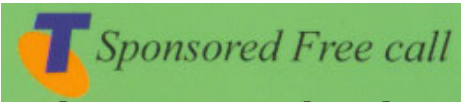


Meeting date

**Fund Raising meeting 11am
Followed by; General
Meeting , Time 1.30pm
Come along and support your
organisation
Date. Sunday 23rd May 2010
Venue; Armidale Tree Group
Woodland centre , East Mann
St. Armidale.**

Training days see page 2

Saturday 26th and Sunday 27th June, and
Derek Spellman on Saturday 24th and Sunday
25th July.



**Telstra country Wide and New England Mutual are proud to be
sponsors of NT Wildlife Carers...Local people working together.**

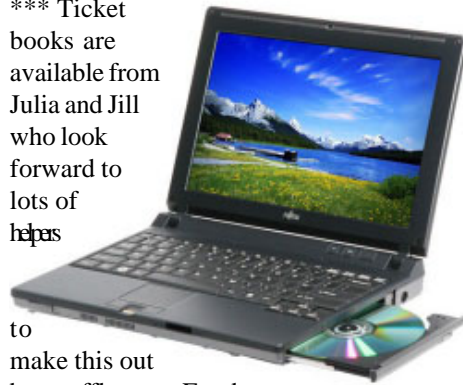
Northern rTablelands Wildlife Carers

PO Box 550 Armidale 2350

www.ntwc.org.au



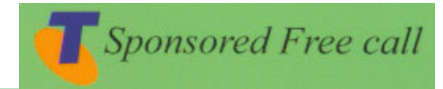
*** Ticket
books are
available from
Julia and Jill
who look
forward to
lots of
helps



to
make this out
best raffle ever. Funds are
desperately needed to cover wombaroo milks
which are such a big help for all our
wonderful joey mums .
**** Huge thanks to John Donnelly for
donating such great prizes.



*Rescue
Rehabilitate
Release*



Newsletter of The Northern Tablelands Wildlife Carers Issue No 85 May 2010 Phone - 1800-008290 www.ntwc.org.au

Hairy-Nosed Wombat colony in St George doing well

by *Jacquie Mackay*
In May last year we saw a
number of northern hairy nosed

wombats transferred from the Epping
National Park to start a new
colony down near St George.



A number of
people have
contacted the ABC
wondering how
those wombats got
on during the floods
a couple of weeks
ago around St
George.

Well the lady with
the answer to that
question is the

wombats transferred from the
Epping State Forest to a new
colony near St George - a lot of
people were worried about how
those wombats fared
during the flooding in
the area a couple of
weeks ago.

The northern hairy
nosed wombat as you
probably know is an
endangered species,
which is why last year
a small number of the
animals were

Director Threatened Species for
DERM, Rebecca Williams who
says the news is good. **See also
page 12 for update**



Look very close at the map in cenrntral east Q/land

Fundraising Raffle 2010

Prizes; 3 IBM Laptop
computers kindly donated by
John Donnelly.

There are be 3 x first prizes
one has been drawn. There is a
further 2 draw dates during
2010. Tickets are \$1 and each
prize is estimated to be worth
\$690.

Draw dates; end of May,
August and December 2010.

*** Ticket books are available
from Julia and Jill who look
forward to lots of helpers to make
this out best raffle ever. Funds are
desperately needed to cover
wombaroo milks which are such a
big help for all our wonderful joey
mums .

