fresh trees and branches that have fallen during storms;
- Ask for permission if on private property;
- Observe all safety precautions (e.g. hand-saws, chainsaws, appropriate PPE);
- Do not cut where tree protection laws exist – ensure you check before cutting trees.



Photo: Karen Scott

Tree hollows:-

- Do not remove hollows that are potential homes for local wildlife;
- Obtain from sustainable sources only;
- Look for fresh trees and branches that have fallen during storms (check for injured/deceased wildlife);



Photo: Rachel Lyons

Leaf litter and mulch:-

- Collect from 'clean' areas only with no to low risk of contamination from domestic dogs/cats or poisons;
- Check carefully for small toads, snakes etc before collecting.



Photo: Karen Scott

Fungi and lichen

- Only collect from a 'clean' area with low risk of contamination from domestic dogs/cats or poisons;
- Pick only fresh fungi that is not damaged or decaying and with no unpleasant smell.

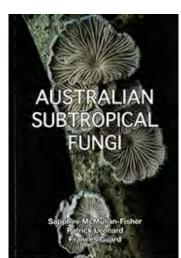


Photos: Michael Wilson



Fungi and lichen

- Essential that you can accurately identify the species being collected and that they are non-toxic.
- Refer to an ID book and resources including:-
 - www.childrens.health.qld.gov/category/poison ous-plants/fungi-mushrooms
 - Book Australian Subtropical Fungi
- Provide store bought mushrooms as a safe alternative







Photos: Michael Wilson

Collection of grasses, vines, fungi and herbs for a Short-eared Possum which are an essential part of the diet for this species.

A good understanding of the food eaten in the wild by the species you are caring for is essential.



Photo: Michael Wilson

Collection of Cage Furnishings

- Ask family and friends in rural/semi-rural areas for branches and leaf litter;
- Develop a relationship with local arborists;
- Create your own leaf litter by mulching used browse;
- Check with other carers that are cutting large/thick browse and branches – these may be suitable for small cages;
- Check with your local Council for large branches when plantations are being coppiced.

Before you cut

- Observe basic safety precautions.
- Do you have the owner's permission?
- Know your species do not cut from species that are listed as vulnerable or rare.
- Before cutting, check tree and branches for signs of disease or poisoning (intentional or accidental).
- Only cut what you need for 1-2 days:-
 - Warmer months cut every day
 - Cooler months cut 1-2 days
- Cut from a good variety of locations:-
 - Provides greater enrichment
 - Provides greater source of nutrition
 - Cut leaf species found at the proposed release location.

Toxic Plants

Become familiar with plants that are toxic to animals including:-

- Allamanda spp.;
- Agapanthus;
- Oleander;
- Lantana;
- Mother-of-Millions;
- plants in the family Araceae including Alocasia spp;
- Dieffenbachia spp.;
- Monstera spp.;
- Philodendron spp.;
- Poinsettia;
- the nightshades, privets, lilies, daturas;
- Dutchman's pipe;
- Camphor Laurel; and
- Cestrum spp.

(Source: Wilson, Sally Some Plants are Poisonous. Reed, 1997. Toxic Plants and Animals: A Guide for Australia. Queensland Museum, 1987)



Oleander shrub
Photo: The National Gardening
Association

Insects

- Be careful of insects that may be living amongst browse as some may pose a health risk to you when handling.
 - Wasps
 - Caterpillars
 - Tip-wilter bugs
 - Spitfire Grubs
 - Paperbark Sawfly Larvae

A great resource about local insects can be found at Brisbane Insects:

www.brisbaneinsects.com



Photo: Australian Museum

Frogs

- If you find a frog 'hitchhiker' in your leaf, it is important to return it safely to where you collected the browse.
- Using powder-free latex gloves, carefully place the frog in a ventilated plastic container with a damp paper towel on the bottom.
- Frogs <u>must not</u> be relocated as they can carry Chytrid fungus which can harm your local frog population.
- For more information visit:

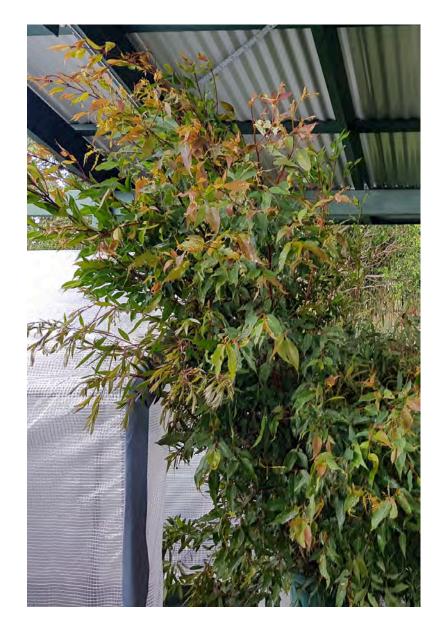
http://www.environment.gov.au/biodiversity/invasive-species/diseases-fungiand-parasites/chytrid-amphibian-fungus-chytridiomycosis?fbclid=lwAR3BbAeM2TBD6M7Uv-10kFdFHhAZXVdf3kjPlfiCMVoUWkKjc45S6wunt7w



