

Wombat Protection Society of Australia Ltd

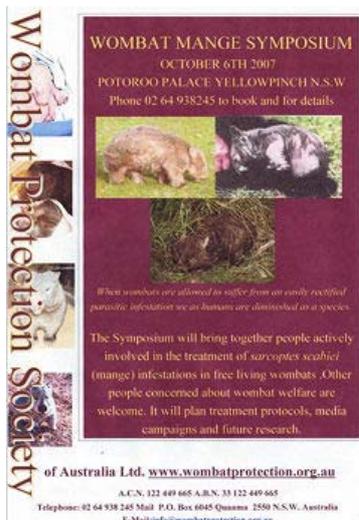
Mange Can Be Stopped



The Society, as with all Australian Charities, maintains a public fund, basically a separate bank account to which all donations are deposited. This fund is managed by a separate board. Members are welcome to sit on this board but they must meet the requirements for this as determined by the Environmental Register.

All members of the Society are welcomed at any time to receive minutes, financial statements and any other material pertaining to the Wombat Protection Society of Australia.

Some material must be sent to all members as determined by ASIC, for example notice of the AGM, and AGM. Minutes including financial statements.



The most serious health problem affecting wombats in Australia is mange, a systemic problem caused by a small mite, *sarcoptes scabiei*, the same mite which causes mange in dogs and other animals and scabies in humans.

While the advent of easy to apply treatment has seen the mite limited or eradicated in human and dogs, wombats, partly because of their nocturnal and burrowing behaviours have not been afforded the benefits of treatment and now mange is widespread throughout the wombats' range. No part of Australia where wombats live is mange free and mange causes a long, slow and painful death for wombats. The first Symposium on mange was held in NSW in October 2007 with the aim of bringing together people involved in the treatment of wombats with mange to share ideas, issues and concerns.

The Wombat Protection Society wishes to thank Voiceless, the fund for animals, "People's Choice Awards" for the opportunity to make this material available to a wide array of interested parties.

The Society applied to Voiceless for a grant to further work on wombat mange and as a result became one of four finalists for the People's Choice Award.

We thank those who voted online in November for this project and appreciate the \$1,000.00 grant resulting.

This money assists the printing and copying of this presentation and its distribution.



Wombats, National Icon?



Photo courtesy WPSA

Wombats are considered a National Icon for Australia and most pictures of wombats show healthy animals. Many people don't get to see a manged wombat and are often devastated when they do. A healthy wombat has bright eyes, clean and complete hair, skin inside the ears is clear and often pink, and if they haven't been rolling in dirt, their hair has a sheen.

Many people living in areas where mange is prevalent don't realise that all the wombats they see infested with mites and what they perceive as normal hair loss and skin encrusting is totally abnormal and an indication that the animal will die shortly. Sadly farmers who don't like wombats joke about not shooting mangey ones because they will spread the infestation and kill off other wombats.

Mange, International Disgrace



Photo courtesy Julia Clapin

The antithesis of the healthy wombat is the one with mange. Thickened plaques of parakeratotic skin form all over the animal, leading to flyblown fissures. The ears and eyes become covered in thick scab like plaques. The animal is hunched up, eventually has difficulty moving, eating and drinking and dies an often slow death, most frequently succumbing to starvation, deafness, blindness and/or pulmonary infections.

These are secondary infections and not inevitable; however unless the mites are removed through treatment it appears over time the mites will exponentially increase and the degree of clinical signs correlates with number of mites.

That Australia allows any native animal to live at risk of mange and consequently die in such a state is a national disgrace.

Mange is caused by a small mite, *sarcoptes scabiei*, that is the same mite that causes scabies in humans and many other animals.

Mange is caused by a mite



Photo courtesy WPSA

The female mite burrows under the skin and as she deposits eggs, she digs tunnels through the skin. Male mites and other stages of the mite live on the external skin and base of the hair follicle.

It is the wombat's reaction to the female's eggs and faeces which cause the reaction that becomes deadly to a wombat. The skin begins to exude fluid through the tunnels and this along with the external mites, dirt and bacteria build into thickened plaques that look like scabs. These become very thick and as the animal moves crack open creating open wounds which frequently become flyblown and infected.

