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Wombat Myths

Belief: There is a population explosion of Wombats.

Fact: Wombats cannot have "population explosions"

Bare Nosed wombats breed every two to three years and have one young. While it is technically possible for them to breed yearly this can only happen if the young lactating wombat is killed. Therefore, destruction or removal of young wombats leads directly to an increase in young born in a particular period.

Most studies agree that wombats have young in a 50:50 ratio hence of all young born and successfully reared in any period 50% will be male. The young females take two years to reach sexual maturity and are unlikely to breed until they have established a "territory". Hence, most females will not breed until their third year. There is some evidence that if they cannot establish a large enough territory (i.e. have access to a range of burrows not being used by other breeding females) they don't breed. Trigg's, B.pp 91-96. 2002.

A pair of Bare Nosed wombats can only produce the equivalent of one female every four years, so it is not possible to have a population explosion of wombats. See Boer in Wells (Ed.) 1998 p.129 and Marks Ibid.p.125.

Dr David Eldrige of the Department of Land and Conservation says "reports of 'explosions of wombats would not be consistent with what we know about wombats" (p1, 2005).
The wombat cannot become pregnant while she is lactating. This means while there is a joey in the pouch or suckling young at foot, the wombat will not reproduce.

Moritz et al in Wells (ed), 1998 conducted a histological analysis of the reproductive cycle of the Bare Nosed Wombat. They concluded "this study has shown that an anoestrus period of unknown length occurs at the end of and immediately following lactation" p.84.
The wombat's closest living relative is the Koala. Moritz et al. continue, "The Koala has been shown to fail to breed every third year when the young of the previous year is born late. A similar effect may occur in the Bare Nosed Wombat, because as in the Koala, lactation lasts nearly a full year".

If it is true that population numbers have increased, then reasons other than the usual breeding cycle of the current local resident wombats is involved. Such explanations could include incorrect methods used to estimate wombat populations, indiscriminate culling leading to established animals losing their territory and other younger animals being prepared to "divvy" up the territory (however, even under this scenario while a slight increase in

population might be detected it wouldn't be "explosive"), loss of habitat in local environs resulting in a movement of non-local wombats into an area, and some evidence suggests the removal of rabbits in an area can increase both wombat and kangaroo numbers (see Cooke in Wells(ed)1998 p.262) and some other evidence indicates that the lowering of water tables may lead wombats to expand territory towards coastal areas (see Triggs,B. 2002 pp1-12). It is also possible that ignorance of the wombat's classification and characteristics lead some people to believe that wombats are related to rodents and hence breed similarly and then make assumptions about numbers based on seeing one wombat but believing they are carrying six. Further, ignorance of wombats' burrowing and range is likely to lead to the assumption that six new burrows mean six more wombats (see Taylor et al in Wells (Ed)1998 for a full discussion).

Belief: Wombats are rodents/moles and breed and behave similarly.

Fact: Wombats are not related to nor do they behave like moles or rodents.

Wombats belong to the phylum chordata, the subphylum vertebrata and the class Mammalia just as humans do. Their subclass is Marsupial as they along with possums and macropods have embryonic young born after approximately 30 days which then spend eight months in a pouch (Triggs,2002, p.12). Wombats are not rodents nor are they related to rodents. The closest living relative to the wombat is the Koala. Placental structures of the Bare Nosed Wombat resemble those of the Koala and provide further evidence of close phylogenetic affinity Wells (Ed.)1998. p. 86.

Human negativity towards rodents combined with the incorrect assumption that wombats are rodents have led to inappropriate management of wombats particularly on farms, but also in forests and in National Parks despite their being substantial information available and assistance available in N.S.W. to assist management issues. As an example, wombats have "a relatively large brain" (Wells (Ed.) p53.1998), they are highly intelligent and trainable hence one of the easiest animals to control with electric fences (see Marks in Wells (ed) 1998 p.298). Unless such information is passed onto farmers and others needing assistance with management issues huge amounts are spent on futile control methods which are frequently both illegal and cruel and serve only to exacerbate problems. (see Marks in Wells (Ed.) 1998 p.287).

Belief: There weren't any wombats here previously - they are not native to the area.

Fact: Wombats contract from and reappear in areas due to environmental changes caused by human activity.