Photo: Heidi Cuschieri

What to look for

- Look for a leaf with a good mix of both fresh new tips as well as good quality, mature leaf;
- The most insect ravaged new shoots are often the ones most favoured by wildlife. If the insects like it, chances are our animals will too!
- Don't pick leaf close to a busy road.
 Exhaust fumes and dust from roads settle on and are absorbed by the leaves.



What to look for

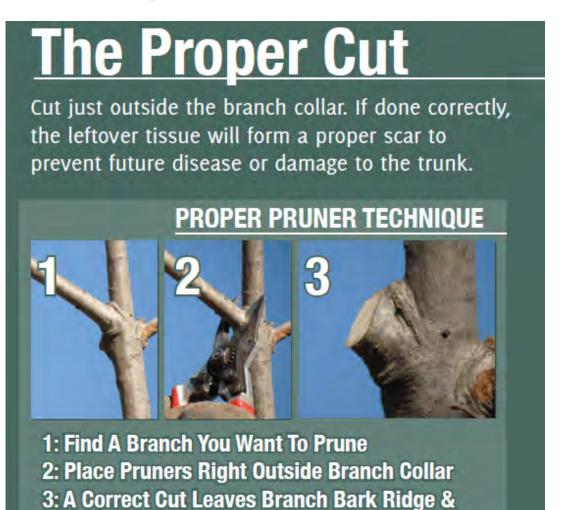
This photo shows why it is important to cut the entire branch.

The fresh tip of this branch must not have been palatable so was not eaten.

The koalas however completely devoured the mature leaf that was within reach.



Cutting Techniques – Small Branches



Branch Collar Intact

Photo: Our City Forest www.ourcityforest.org

Cutting Techniques – Large Branches

Use this method when cutting large branches with a tree saw.

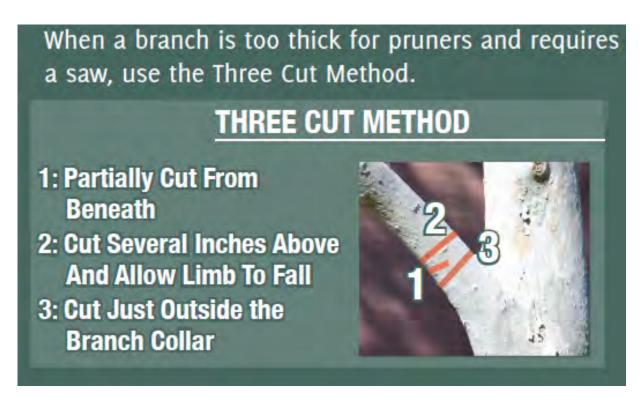


Photo: Our City Forest www.ourcityforest.org

Cut at the correct angle

- Cut the branch on a 45° angle to encourage new growth.
- Ensure branches are cut cleanly with no ripping/tearing.
- Use sharp cutting tools.
- Check the recommended cutting diameter for the tools you are using.
- Use tools appropriate to the size of the branch to prevent damage.

Photo Top: Branch cut with sharp secateurs

on a 45° angle.

Photo Bottom: Branch cut with blunt secateurs which has torn the branch.





Cut the entire branch

- Cut the entire branch do not just cut the fresh tip from the end.
- Animals require both fresh and mature tip.
- Some species will relish the entire branch including the leaves, buds, flowers, fruits, seeds and will use the bark for chewing and stripping.
- Cutting a branch mid-length makes the remainder un-useable to other carers and retards new growth.



These branches should have been cut in their entirety – not midway along.

Cut the entire branch

- Cut branches close to the tree trunk to encourage fresh growth.
- Incorrect cutting can leave a tree weak and vulnerable to disease.



These branches are cut too high – they should be cut closer to the trunk.

Do not harvest too soon

- Harvesting too soon can change the future structure of the plant and cause long-term damage which they may not recover from.
- Eucalypts in particular, should be well established before harvesting.
- In fodder plantations, Council will make the first prune on young trees so there is no ambiguity as to when it should be done.
- New trees are pruned from 2-3 years of age.