Opportunistic infections follow

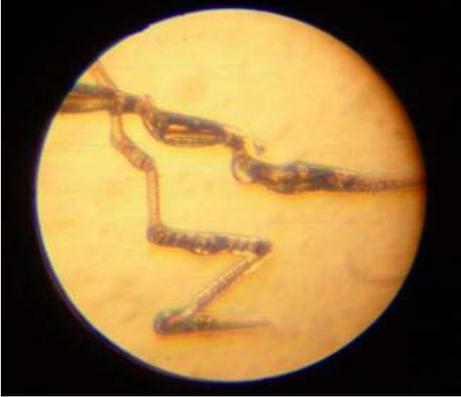


Photo courtesy WPSA

There may be other factors occurring which explain the impact of mange mites on wombats. Many people believe that the wombat's burrowing behaviour and their burrow environment with its relative humidity either cause mite growth or perhaps allow opportunistic bacteria, mould or fungi to become involved in the process.

The fluid leaked from injured skin caused by the female mite burrowing builds up along with male mites and dirt in the thickened parakeratotic scabing seen on wombats. This mix seems to create a toxic poison which may be more problematic in certain climatic conditions- for example when the wombat gets wet. Bacteria and fungal strands are often seen in mange crust and the faeces of wombats with mange. No study has been done in this area.

Mange can be treated



photo courtesy Lenore Taylor

The clinical signs and progression of mange has been well documented by Lee Skeratt who undertook the only comprehensive investigation into mange on wombats completed in Australia in 2001. Lee's Phd is available from the University of Melbourne and a 29 page precise and contents list is available on their website. The entire thesis runs to nearly 300 pages but it is worthwhile reading for anyone interested in this area.

Lee was studying veterinary science and used multiple intramuscular injections of Ivermectin to control mite numbers. Unfortunately few vets in Australia have direct experience in working with wombats with mange and many have only read the various articles which have been published in journals following Lee's work. Thus many believe the only treatment for mange is multiple injections of Ivermectin.

Clinical signs = number of mites



Photo courtesy G.Malzard and Cath Horsfield
WRIN website

Lee Skerritt's work did not examine or compare treatment modalities. He used only one and this was to ensure that wombats he infested with mange were mange free at the end of his work with them. He did show that wombats do not have immunity to mites, that an otherwise healthy animal will succumb to mange and that the clinical signs of mange correlate with the intensity of mites on the animal and the intensity of mites on the animals are a function of the mite breeding cycle.

Simply put, the more mites, the more clinical signs of mange. Lee's method of eradicating mange, ie. multiple injections of Ivermectin is not a suitable treatment regime for free living wombats BUT he demonstrated that once the mites were removed from infested animals they return to normal health.

Mange can affect healthy wombats



Photo courtesy A. Cox

Lee's work is important in debunking a number of myths about mange. It is not a disease, it is an infestation. The infestation does not only affect unwell or poorly animals. Lee showed that the more mites he put on ANY healthy wombat, the greater the clinical signs of mange resulted.

Once an animal is compromised by mites and the subsequent infections caused by the infestation, then other factors may come into play. Environmental degradation leading to wombats losing territory, being under stress and having to cohabitate more closely with other wombats can all be factors in determining how long an animal lives, how long it takes for the mite load to reach critical proportions and how long it takes for secondary infections to kill the wombat.

Both the Bare-Nosed Wombat found in NSW Victoria, ACT and small pockets of SA and the Southern Hairy-Nosed Wombat living in South Australia are now also affected by mange, however the latter has been relatively recent.

Southern Hairy-Nosed Wombats are now victims of mange



Photo courtesy Bob Cleaver

Mange moved from the Murraylands population and is now spread throughout the remaining populations.

Only the Northern Hairy-Nosed Wombat living in the small pocket of Epping State National Park in Queensland remain unaffected. There are now only 114 of these animals remaining. They are shy and more easily startled than the

Bare Nosed Wombat and any incursion of mange into their very limited range would wipe them out. While the fox is potentially a mite vector, Flinders Island and Tasmania, which until recently had no foxes, both have wombats with mange.

Treatment cannot be delayed

1st photo July 2nd; 2nd photo August 22nd



Photos courtesy Julia Clapin

In some circumstances mange progresses extremely quickly. This is most likely due to the number of mites and the means by which the wombat received its infestation. If he or she shares a burrow with a wombat that dies or has died recently (within the three weeks mites can potentially live without hosts), then they may receive many thousands of mites simultaneously.