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Wombats prefer native bush for habitat as their preferred diet is native grasses and they require habitat that allows for numerous burrows across their range.

Australia wide, where wombats still exist, there has been movement noticed in wombat populations.

In general, their overall range has decreased and moved towards the coast as a direct result of loss of habitat (see Triggs, B. 2002 pp.1-9.). Other factors such as the introduction of rabbits and then various control methods for rabbits have affected wombat range.

Cooke in Wells (Ed)1998 found a relationship between wombat populations and the introduction and later removal of rabbits via myxomatosis. Wombat numbers decrease when rabbits are present and return to normal levels when rabbits are removed. Cooke found that rabbits target the native perennial grasses wombats prefer. Wombats can't and have not been shown to return in "explosive numbers". A number of researchers have concluded that over a period of time following the removal of rabbits as native pastures improve wombat numbers return to usual levels (see Stott and see Cooke in Wells (Ed.) 1998)

Dr David Eldridge of the Department of Land and Conservation confirms that "reports of 'explosions of wombats' would not be consistent with what we know about wombats" letter, p1. 2005.

Extensive studies undertaken for forestry indicate that modern day forestry practices cause shifts in wombat populations.

McIlroy and Rishworth (in Wells, Ed. 1998) found that modern forestry practices "particularly deep ripping or ploughing of the ground between the windrows before the planting of pines, appear to destroy more burrows and reduce the number of wombats that initially inhabit disturbed areas than the older methods of site preparation" (p.278). This means that those wombats not killed in the preparation process move out of the forest to find suitable accommodation and food until the forest begins to grow and re-establish habitat.

The researchers also noted that wombat numbers in the forests correlate with certain stages of development of the pine plantation. Once grass regrows, the wombats return until pines begin to grow and shade out grasses. Once again wombats then exit the forest as the pines at 14-16 years drop needles that form a dense mat on the forest floor and exclude lights from the grass which then dies off.

McIlroy recommends more frequent thinning of pine plantations to keep wombats in the forest and the retention of any available eucalypt forest to keep wombat habitat rather than destroying habitat causing wombats to seek alternative environments.

Wombat burrows are built and used by successive generations of wombats and the suitability and availability of burrows may have an impact on breeding numbers.

Destroying long standing burrows increases local burrow building activity as a number of

wombats may use a particular burrow which, if destroyed may lead to a number of wombats digging two or three new burrows to compensate for the destruction of their “safety point”.

Burrows are spread throughout a wombat’s grazing range so they can bolt to a burrow from anywhere within their range. Destruction of well-established burrows probably leads to an increase in burrow digging activity, where leaving established burrows will most likely see any additional digging restricted to the existing burrow complex.

Barbara Triggs (2002 p.32) explains that it is rare for an adult wombat to begin a new burrow while young newly independent wombats will often try various sites in their attempt to develop a burrow. Other observers have indicated that adult females may abandon an established burrow to their newly independent young.

Range- Historical

Cooke (in Wells (Ed.) 1998 studied the contraction of the Common Wombat from its range in South Australia.

Wombats were described from 1847 through to1880 to range over territory but “by 1900, within twenty years of the arrival of rabbits, wombats had virtually disappeared.” p.263.

It is of interest that Angus in 1847 reported wombats grazing on native grasslands with scattered acacia spp. and Xanthorrhoea caespitosa. Wombats are grazing herbivores and are essentially reliant on native perennial grasses. Locally they prefer the kangaroo grass and rat tail grasses but will eat kikuyu and fescue.

Rabbits eat off native grasses and change the pattern of food availability for wombats. In areas where wombats had left when rabbits were controlled a gradual return of wombats occurs.

It appears that most researchers accept this rabbit hypothesis, that wombats retreated during early years of settlement due to the introduction of rabbits. Cooke examines a range of hypotheses for the decline in Common Wombat numbers in South Australia but does not consider mange as a variable. Mange was introduced to the wombat population via introduced species of dog and fox.

Wombats most commonly die in their burrows and (with the exception of road kills since the 1950s) it is unlikely that early settlers encountered many wombats alive or dead according to Peter Murray (Wells (Ed.) 1998 p.3) who studied wombat fossils “fossilized remains of wombats are not very common” and “wombats have become fossilized in three circumstances; within limestone caves, lunette dunes and within swampy or lacustrine sediments”.