**** Huge thanks to John
Donnelly for donating such great
prizes.



Contacts for Northern Tableland Wildlife Carers (NTWC)

♣ **Chairman - Harold Heffernan 6778-1357**

♣ **Vice Chairman - Colin Wood 67783329**

♣ **Treasurer - Julia Rose - 1800-008290**

♣ **Wombaroo - Jill Chetwynd 6772-5855**

♣ **Publicity - Colin Wood - 67783329**

♣ **NWC Rep - Colin Wood 67783329**

♣ **Newsletter - Colin Wood 67783329**

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♣ **Wendy Beresford 6775-3747**

♣ **Jill Chetwynd 6772-5854**

♣ **Tamworth - 6762-1232**

♣ **Tenterfield - Pam Brice - 6736-2462**

♣ **Glen Innes ` Kelly Stumbles 67321838**

♣ **Snake Co-ord - Kelly O'Shea 6772 4648**

♣ **Training Officer - Linda Dennis**

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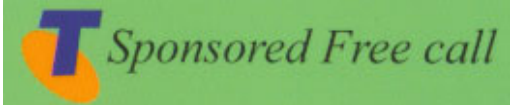
Write to NTWC PO Box 550 Armidale 2350

Northern Tableland Wildlife Carers is a network of trained volunteers licensed by NSW National Parks and Wildlife Service. We rescue, rehabilitate and release injured, sick, orphaned & unwanted native fauna. Any assistance please call the above numbers in your area.

Membership \$20 single and \$25 family year for authorised and support members All donations over \$2 are tax deductible.

This Newsletter is designed by Colin Wood and printed by New England Credit Union.

Telstra Country Wide are also proud to be a sponsor of NTWC



Page 1 ~ Hairy nosed wombat colony in St George doing well

Page 1 ~ Fundraising

Raffle 2010

Page 3 ~ CATS ~ Should they be contained

Page 4 ~ Shipping & Storage of Wombaroo Milk Replacers

Page 5 ~ Spectacled Hare-wallaby

Page 6 ~ The First Black Swans (a poem)

Page 7 ~ Marsupial Milk Formulas

Page 10 ~ Identifying Portuguese millipedes

Page 11 ~ Wombats don't make good pets!

Page 12 ~ Hairy-Nosed Wombat

page 13 ~ Meet your backyard Buddies

Page 14 ~ Bringing up Pugsy Short-beaked Echidna

Page 16 ~ Meeting Date

snout into my palm and suck up the milk.

At first he would not feed, but he got the hang of it after a day or so, and the daily feeding regime started.



Echidnas, even babies do not necessarily feed every day and one feed a day was

all that was required at this stage, but each feed was a long one, with a large amount being consumed, up to one-third of his body weight!

After these sessions, he sometimes looked like he would explode!

In order to work out Pugsy's daily milk intake, he would be weighed immediately before and after each epic feeding session.

At the end of each session, my palm would be red and sore from the pummeling it got from Pugsy's snout, but it was worth it to watch him grow.

Pugsy gets spines

Soon his fur started to grow and his spines which were sharp from the very start. At this stage, his mother would have secreted him into a burrow somewhere, returning every three or so days to



feed him. Not only would the puggle not fit into the pouch, it would have been much too painful for

mum with those spines growing.

Feeding Pugsy now not only hurt my palms but I felt like a pin-cushion at the end of each session. Fortunately, he progressed from daily feeds to every second day, then every third.

Housing Pugsy

Pugsy started off in an artificial pouch, a woollen beanie, which was replaced by an artificial burrow made from a terracotta pot, filled with soil and leaf litter.

His temperature was always monitored as echidnas cannot tolerate heat. This was quite difficult as summer was upon us and the outside temperatures soared to the mid-thirties. Fortunately, a room under our pole house managed to remain cool and temperatures did not exceed 26 degrees C.


Getting ready for the wide world


His milk feeds stretched out to every five days,




with consumption rising up to 500mls in one session. He grew quickly and, after more than five months in care, he was moved to an outside enclosure and introduced to termites, hollow logs and the natural environment, in preparation for his release.

At 2 kilos in weight, Pugsy was released on my property. A bright red straw was stuck over one of his spines so that we could recognise him. For several weeks he hung around, sniffing around the old sleeper walls for termites and ants. He started to wander further, and we saw him less often. His red straw fell off eventually and now, whenever we see an echidna, we wonder if it is Pugsy.

 Help skinks thrive in your garden Just give these beautiful little lizards a few hiding places in your backyard, and they'll hunt garden pests all day long.