Photo: Eucalypts which are still too small to be harvested.



Photo: Rachel Lyons

Maintain the health of the tree

- Do not cut too much browse from any one tree.
- This includes what you are cutting, as well as what has already been cut by others.
- Each tree should be left with at least one-third of its branches remaining intact.

Photo: Too many branches have been cut from this tree and have left it with less than 30% of its leading branches intact.

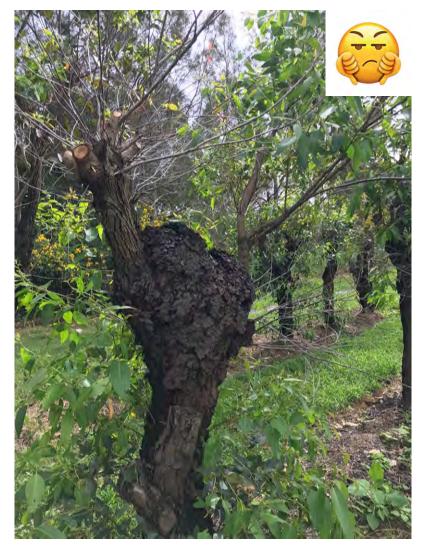


Photo: Logan City Council

Maintain the health of the tree

- Look after the health of the tree.
- If a tree is showing signs of illhealth, refrain from harvesting to allow it time to improve.
- Remember, if we look after the tree, it will continue to provide a food source for many years to come.

Photo: This Eucalypt is showing signs of ill-health including a large termite mound as well as dead branches on the top left.



Harvest sustainably

- Harvest sustainably on a rotational basis without jeopardising native regrowth itself – remember that it will one day be habitat for more animals.
- Only take the tops off regrowth (especially eucalypts) where they will not be given the chance to mature into tall trees, including:-
 - · underneath powerlines;
 - along easements;
 - development sites that will again be cleared.



Photo: Rachel Lyons

Harvest sustainably

- Development sites that have been cleared and where vegetation has regrown, are good places to cut browse.
- Only access sites that have no perimeter fencing and which are easily accessible. Remember that they are still private property!



Cutting small quantities

- If you only need a tiny amount of leaf, look for epicormic growth <u>low</u> <u>on the trunk</u> and utilise that.
- Cutting <u>low</u> epicormic growth allows the tree to focus its energy on the crown and removal can be beneficial to the tree.
- Do not cut epicormic growth from the top.

Photo: Low epicormic growth can be cut when you only require a small amount of leaf.



Coppiced trees

Epicormic growth on trees that have been coppiced must not be cut, even if you only need a small amount.

Branches should be at least 100cm tall before being harvested.





Good cutting practices

- In plantations/fodder farms as a preference:-
 - Cut branches low to the ground or overhanging the grassed rows -
 - Makes it easier for mowing;
 - Makes weed management easier and prevents accidental weed spray on branches.
 - If you have telescopic loppers, cut the higher branches and leave lower branches for carers that don't have them.



Photos: Karen Scott

Good cutting practices





Photos above: Cut low hanging branches to help maintain a healthy and clean fodder plantation. This assists Council when mowing, weeding and mulching and utilises the leaf before it becomes inedible.

Good cutting practices

- In plantations/fodder farms as a preference:-
 - Utilise the entire plantation do not cut only from the closest trees to the car park.
 - Place all unwanted cut branches at the end of the plantation rows to assist Council with maintenance (Logan Council only). Other Council plantations, take and dispose of branches.

Photo: Unwanted branches placed neatly at the end of a plantation row to allow Council to easily collect.



Photo: Mark Sanders

Good cutting practices





Photo left:

Front rows of fodder plantation showing heavy use.

Photo right: Far back rows of the same plantation showing lots of available leaf.

Often the best leaf is at the back – go a walk ... it's good for you!

How much to cut

"Recycled" pot How much leaf to provide

Variety, variety, variety....

- Herbivorous marsupials should be provided with a wide variety of leaf every night.
- Possums provide a minimum of 4 species.
- Koalas provide a minimum of 5 species.
- Do not cut from the same location continually. Vary your leaf source on a regular basis.



"Recycled" pot

- A "recycled" leaf pot includes a selection of browse from the previous day that is still edible.
- The pot might include branches that were partially eaten on one side, but the other side was not easily accessible.
- The "recycled" pot is <u>not</u> included in the minimum quantity of leaf to be provided each day.

Koala joey enjoying leaf from the recycled pot which included edible leaf left over from the night before.