Steele and Templesmith (Wells (Ed.) 1998 p.122) state that "wombats are rarely found dead by natural causes above ground and it appears that most die within their burrows”.

Lack of wombat fossils/bones is not an indicator of their presence or otherwise in areas without these features.

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Range-Local

Barbara Triggs (2002) tracked one wombat walking for three kilometers in an eight-hour grazing period. She says that in good conditions one wombat will have a five-hectare grazing range and in poorer feed areas this can extend to twenty three hectares. Drought and poor conditions will cause their home range to be extended.

Concern: Wombats cause riparian zone erosion

Fact: Wombats cause minimal erosion and appear to benefit soil processes.

Most research indicates that wombats are incorrectly implicated as causes of erosion.

The incorrect belief that wombats are like rodents or moles leads to the incorrect assumption that wombats will undermine all farmland.

Wombat burrows are built and used by successive generations of wombats and the suitability and availability of burrows may have an impact on breeding numbers. Destroying long standing burrows increases local burrow building activity as a number of wombats may use a particular burrow which, if destroyed may lead to a number of wombats digging two or three new burrows to compensate for the destruction of their “safety point”.

Burrows are spread throughout a wombat’s grazing range so it can bolt to a burrow from anywhere within its range. Destruction of well-established burrows probably leads to an increase in burrow digging activity, where leaving established burrows will most likely see any additional digging restricted to the existing burrow complex.

There is a lack of research material pertaining to the Bare Nosed Wombat and much of the information available to farmers concerning wombat studies has been based on species of wombat not present in our area. Thus, the multiple burrow entrances of the Southern Hairy-Nosed Wombat in South Australia (up to 30 have been reported) - Steele and Templesmith (Wells (Ed.)’98), p113 - are not a feature of the Bare Nosed wombat’s burrowing methods and there appears to be significant size differences as well.

According to Steele and Temple-Smith et al (Wells (Ed.) 1998) the Bare Nosed Wombat’s burrow is less than half the size of the Southern Hairy-Nosed Wombat’s burrow. They report the Bare Nosed Wombat’s burrow as having one or two chambers located between 0.9 and 7.3 metres from the burrow entrance. Compared to the Southern Hairy-Nosed Wombats 10 to 20 burrows each having up to 30 entrances and containing multiple chambers. Hence multiple chambers and burrow entrances are not a feature of the Bare Nosed wombat and it is possible large rabbit warrens are mistaken for Bare Nosed Wombat burrows or have been built near the Bare Nosed Wombat burrow.

In addition, many researchers have identified multiple use by other animals of wombat burrows including animals likely to extend digging, such as echidnas and foxes. It is

important that the information being provided and referred to pertains to the correct species of wombat under investigation.

Wombats choose the most optimal soil and site for burrow construction and most often prefer to begin burrows up against something solid like a rock or tree trunk.

Once again, destroying the burrow does nothing to deter the wombat from re digging or if that wombat is not around the next wombat which comes along will recognize prime real estate and although the previous burrow is destroyed, a new one will rapidly replace it.

They do however have preferred burrow sites, and these are on sloping ground, near or adjacent to ground water or dry creek beds.

Dr David Eldridge of the Department of Land and Conservation says that where wombats dig is dependent on soil type. He points out that where calcrete is present, they do not need to use trees or other objects to stabilize their burrows and concludes that "their effect on creek bank stability is likely to depend on soil type" Eldridge D, letter, 2005, p1. They prefer some form of cover near their entrances and fallen trees, piles of logs or dirt piles will be used. Weed infestations, particularly blackberry make safe havens for establishing a new burrow.

Cows grazing near river banks cause the most erosion and impact on creek and river flow. The use of ATVs weighing 300k up to 1000k with trailers and spray packs have a far more detrimental effect on the riparian zone than a 30k wombat could ever achieve.