A similar mass infestation is likely to occur if a mother wombat has mange and manages to have a joey. Lee Skerratt in his 2001 PhD demonstrated that the development of clinical signs of mange is directly proportional to the number of mites on the wombat.

Habitat degradation may be implicated



Mange is not a “natural” event. Whether the mites were brought in by dingos, humans or foxes remains unknown. Mange affects wombats throughout their range.

The natural forests of Coolagalite, an area on the NSW Far South Coast have been slowly degraded by “death by a thousand cuts”. The clearing of land has seen the once abundant forest running to the coast depleted and wombats in the area extending from the coast through to the inland of Cobargo to Brogo, all show clinical signs of mange. Foxes in the area have been reported to have mange as well. There is some suggestion that land degraded by the use of superphosphate may be implicated in increased infestations, however the simple reduction of wombat territory caused by land clearing is forcing them into closer contact with humans, dogs and increased burrow sharing which may also explain increases.

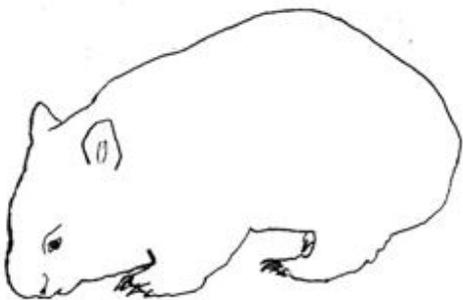
Mange can be stopped



The Wombat Protection Society of Australia began a mange mapping exercise in 2006 when it invited anyone seeing a wombat with mange to contact the society. The results of this ongoing mange mapping exercise shows that mange is distributed throughout the range of wombats within Australia. The only wombats not affected are the 114 Northern Hairy Nose Wombats, the remaining examples of their species is in Epping State National Park in Queensland.

The Society has actively promoted the need to take action about mange, to educate the general public and rehabilitation groups, vets and sanctuaries. The Society's project “Mange Can Be Stopped” was a runner up in the “Voiceless People's Choice” awards for 2007, the first time mange has been put on the public agenda.

Mange should be treated



The Wombat Protection Society of Australia has previously produced two papers, one looking at the political impediments to treating mange which concluded that mange in wombats should be treated and that the excuses for inaction used by government departments charged with the care and protection of native animals were just that, excuses.

Were any person to keep a domestic animal in the state of mange allowed to develop on wombats, they would be charged and jailed under animal cruelty laws in Australia. Native animals are afforded no such protection. The second paper examined all the recorded methods of treating wombats with mange, paying particular attention to trying to gather as much information about possible treatments, both organic and inorganic. These papers are on site at www.wombatprotection.org.au

Mange research is ongoing



The Society monitors the treatments used and application methods employed, to work out which methods to recommend. The Society realises that this is a work in progress and after only a year of bringing mange to the attention of Government Departments and the general public, it has already received recognition by people wanting to join and assist as members, the "Voiceless" group and Animal Welfare Groups and Rehabilitation Groups, however, there is still much work to be done.

To this end it is the intention of the Society to not be prescriptive in suggesting how wombats should be treated, rather to report to people how they have been treated and monitor the relative success of various methods and different groups' approaches. The Society sees its job as making information available and showing and trailing methods, with wombat welfare as the paramount issue.

A range of treatment options exist



photo courtesy Barrabarroo

There are many products that remove mites. These are called miticides and range from organic sulphur in oil mixes, to synthesised products like Ivermectin and Cydectin. Some synthesised products are registered in Australia for specific uses, sometimes for removing fleas and ticks on dogs or in the case of Cydectin, parasites on cattle and deer. There are no products registered for use on wombats so Veterinary medicine has to use products registered for use on other animals.

All of Cydectin (cattle and red deer pour on), Ivomec (sheep and goat pour on), 10% sulphur in oil (organic), Advocate (a dog spot on), Revolution (a dog spot on), amongst other products, have been used to successfully remove mange mites from wombats. As previously mentioned injections of Ivermectin have been used.

Washing wombats with mange is not recommended



While some groups recommend washing wombats with mange particularly to apply washes like Malawash and other liquid miticides, as well as to relieve discomfort, the Wombat Protection Society has had adverse reports when the mange scab on wombats becomes wet. They do not recommend the use of the organic lemon juice or other washes as a result.