Disposal of leaf

- Mulch and re-purpose
 - Allow to compost down for a few weeks and use as:-
 - Garden mulch
 - Substrate for animal enclosures
 - Avoid using leaf from animals with contagious diseases/conditions.
- Burn
- 'Green waste' at local Council

Pile of uneaten leaf accumulated over several days, ready to be mulched and recycled.



How much leaf?

- In the wild, our animals have an entire smorgasbord to choose from so it is essential that we provide an appropriate quantity dependent upon the species and the age of the animal.
- Each morning, there should be evidence that a large quantity of leaf tip has been eaten but there is still some tip uneaten.
- You cannot overfeed them!

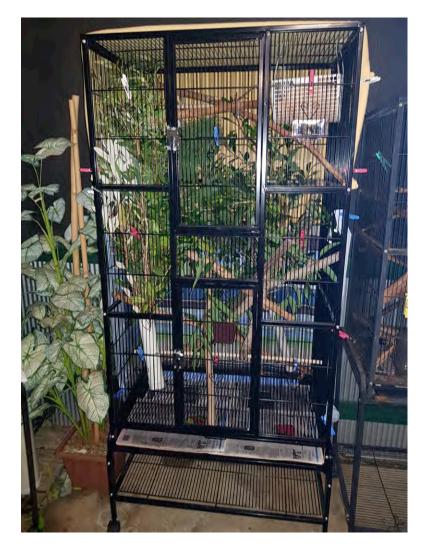
A smorgasbord of native blossoms suitable for gliders.



Example – Common Brushtail Possum

Common Brushtail Possum ~ 300 grams Housed in an indoor cage Note the possum box for size comparison.





Example – Common Brushtail Possum

Common Brushtail Possum ~ 500 grams Housed in a verandah style cage. A very full 10 litre bucket of leaf.





Example – Common Brushtail Possum

Common Brushtail Possum 900 grams Housed in a pre-release aviary and requires a large volume of fresh leaf every day.





Example – Ringtail Possum

Creche of 3-4 Ringtail Possum joeys ~ 500g each Housed in an outdoor cage.

Requires 3 very full 10 litre buckets of edible leaf tip every night.





Example – Short-eared Possum

Short-eared Possums 1-2kg in outdoor enclosure. Sufficient leaf for 1 or 2 animals would include several large pots filled with a good variety of leaf.

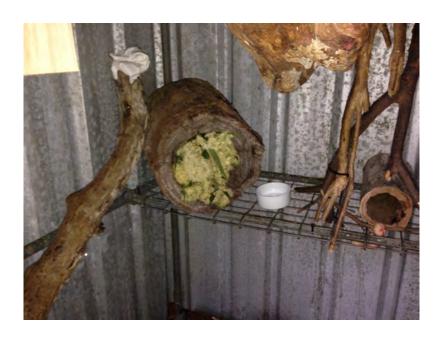




Example – Sugar/Squirrel Gliders

Gliders in pre-release enclosure.

Several large pots filled with a variety of native blossoms. The eucalypt leaf also includes a large amount of insect galls which provides additional protein.





Photos: Natalie Rasmussen

Example – Sugar/Squirrel Gliders

Gliders in pre-release enclosure. Note the insect galls on the Eucalypt leaf.



Photos: Natalie Rasmussen



Example –Koalas

Two koala joeys ~ 400 grams.

At least 4 varieties provided including both mature leaf and new tip.



Example –Koalas

3 koala joeys housed in an outdoor enclosure.

Photo taken the morning after – notice the amount of eaten tip on the branches.



Plant Identification

Resources

Plant Identification Resources

- Plant identification is outside the scope of this training session
- Available resources include:-
 - Wildlife Habitat and Plant ID workshop (Wildcare Australia Inc)
 - Local Council plant identification workshops
 - EUCLID Online Resource www.anbg.gov.au
 - Know your Eucalypts (Redland City Council)
 - Key to Eucalypts of Greater Brisbane (Queensland Herbarium)
 - Key to Wattles of Greater Brisbane (Queensland Herbarium)
 - Mangroves to Mountains A Field Guide to Native Plants of South-eastern Queensland

Why do we do it?

A lot of work ... is it worth it?







Acknowledgements / Resources

Photos kindly contributed by:

- Karen Scott
- Michael Wilson
- Rachel Lyons
- Samantha Longman
- Natalie Rasmussen
- Mark Sanders

Resources:-

- Wildcare presentation "Wildlife Habitat and Plant Identification"
- Wildcare Easy Reference Sheet "Browse Harvesting for Wildlife Carers"

Presentation prepared by Karen Scott for Wildcare Australia Inc.

Acknowledgements

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Photo: Heidi Cuschieri