The Department of Land and Water Conservation found that "cows eat and trample and destroy the vegetation on the banks that keep the bank stable, cut tracks into the bank that lead to slumping and erosion, eat the instream vegetation so there is nothing to slow the movement of water or to catch and filter out sediments, compact the soil and prevent seedlings from emerging, pug dam sites weakening soil structure leading to erosion and loss of stream/swamp beds, damage the toe of the bank causing them to collapse, create tracks which act as channels that concentrate run off and cause gully erosion" (Mythbuster No.4, Far South coast Riverbank Management Project).

Dr. David Eldridge of the Department of Land and Conservation commented on wombats and erosion "this means, in effect, that wombats are having very little influence on total landscape levels of erosion compared to other factors such as over grazing, vegetation clearance and fire. Unfortunately, wombat holes are very visible, and some people tend to blame them for everything". Eldridge D, letter, 2005, p1.

Concern: You can't control wombats on farmland/forests/land care sites

Fact: Wombats are intelligent and train well to electric fences.

Marks in Wells (Ed.)1998 tested fencing to exclude wombats. He says wombat gates have been found to be effective at 400 metre intervals by Poussard and up to 800 metres apart by B.Triggs.

South Australian farmers developed a negative attitude to wombats when the dog proof fence, meant to protect their lambs from dog attacks was built across wombat tracks and trails. As a

result of this, the fence was regularly undermined by wombats digging through. In 1982 the fence was breached 2370 times. The use of electric fencing decreased this to 15 breaches per annum according to Stott (in Wells (Ed) 1998 p. 282) and this has remained constant.

This dog fence runs through hundreds of kilometers of terrain and is one of the most effective proofs that electric fencing will deter wombats. Marks used a 2wire earth return system with

wires at 10cm and 20cm, 40cm stand off from netting on 10 metre spaced star posts successfully to deter wombats. He found that one naïve contact sent the wombat back to its burrow and then the follow up shock when it reinvestigated was sufficient to deter any further action. Marks in Wells (Ed) 1998, pp. 298-304.

Electric fencing has been found by the Far South Coast Riverbank Management Project to be effective in keeping cows away from streams. Mythbuster Pamphlet Number 2 points out that some farmers have found single strand wires sufficient to do this. The recommendation is for two or three wires and this paired with Marks' finding regarding wombats and electric fencing should mean that both cows and wombats can be controlled using this cheap, portable and reusable method of fencing.

Concern: Wombats negatively impact primary production

Fact: Wombats have little impact on Primary Production

Marks in 1989 researched Victorian Farmers attitude to wombats. He says that while wombats were implicated "in a wide variety of pest activities including fence damage, erosion, pasture damage and nuisance burrowing many of the problems are overstated in their extent and effect upon primary production" in Wells (Ed) 1998 p.287

The Southern Hairy-Nosed Wombat builds larger burrows with multiple entrances and exits. Victorian and South Australian farmers often claim these "warrens" undermine infrastructure. The Bare Nosed Wombat doesn't build such burrows, generally having one entrance and exit only and at times a simple one entrance system. Wombats use burrows generationally. Johnson in Wells (Ed), 1998 p.39).

Dr David Eldrige of the Department of Land and Conservation states wombats "are true ecosystem engineers in the sense that they create habitat for themselves and other animals (and plants) by moving sediment around in the landscape" and he suggests that they, like other burrowing animals, "engineer the soil to support a range of plant species" and he "suspects that there may be some links between soil fungi, soil processes and wombat soil excavations" that have not been studied adequately. Letter, p1,2005.

Concern: Wombats eat so much they reduce stocking rates

Fact: Wombats have the lowest known food intake of all Australian Marsupials

Wombats eat Australian native perennial grasses as first preference. Hume and Barboza in Wells (Ed) 1998 p.67 found their most preferred food was Poa grass leaf and roots. They prefer monocotyledonous (one seed leaf) plants. (Wells (Ed.) p.52).

They are a hind gut fermenter which facilitates their digestion of extremely tough grasses. Hume and Barboza in Wells (Ed.) 1998 p.70 found that wombats have a very low intake maintenance requirement of 140 kJ.kg - 0.75 this relates to their basal metabolic rate which is very low and is amongst the lowest recorded in herbivores. It is less than half that of the Koala, the nearest relative to the wombat.

Belief: You can estimate wombat numbers by counting wombats or burrows.

Fact: Wombat Numbers cannot be estimated by visual counts.