 Invite rainbow lorikeets to clown around in your backyard These colourful parrots are a joy to watch, getting covered in nectar and pollen as they feast on your native plants. Set up a bird bath as well, and you'll have hours of entertainment.

 Make your neighbourhood safer for Platypuses Platypuses are intriguing animals. You never know they might live right under your nose in a creek or stream near you. Find out what they like and what they don't like to keep them safe and well in your neighbourhood.

Bringing up Pugsy Short-beaked Echidna

Courtesy of Tweed Valley Wildlife Carers
A call was received on a cool September evening



from the TVWC hotline. An echidna had been hit by a car near Wollumbin High School in Murwillumbah and the driver, a young woman, was distraught. The echidna was seriously injured, and a puggle, a baby echidna, had been found several meters from its mother.

A quick drive to Murwillumbah and the injured echidna and her puggle were taken into care. Unfortunately, xrays the next morning revealed that

the adult female had extensive snout fractures which were not repairable and she was euthanased. That left the raising of puggle to me, something I had never done before as these little animals rarely come into care. Armed with advice from carers in other groups and known-Echidna experts, such as Dr Peggy Rismiller, I set about bringing up Pugsy.

Egg-laying and pouches!

Echidnas have a set breeding season, with mating taking place in July and August. Around September and October, female echidnas lay a single egg in their pouch, which is not much more than a fold of skin.

The egg, the size of a grape, remains in the pouch for ten days before the puggle is hatched, weighing less than half a gram! The pouch enlarges through the thickening of abdominal muscles and the swollen mammary glands, to accommodate the puggle.

Echidnas do not have nipples. Instead, within the mother's pouch, around 150 pores secrete milk and the puggle finds the milk, by smell, and sucks up the milk at a rapid rate, nuzzling the mammary glands to encourage the supply of milk.

Feeding Pugsy

Pugsy, as we called the puggle, came in at 155gms, eyes still closed, unfurred, looking like a blob of plasticine. We could not tell if it was a male or female as echidnas do not have obvious external sexual organs, but we decided



it was a 'he'.

In order to emulate this natural way of feeding, I would drip a special echidna milk formula slowly onto the palm of my hand and he would press his

CATS ~ Should they be contained?

The Companion Animal Act 1998 allows cats to roam freely 24/7 except in food preparation areas and declared Wildlife Protection Areas. Dogs on the other hand are heavily regulated under the Act. This Act is administered by the Department of Local Government. They are currently undertaking a Policy Review and the issue of roaming cats

ask your friends and relatives to drop her a line too – everyone is helpful and this is the only way to influence this decision.

Email: office@perry.minister.nsw.gov.au

The Hon Barbara Perry Minister for Local Government Governor

Macquarie Tower Level 32, 1 Farrar Place SYDNEY NSW 2000

Training Days

I'd like to advise everyone of two Workshop weekends coming up in the 'not-that-distant' future. Anne Fowler will be in Nambour for **Saturday 26th and Sunday 27th June**, and Derek Speilman on Saturday 24th and Sunday 25th July. These dates are only a month apart but it is a privilege to be able to listen to these wildlife presenters, so we have to work around their busy schedules.

Cost as always will be \$10 per day for WILVO members and **\$20 per day for non wildlife Volunteers Ausytralia members (WILVO)**. (Anyone coming to Nambour by train can be picked up and delivered to nearby accommodation, and transported to workshop venue each day.) Morning and afternoon tea provided, **BYO lunch**.

Will advise more details, but at the moment just letting people know so the dates can be marked in the diary...regards Donna Anthony (WILVOS Sunshine Coast Qld'

Also Wires Tam has notified us of a small marsupial training day in Tamworth on 12th September.

wildlife@wilvos.org.au

Please phone the 24 hour hotline on (07) 5441 6200 for all enquiries

Julia Rose



is currently being scrutinized, however it seems there is no intention to require cats to be contained because the Minister, The Hon Barbara Perry fears a negative response from voters (see her email/snailmail address below). The only thing that will change the Minister's mind is if she is inundated with correspondence from the general public about this issue. In the interests of our wildlife, it is important we all take this opportunity (whilst the Policy is being reviewed) to let the Minister know that this is a problem for the community that the community wants fixed. We need cats to be treated the same as dogs under the Act. That is, we need cats to be contained on their owner's property 24/7.'