The wombat pictured was washed in a commercially available anti-itch solution containing pinetarsal, recommended for infants and people with serious skin problems. The scab was so thick that following the first bath the animal scratched off about 200grams of skin and immediately began to smell worse than prior to being wet. A follow up bath saw a similar amount of skin detritus removed but within 24hours the animal collapsed, still smelling. It is believed that the toxins in the bacteria on the external skin caused the death of this animal.

WPSA mange treatment kit



Cydectin, registered in Australia as a cattle and red deer pour on to remove a variety of ecto and endo parasites has been used successfully to remove mange mites from wombats.

The Wombat Protection Society of Australia supplies groups treating wombats with premeasured containers of Cydectin sealed with a latex top. Cydectin, like any pour on or spot on should be handled with care, be supplied in well marked containers suitable for the application or decanted directly from original containers. Specimen containers, drug containers or syringes can all be used.

The dosage rate and method of application should be marked on the containers. The same dose rate used on cattle and deer 1ml per 10 kilos is suitable for wombats. Containers should be marked with POUR ON by running a strip down the back to avoid errors.

Checking for mange



Photo courtesy Cedar Creek Wombat Rescue

Hand reared wombats are easy to check for mange mites. Humans can use themselves as a test by handling the animal and if they develop itchiness then it is very likely that the youngster has mange. It is not unusual for young wombats to come into care carrying some mites and often pinkspots similar to the papules which develop on humans are the first signs.

If the mites are superficial a range of options exist for treating youngsters used to being handled or the quieter "pinky" that comes into care.

Bird strength Malawash gently wiped over, dusting with parasite powders or scabies lotions made for people, have all been used successfully. Intense infestations may require more invasive treatments but early stage infestations are quite easy to resolve and carers should not be concerned that these will spread or permanently infest an area.

Mange on humans is called scabies and is easily treated



Photo courtesy A. Cox

Mites from wombats can transfer to humans and cause intensely itchy papules, red spots, to appear on the skin, generally within days and lasting a few weeks if untreated. Lee Skerratt in his Phd work on wombats reported people handling manged wombats getting raised papules and intense itchiness and one handler passing on mites to their bed partner who had not handled wombats.

In humans the mites appear to be self limiting and Lee and others have tried to allow the infestation to develop sufficiently to get confirmed skin scrapings showing mites, however without success. For those not wishing to experiment with a mite infestation any product available from chemists used for human scabies will rapidly relieve the itchiness. Some groups use methylated spirits as a wash down after handling manged wombats but washing well with soap and then applying a scabies lotion works well and immediately.

Treating captive animals is easy



Photo courtesy WPSA

Delivering treatment to a hand reared wombat is a simple matter with pour on or spot on products. In some cases free living wombats can be treated this way as well, particularly if they are under houses or in a contained area. The treatment of free living wombats is however a major area of endeavour which brings far more complexities than treating a hand reared or contained wombat.

Spot on and pour ons should be applied as per the instructions given. Some spot ons require that all the contents be placed as close to the skin in one spot (hence the name), while the usual application for pour on products is to run a strip down the back of the animal to disperse the product. The weight ratio for dogs and wombats are the same.

Treating free living wombats is a challenge



Photo courtesy Cedar Creek Wombat Rescue

Free living wombats are big, some can reach 40 kilos and many don't take kindly to contact with humans.

A wombat captured can move very quickly and can bite and scratch as well as harm itself, if the method of capture is not carefully considered.

The Society has a contact list of people experienced in working with free living wombats. These people will offer help and advice to groups and individuals. For more information contact the Society.

Cage capture needs to be monitored constantly



Photo courtesy WPSA

Traps can also be used to catch wombats. The modified wheely bin has been used by some groups and is better than open bar cages because wombats prefer darkened areas.

Trapping should only be taken as part of a prepared treatment regime where traps are checked at least hourly throughout the night because the animal can become highly stressed if left for any time in a trap.

Trapping animals should only be undertaken at night to ensure that the wombat is not distressed for any length of time.

Being caught is better than having mange



Photo courtesy Cedar Creek Wombat Rescue

There are a number of ways that wombats with mange can be treated and depending on these, various methods can be used.