The literature review suggests that the most ineffective ways to establish wombat numbers are to try and count them or their burrows, and the next least effective method are burrow activity assessments, this includes scat counting.

Various problems exist in most "count" techniques. Understanding the behaviour of wombats accounts for why most methods of counting are seriously flawed.

Wombat activity assessed by counting scats can be confused because a single wombat can produce 80-100 square shaped scat pellets a night (Trigg 2002 p.64.). Wombats also have a wide home range 5 hectares in good conditions and up to 23 in poor and can range as far as three kilometres in a single night (Trigg 2002 p.60).

Wombat numbers assessed by burrow activity can be improved by the use of some visual device – e.g. pollard at burrow entrances but although tracks are then obvious this method can't indicate if three sets going in indicate one wombat entering the burrow three times or three wombats doing this. In additional trained assessors regularly made errors interpreting footprints of other animals as wombats. See Taylor et al. in Wells(ed.) 1998 pp.156-7.

Burrow entrance counting doesn't work because one wombat may have six or more burrows and some burrows have one or two entrances. A single wombat may "own" a generational burrow that over the years been added to by other wombats. Johnson in Wells (Ed), 1998 p.39).

Wombats often abandon partially dug burrows (Triggs2002 P.30) which also means there are many more apparent burrows than there are wombats and adult wombats rarely dig new burrows (Triggs2002, p.32).

According to Triggs2002 "Many burrows, begun in unsuitable places - such as creek beds and hollows, on the lower banks of creeks, rivers and swamps, and on flat ground, all of which are susceptible to flooding - will be abandoned before they are 1-2 metres long. These minor burrows are rarely used by the wombat, except perhaps as a temporary shelter in an emergency" P.30.

The most effective way is to use tape across burrow entrances to obtain hair samples.

Taylor et al (Wells (Ed.)1998 p157) from the University of N.S.W. developed a successful method of taping hair using TESA tape product 4970. To accurately determine a wombat count for an area the fur samples are then D.N.A. tested. The presence or otherwise of hair on tape does not give any count indication because as the experimenters comment “it should be noted that an individual wombat may “contribute multiple times to tape data in one evening”.

They used a length of tape approximately 50cm long suspended across a burrow runway or where a hole had been forced under a fence at a height of 20-30cm. This type of count could also benefit eliminating hypotheses as it would be able to indicate how many of the local wombats are genetically related and how many are “imports”. This would assist determining whether any increases were localized or to do with action in other areas- e.g. land clearing removing another population’s habitat.

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Mythbuster No.2. It's too Expensive to Fence the Creek.. The Far South Coast Riverbank Management Project a partnership including NSW Far South Coast Catchment Committee, Land and Water Resources Research and Development Corporation, N.S.W. Department of Land and Water Conservation, Bega Valley Shire Council, Wolumla and Cobargo Landcare groups.

Mythbuster No.4. My Cows Aren't Causing Any Problems. The Far South Coast Riverbank Management Project a partnership including NSW Far South Coast Catchment Committee, Land and Water Resources Research and Development Corporation, N.S.W. Department of Land and Water Conservation, Bega Valley Shire Council, Wolumla and Cobargo Landcare groups.

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Literature Review for the Southern Rivers Catchment Authority,Wombat Committee 2006

Brief Literature Review based on concerns regarding wombats brought to the attention of the Southern Rivers Catchment Authority. Amanda Cox 2006.

The current literature review is a "work in progress" and is intended as a starting point only. It is a negative review in that it seeks to focus on a set of popular misconceptions concerning the Bare Nosed Wombat (Vombatus ursinus) based on concerns and beliefs that a small number of farmers in the Bega Valley Shire of N.S.W. expressed at a Catchment River Authority meeting.

Equally valid are concerns from people in the same area regarding the welfare of Wombats expressed to animal welfare organizations regarding cruelty to and illegal removal of wombats on private land and other health and welfare issues. It is hoped that the review of the existing scientific literature can broker an outcome that will lead to harmonious co-existence.

380gram Bare Nosed Wombat Joey.

Having begun life, the size of a raison had this joey remained with its mother she would have had six months more in the pouch and a further year "at foot". This wombat wouldn't be ready to breed until she is three years old and weighs then around 30 kilos.