Roaming cats ensure the domestic, stray, feral continuum is maintained. If you are interested in helping with the task of having the Act changed, please contact the Minister and tell her. You can

Do you utilise Our Website as much as you could? www.ntwc.org.au

Main advantages of using the website

You can print out your

- **Membership form**
- **Foster Care report**
- **Milk request form**
- **Animal transfer form**
- **Animal report form**
- **You can have access to most carer organisation throughout Australia**
- **Have access to lots of useful links for education and help for native animals**
- **Read the latest and older issues of you newsletter**
- **See lots of photos of animals in care and those that have been released**
- **Lots of stuff to help you care for our native animals**
- **Check out the snakes in our area and see which are non; partly or very venomous**
- **Leave a message for our committee**

In future, to save on postage and paper we will be sending out emails with the website address of the latest newsletter to all who have internet access.

Please register your email address with Colin at turton37@bigpond.com

Shipping & Storage of Wombaroo Milk Replacers

Careful shipping and storage of Wombaroo milk replacers is necessary to prevent microbial contamination, and spoilage of milk products.

Wombaroo Milk Replacers should be stored in a cool, dry place, preferably under 30 degrees Celsius.

Moisture

Exposure to moisture is likely to be the most likely cause of microbial contamination. Once opened, we recommend storing milk powders in an air tight container. This is especially necessary in the more humid, tropical climates.

We **do not** advise storing milk powder in the refrigerator, due to condensation of moisture from the air. Every time the fridge door is opened, moisture-laden air can enter. This is then cooled, causing condensation to droplets of water which can provide a suitable environment for microbial growth. While it's true that refrigeration temperatures will slow the rate of microbial growth it does not prevent it altogether.

We **do not** advise storing milk powder in the freezer, due to the formation of ice crystals within the milk powder. These can disrupt the emulsion of fat in the milk and cause problems when trying to reconstitute the milk powder.

Temperature

High temperatures can accelerate oxidation of the fat in the milk, causing it to go rancid. This can create a noticeable change in texture, odour, colour, and taste. However, in the absence of moisture, short-term exposure to higher temperatures is not likely to cause significant microbial problems. Hence, we generally don't see a lot of problems caused by hotter shipping conditions, unless there has been a prolonged exposure to heat or excessive moisture.

Storage of Reconstituted Milk

Made up (reconstituted) milk should be stored in the fridge for a day, or frozen for longer periods. Do not refreeze thawed milk.

Meet your backyard Buddies

Backyard buddies are the native animals that share our built-up areas, waterways, backyards and parks.

Backyard buddies are also the people who value native animals and plants and want to protect them.

Meet some of your buddies In Australia, we're lucky to share our daily lives with some of the world's most beautiful native animals and plants. Find out some fascinating things about the animals that might visit or live in your local area - and get some simple tips to help you care for these special backyard buddies.



Give insect terminators (microbats) a

roosting place in your backyard Have you watched bats swooping insects? If you visit a park with streetlights at night and watch - you may be lucky! Insect eating microbats are alive and well in your area.



Lucky enough to have an Eastern Water

Dragon in your backyard? Could there really be a DRAGON living in your pond or local creek...a fire-breathing beast with fearsome teeth and talons?



Let lucky ladybirds control your garden

pests Ladybirds are our most welcome helpers to backyards and there are a few simple things you can do to attract ladybirds to your gardens



Bring Butterflies to your

Backyard Butterflies are important pollinators of our native plants. Butterfly gardening plays an important role in increasing your backyard biodiversity



Encourage kookaburras in your area.