Wombats with severe clinical signs may have secondary infections and some form of capture which allows antibiotics to be administered could be helpful. Some groups have trailed temporary pens around burrows, used by animals with mange, to allow a longer period of treatment. Some antibiotics will work as a one off injection but generally being able to observe how the animal responds to the treatment would be preferred.

Taking wombats from their habitat should always be considered the choice of last resort. The Wombat Protection Society is monitoring a number of non invasive methods for treating wombats.

Treatment is good but getting home is even better



Photo courtesy Cedar Creek Wombat Rescue

One of the important issues in treating mange is returning the wombat to its normal routine as soon as possible. To this end some groups prefer to temporarily capture the wombat, give it a treatment and released immediately. This wombat, treated by Cedar Creek Wombat Rescue received an injection of Ivermectin and an oil treatment and was released.

The use of oil on wombats with mange seems to date back historically to the days when sump oil was applied to farm animals (eg; pigs) to prevent skin infestations. NEVER use sump oil on a wombat with mange. Follow up of these animals is difficult so the Wombat Protection Society tries to monitor cases where hand reared wombats returning regularly can be recognised and their recovery progress monitored.

Burrow based applications



Photo courtesy A. Cox

One of the better ideas to treat mange is to have the wombat treat itself. To this end, the McCarthy burrow container was developed specifically for sulphur in oil to be delivered in "small slurps" onto wombats as they move in and out of their burrows.

Sulphur in oil has been used for centuries as a means of killing ecto parasites and is still recommended mixed in petroleum jelly as a treatment (at 6%) for infants with scabies in current medical literature (see Treatment options paper on site for details).

On wombats the oil is used both as a carrier and probably smothers external mites. Some people take severely manged wombats into care and rub this mixture over them, believing that they need to be kept warm and worried that being constantly wet with oil may affect temperature regulation. The container is best hung empty until the wombat ignores its presence.

Mange self treatment



A container to hold sulphur and oil can be made out of a plastic fruit container and a tin lid available from coffee or milk flavouring tins. At least three holes are drilled into the plastic lid and another three are drilled through both the plastic and tin lids. Through these the tek screws are inserted using another set of the rubber washers which come with the screws to give additional separation between the two lids. This allows the sulphur and oil to pool in the tin lid when the whole container is inverted. Use another tek screw to connect a length of chain to the bottom and silicon around as an arrangement to ensure the airlock is maintained. When filled and inverted the chain can be hung from a log or a tent peg to a convenient part of the burrow.

You may wish to treat the wombat, but he or she needs to agree. One method for applying spot on or pour on products at a distance is to attach a syringe with the product to a long stick.

Application for distance treatment



We've used fibreglass tent poles as these fold up and are light. Using hose tube as a guide a second tent pole is lined up with the syringe plunger allowing around three metres of reach.

If you stand very quietly you can often reach a wombat from this distance and deposit the solution onto him or her without needing to capture them. This provides an alternative to capture where burrows aren't able to be located. Wombats can become quite distressed if approached and this method gives the person treating the wombat a good safety margin.

Burrow treatment device



Photo courtesy A. Cox

If pour on products like Cydectin and Ivomec can be used to successfully reduce the spread of mange mites, devices where wombats can "self treat" can be used. This minimises the need to interfere with the wombats' normal behaviour.

Here a hole of about 5cm diameter is cut out of a piece of plywood and the base of the hole flattened using a jigsaw. A bottle top lid is glued to this, such as is found on soft drink bottles. We used a glue gun but many other glues would work. The plywood is roughly 20cm square and the hole cut midway. Two holes are drilled at the top to allow the plywood to be attached to a frame which is put in place over the burrow entrance. Half a wire from a treeguard works well, though fencing wire bent to shape can be used. Where gates and fences are used the frame can be omitted and the plywood attached directly.



Photo courtesy WPSA

Treating wombats where they live is more likely to be less stressful than any capture methods. Some people have lain in wait over the burrow armed with a pour on or spot on only to discover that wombats can spend many nights in their burrow if they smell humans nearby.

The range and shape as well as the location of burrows means that the plywood flap is likely to provide the simplest means to treat wombats in the burrow but it maybe necessary to add a carrier to some substances to ensure that an adequate amount of spot on or pour on sits in the lid.

One advantage of Cydectin is that it is quite oily and evaporation occurs slowly ensuring that enough fluid exists even if the wombat waits for a day or so before either coming out or going into its burrow.