Raising your family and defending your territory - it's a serious business for Australia's famous 'laughing' birds. They love friendly neighbourhoods with lots of trees. Help eastern rosellas feel more at home in your neighbourhood These colourful, chattering parrots can often be seen in our suburbs. They love gardens full of native grasses, bushes and shrubs with seeds.



Help keep the tawny frogmouth safe in

your local area You might hear these birds at night, but you'll have a hard time finding them during the day. They're very good at hiding among the gum trees in our parks and gardens



Help the little penguins Although they're

fast, graceful swimmers, these seabirds are quite vulnerable on land. They need a little help from their neighbours.



Make your backyard blue-tongue

friendly These beautiful reptiles are useful visitors, eating lots of garden pests. They might be big, but they need your protection.



Make your garden friendlier for superb

fairy-wrens These fascinating little birds aren't shy at all. Give them plenty of dense shrubs for protection, and they'll give you some company in your garden and or your verandah.



Help frogs survive in the concrete

jungle Frogs have simple needs. Give them some wet and shady spots, and a few hiding places, and they'll reward you by eating your pests - and providing a symphony of croaks during the warmer months.

Hairy-Nosed Wombat

Australia's Northern Hairy-Nosed Wombat is one of the rarest animals in the world. It is critically endangered and is under greater threat than the Sumatran tiger, Central Africa's mountain gorilla, and China's giant panda. With only 138 believed to be alive, a second colony is being created to expand the numbers.

Five wombats were translocated to St George last year. Sadly, two of these wombats - both males - have since died. As reported by Rebecca Williams, from an international perspective of re-introduction that is actually not too bad!

Today, another wombat is in the air! An adult female has been captured at Epping Forest and is jet setting her way to St George to meet the resident fellows.

At the end of this trapping session there will be 2 males and 4 females at St George and hopefully some breeding will begin soon. It is hoped that this year there will be a total of 9 wombats located at St George.

To listen to the ABC interview with Rebecca Williams, Director of the threatened species branch of Queensland's Department of Environment and Resource Management, go here - <http://www.abc.net.au/rn/breakfast/stories/2010/2879470.htm>

cheers, Linda Dennis

www.fourthcrossingwildlife.com

dedicated to the conservation of Australian native animals...

Molecular and conservation ecology of northern hairy-nosed wombats

Having focussed on conservation genetics and molecular ecology of NHW for my Ph.D. research, Andrea Taylor is now a member of the Recovery Team charged with developing and implementing management strategies for this highly endangered and unique Australian mammal.

Her role is primarily in the application of genetic



Andrea Taylor

markers in a variety of ways to more fully understand the threats to the sole remaining population of the species, and to non-invasively monitor population trends. Among the recent highlights of this ongoing research program has been the development and use of technologies to estimate the abundance of NHW based on DNA profiling to identify individual wombats from hair samples collected on sticky tape at burrow entrances. Refer to her full publications list for further details of this research program, which has been generously supported by the Marsupial CRC, Australian Geographic, the Wombat Foundation and the Chicago Zoological Society.

Spectacled Hare-Wallaby

Lagorchestes conspicillatus

Carmel Cowin Tenterfield Wildlife Carer

Carmel is caring for a Hare-Wallaby He was very little when she got him and won't grow much bigger then he is now and growing up with the dangers in the wild he wouldn't last a day. So he is probably

named. Spectacled Hare-wallabies have such efficient kidneys that they do not need to drink. They rely on water metabolized from their food, supplemented by the odd dew drop on early morning foliage.

Distribution

Spectacled Hare-wallabies were once widely distributed across the lower latitudes of northern Australia from eastern Queensland, through the Northern Territory to the Pilbara and Kimberley in Western Australia, with a subspecies on Barrow Island off the north-west coast. However, populations have declined sharply in the past 20 years or so, especially in the southern part of their range, and they are now only patchily distributed.

Habitat

They live in open woodlands, shrublands and hummock grasslands, sheltering under vegetation or in burrows during the day and searching for herbs, grass and fruits at night.

Threats

Spectacled Hare-wallabies are one of a group of small native wallabies that have fared poorly since European settlement. The Central Hare-wallaby and the Eastern Hare-wallaby are both extinct and the Rufous Hare-wallaby or Mala is highly endangered, surviving only on islands and in two fenced feral-free enclosures on the mainland (including one at Scotia Wildlife Sanctuary). They

are threatened by hot, extensive and frequent fires that destroy big old grass hummocks and rob the wallabies of shelter. Heavy grazing exacerbates the impact of these fires and predation by feral cats is another serious threat.



not able to be released so Carmel is looking for somewhere to place him a Zoo or wildlife sanctuary.



Description

Slightly bigger than a European Hare and with a bright orange patch of fur surrounding each eye, the distinctive Spectacled Hare-wallaby is aptly

The First Black Swans

An aboriginal Myth & Legend

Painting by Anslie Roberts

Text by Charles Mountford

A group of women, the Wibalu, owned the only boomerangs in the world. The men of the surrounding tribes had often planned to take the weapons by force, but since the Wibalu used many powerful death chants to protect themselves, the men decided that it would be safer to acquire the boomerangs by guile.

So two of the tribe changed themselves into white swans, and flew to a waterhole near the women's camp. The men felt sure that when the swans flew overhead, the Wibalu, forgetting about their boomer-



angs, would rush away to see the strange birds.

The scheme worked perfectly. As soon as the camp was empty, the men, who had been hiding near by, seized the boomerangs and ran. The women, screaming with rage, rushed back to punish the thieves, but they had gone. The women then returned to attack the swans.

But the swans had flown to a lily-covered lagoon which, unknown to them, was the home of the eagles. Angry at the intrusion, the eagles picked up the swans in their powerful claws and carried them far south to a great desert. Savagely attacking the swans and tearing out most of their feathers, the eagles left their victims on the ground, bleeding and almost naked.

But a large flock of crows plucked feathers from their own bodies, letting them fall like a shower on the naked birds. "The eagles are our enemies too," they said, "our feathers will keep you warm, and help you to grow strong again."

Today, the black feathers of the crows cover almost every part of the swans. But the white feathers on the tips of their wings, and the blood on their beaks, still remain.



Crash site where Wombat research is being carried out.

Wombats don't make good pets!

Many people might remember the lovable Fatso, who lived with the local policeman in the old TV series *A Country Practice*. However, anyone thinking about 'adopting' one needs to think twice. First of all, it's against the law to keep them without a



licence.

"They're a protected animal," says Gaylene Parker, an animal carer. "They have to be released and it has to be done the right way."

A southern hairy-nosed wombat running. When they need to escape fast, these wombats can gallop away at up to 40km/hr for short distances. (Source:

Peter Temple-Smith)

Gaylene has looked after over 500 orphaned wombats and now trains carers.

"We've had older confiscated wombats brought to us and 95 per cent of them die because they've been kept with a person, and they've run around the house with them during the day. When it comes to the age where it feels that it should be doing certain things, it doesn't have the confidence and skills to go out into the wild and fend for itself."

If someone finds a baby with a mother killed by the side of the road, they should contact NTWC, WIRES, the RSPCA, National Parks or a vet, she says.

In any case, wombats are not the most domestic of animals.

"We once had a wombat come through a sliding door at full pace, just leaving a wombat-sized hole in it," says Triggs. "They're not destructive really. It's just that to get somewhere, it doesn't matter what's in the way, they'll just push it aside rather than go around."

And if you're still having second thoughts about having a lovable wombat for a pet, try tapping your knuckles on a common wombat's rump. The shiny patch over their rump marks an area of tank-like toughness formed by matted hair, centimetre-thick skin, cartilage and bone. It's used as a shield to block a tunnel against predators or even to crush the skull of an attacking dingo or fox against the burrow roof. It's like knocking on a door-mat!