Photo courtesy WPSA

Cydectin also has the advantage of dispersing quickly into the hair and becoming water resistant relatively quickly (within 20 minutes it is resistant to rain).

In a field trial within ten minutes of application the only noticeable indications on the wombat was a slightly oily patch.

Watched over two weeks after application no discernible change was noted in the wombat's faeces which also indicates that the substance did not cause unwanted effects like scouring and no skin irritation was seen.

Technology may help



Photo courtesy of Phil Borchard using movement activated photography

Mange can be recognised in its early stages by hair loss appearing on the face or flanks in particular.

This picture taken by Phil Borchard using a movement activated camera shows a mother and a joey at heel. The female shows clear signs of mange and the joey will inevitably share her mites.

This type of technology can also be employed to unobtrusively monitor the health and well being of wombats both to determine whether treatment is necessary and whether it is working.

The society has had reports of wombats treated at monthly intervals with Cydectin remaining bald but not developing parakeratotic scabbing and those with such scabs, losing them yet remaining hairless for some time post treatment.

Scratching does not equal mites



Wombats groom themselves by scratching and scratching does not correlate well with the level of mite infestation.

Lee Skerrat in his 2001 Phd correlated the time spent scratching with the number of mites placed on wombats. It seems that as the animals show more and more clinical signs of mange their scratching reduces rather than increases.

Wombats can be pretty rough with one another, particularly in territorial disputes. They often appear with hair loss and even substantial sores and scabs that can look like mange.

Not necessarily mange



In veterinary circles there is what is called the "Maybe Mange" test where if it looks like mange then treating it as if it is mange is recommended. If spot on and pour ons are being used, then the degree of invasiveness is lessened and it is probably a reasonable thing to use the "maybe mange" test.

On the other hand, if weekly injections and capture for treatment is to be undertaken, it is more important to establish that the wombat has mange and this is done by a skin scraping and microscopy . Even when skin scrapings are taken, it is notoriously difficult to identify mites.

This wombat was seen fully furred one evening and overnight following a meeting with another wombat, had been bitten causing fur removal on her back.

This wombat does not have mange. He was a hand-reared wombat released into the wild too early and was attacked by other wombats.

Severe scabs may not be mange



Photo courtesy Don Buckley

Wombats become very territorial and their front teeth are like a sharp chisels. They jump up and land teeth first.

Young and inexperienced wombats stop still, allowing extensive damage to occur until the aggressor runs out of energy and stops biting them.

While skin scrapings and microscopy can be used to determine whether injuries are mange related or otherwise, these are often inconclusive.

The health of this wombat's remaining fur, the absence of scabbing anywhere else other than the back, (ears are often the first to become scab filled) are indicators that this damage is not mange.

Please help!



Photo courtesy A. Cox

You can make a difference



Photo courtesy WPSA

My future is in your hands



Photo courtesy Sue Hay

The Mange Symposium used the slogan that to allow wombats to suffer a slow death from mange diminishes humans as a species.

Humans have probably been responsible for the introduction of this devastating mite to the wombat population and humans are the species that has the capacity and ability to eradicate it from them.

This task while difficult and complicated by the behaviour of the wombat is not insurmountable, nor is it impossible.

There are a few dedicated individuals striving to help wombats and those who have the expertise and proven ability to do so. None are supported by any Government funding, none are able to be involved in this work full time.

The Symposium honours their work and their dedication and the Wombat Protection Society tries to assist and support them in their endeavours.

You have already helped wombats with mange by reading and understanding this material. If it prompts you to take further action then that is even better.

You can also get involved with the Wombat Protection Society of Australia by becoming a member (membership forms are on site- you just nominate yourself and we'll do the rest), or you can make a donation and specify that it be used to assist wombats with mange .

You can also volunteer your time or assist in one of the mange eradication programs being carried out by groups throughout wombat regions, or work with the society to develop such a group. You can join your local wildlife rehabilitation group and become the member with expertise about mange in wombats.

www.wombatprotection.org.au

WOMBAT PROTECTION SOCIETY OF AUSTRALIA

Web: www.wombatprotection.org.au
Email: info@wombatprotection.org.au
research@wombatprotection.org.au
Mail: PO Box 6045, Quaama, NSW 2550
Telephone: 02 64938245
Fax: 02 64938245