Please sell more raffle tickets, contact Jill Chedwynd or Julia Rose. Next draw late August. Great prize of laptop computer. Ring 1800 008290



Identifying Portuguese millipedes

Meet the Portuguese millipede and discover how is it different from native millipedes.

Characteristics of Portuguese millipedes

Portuguese millipedes and native millipedes

In 1953, people reported a new pest in Port Lincoln, South Australia. It was the black Portuguese millipede. But it wasn't just one - it was a plague! In big numbers these millipedes are real trouble, and over time they have spread into many areas of Australia, bringing their irritating habits with them.



Portuguese millipedes

They invade houses and get into food, bedding and clothes, stain floors when squashed, stink and destroy backyard veggie gardens. In short, according to CSIRO entomologist Dr Geoff Baker, they're a revolting nuisance!

Characteristics of Portuguese millipedes

Millipedes have long, thin bodies with lots of legs. This makes them good burrowers and explains why they belong to the animal group called Myriapoda (meaning 'many-legged'). Australia has 2000 native species of millipedes, plus an unknown number of introduced species.

All millipedes are scavengers and detritivores (organisms that eat decomposing plant and animal matter). They mainly feed on decaying leaf litter, but also eat tender roots, green leaves and mosses.

Mature adult Portuguese millipedes are 20-45 mm in length, with between 40 and 50 body segments. Most segments have two pairs of legs. You can tell males from females by looking at their seventh body segment:

females have walking legs

young males have no legs (just a plate)

adult males have gonopods (specially modified mating legs).

Adult male Portuguese millipedes are periodomorphic. That is, there are two alternating forms of the adult male: a sexual form and a non-sexual form. This means one year they are able to breed and the next year they can't.



Native Oncocorymbus

Portuguese millipedes breed during autumn and early winter. The female lays eggs in a hole. An egg hatches into a pupoid - a brief, legless stage.

Millipedes love areas of leaf litter, mulched garden beds and ground covered with plants. Portuguese millipedes do not breed inside houses - they usually die indoors.

Portuguese millipede invasions usually happen in autumn after early rains and can continue for several months. Invasions also occur in spring when the days start to get warmer. In summer, millipedes are less active - they hang out together in underground burrows or in cool, moist places.



Native Dimerognathus

Portuguese millipedes and native millipedes The smooth cylindrical body of the Portuguese millipede is different from many Australian native millipedes, which are often bumpy-looking.

When disturbed, Portuguese millipedes will curl into a tight flat spiral or thrash around trying to escape. Other millipedes curl into a looser, sloppier spiral or form a neat ball.

Use this guide to help distinguish the invaders from the natives:

Use this guide to help distinguish the invaders from the natives:

Use this guide to help distinguish the invaders from the natives:

Use this guide to help distinguish the invaders from the natives:

Marsupial Milk Formulas

by Linda Dennis

Website: www.fourthcrossingwildlife.com

Email: linda@fourthcrossingwildlife.com

For many years the wildlife community has waged wars about which milk formula to use for rearing orphaned marsupial joeys.

Some consider that raising any joey on anything



Wombaroo & Wombat fed on Biolac

© Chris McGregor



reported findings are in this section.

Considerations when using Milk Formulas

To date there is no published data on changes in milk composition in wombats.

Cows milk is not recommended for feeding marsupials as the milk has too much lactose, which marsupials are intolerant too. Lactose is poorly digested in marsupials and feeding cows milk results in diarrhoea and other complications, the most severe being death.

When using the Wombaroo formula it is important to follow the manufacturers recommendations regarding mixing up the formula and the quantities offered to a

joey.

Wombaroo formulas are specifically made for different age stages. <.4 (less than point 4) is not a weaker consistency than .6 (point 6) - it is a totally different formula. A joey at the <.4 stage will not tolerate .6 milk, even if it is watered down. You must feed the joey the correct milk. See Wombaroo mixing instructions for more information.

All milk formulas have their place in the rearing of marsupials. Each animal is totally unique and where some may thrive on one product and not do so well on others, it can be totally reversed in another joey.

It is more the total care regime of a joey that contributes to any failure in the animal, and not purely milk formula choice.

Stephen Jackson has written a comprehensive paper on marsupial milk in his book Mammals, Biology & Captive Management.

The paper is titled Milk, Milk and a Comparison with Monotreme Eutherian Milk.

Following is some information on milk formulas that you may consider when deciding on a formula to give a marsupial in care. Part of Stephen Jackson's

Newsletter of The Northern Tablelands Wildlife Carers quite got the gist of the importance of Wombaroo accuracy.

If using Di-Vetelact you may not need to offer water in between milk feeds. The formula is watery and adequate hydration may be received from the milk formula alone. Ensure that you constantly keep checking on hydration, however, and offer water appropriately.

As Di-Vetelact is a very watery formula it can sometimes cause diarrhoea in a joey, especially when Formula A is being used. Adjust the mixture



Walaroo & Wombat on divetelac

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the recommended quantity to offer is for a joey that is totally depended on milk (furless or just furred). As a joey starts to eat solids the quantity should be slowly reduced.

According to CSIRO research, Biolac milk contains more lipid concentrations (higher energy) and is closer to that of natural milk. Late lactation animals receive more "total energy" from Biolac milk than any other formula. (CSIRO. Jackson, 2003).

Biolac is more readily digested than any another milk formula due to the ingredient galactooligosaccharides (special sugars) which are similar to the sugars found in natural marsupial milk. Therefore, using Biolac is likely to result in fewer problems such as diarrhoea. (CSIRO. Jackson, 2003).

Undigested maltodextrin would therefore pass

into the large intestine from where it might be excreted unchanged, or more likely, the colonic microbial flora may ferment it to short-chain fatty acids and some lactic acid plus various gases such as carbon dioxide, hydrogen and methane. If adaptation to maltodextrin does occur in pouch young there is likely to be an initial bout of diarrhoea.

A very wordy quote, yes. But important when talking "diarrhoea" due to milk formula's.

Even NTWC founding member, veterinarian Marcus Holdsworth states in his research **Cost**

Comparison: Milk for Marsupials that Quote: *you can just about use any of the formulae available and successfully raise a kangaroo joey to release stage.*

The statement that Wombaroo is the best milk is an opinion only. Just as my preference for Biolac is my opinion only. A decision on milk subsidy should



Walaroo & Wombat on Wombaroo

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not be made from the personal opinions of any carer and it is not the point anyway. My point is that NTWC should be supporting its members and allowing them the freedom of determining their own technique - and that support should be equal across the membership board. It is not our place to support any one technique (or formula) and to push that onto carers. What works very well for one carer may have disastrous results for another - so it is important to keep the mind open and allow for alternatives.

CSIRO research does not state that there are any complications due to the use of Biolac and I have been caring for 11 years and have successfully raised many, many marsupials on Biolac during that

time. I started off using Wombaroo with some Di-Vetelact use but have since switched to Biolac as I found it to be the best formula *that works for me and my animals*. Although, I still do use the others when needed. I'm not saying for one moment that everybody MUST use Biolac because it is my chosen milk formula, but that carers MUST be given a choice and freely make up their own minds and determine their own caring technique (so long as there is no evidence that the animal is being compromised).

Always transition between milk formula's. This includes when moving through the different composition formulas of Biolac and Wombaroo, or if

swapping a joey from one product to another.

The milk formula argument is mainly nutritional based. Many consider that universal milk formulas don't have the

nutritional requirements for a marsupial and that raising a joey on these types of formulas will result in fur loss, cataracts and other diseases.

While many carers have opinions relating to this, there has never been a scientific study to prove it, so the foundations are baseless.

At Fourth Crossing Wildlife we have raised different species of marsupial on all three available milk formulas designed for animals, that is: Wombaroo, Biolac and Di-Vetelact.

Fourth Crossing Wildlife is a release site and we get to see the animals long after release. To date there have been no nutritional complications witnessed in any of the animals, and they were all released two years ago or more.