



KOALA BEACH

A MODEL FOR KOALA-FRIENDLY DEVELOPMENT



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Residents in Australia's only Koala-friendly urban development say 'living amongst wildlife and respecting nature makes us richer and happier'.

The Koala-friendly urban design principles in place at Pottsville's Koala Beach development have also had a profoundly beneficial impact on the environment as a whole.

This outstanding development, conceived in 1994 by the Australian Koala Foundation (AKF) in partnership with the Ray Group (a Gold Coast based developer), proves that the Koala Protection Act could *shape*, rather than prevent, development.

Koala Beach is now home to 500 residential properties. The site was home to not just Koalas, but also 25 species of endangered or rare flora and fauna, each protected under the initiatives put in place at Koala Beach.

After 25 years of development, Koalas still live in safety at Koala Beach. We can go out and find the descendants of the Koalas that lived at the site back in 1993.

Council and Koala Hospital records have indicated very little evidence that the two key Koala threats associated with development - cars and dogs - had affected the local population.

During the 2011 Senate Inquiry, Koala Beach was identified by the Property Council of Australia as a model for successful restoration of Koala habitat, and the 'coexistence of wildlife and humans.' Why then hasn't that model been replicated anywhere else in the Country?

Koala Beach demonstrates it is possible to build houses while minimising our impact on local Koala populations.

¹ Property Council of Australia (Residential Development Council). 2011 Response to question taken on notice from the Senate Inquiry into the status, health and sustainability of Australia's Koala population (from public hearing, Canberra 19 May 2011). <https://senate.aph.gov.au/submissions/committees/viewdocument.aspx?id=f46df8ad-7d00-4e51-800c-1f77d7fc5d9f>



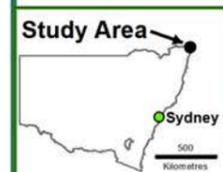
The Principles Behind KOALA BEACH

Key elements of the Koala Beach estate include:

- 1** The retention of the majority of Koala Habitat on the site (the total area of the estate is approximately 365 hectares, and nearly 272 hectares has been devoted to environmental protection: **75%**).
- 2** Rehabilitation works, including planting a Koala food tree on the footpath outside each residence.
- 3** A prohibition on dogs and cats on the estate.
- 4** Measures to mitigate against the impact of traffic through the estate (warning signage, speed bumps).
- 5** Fencing restrictions (a gap of 30cm is required at the bottom of all non-pool fences, to allow animals to move freely through the estate).
- 6** The establishment of a management committee (funded through a resident levy) to manage the implementation of conservation initiatives.

The Koala Protection Act

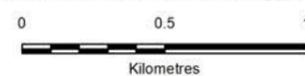
Koala Beach demonstrates it is possible to build houses under the **Koala Protection Act** (KPA) while minimising our impact on local Koala populations.



KHA © AKF 2018
Other data © OEH & PSMA

Koala Beach Study Area

Based on OEH/Tweed Shire mapping



GDA94 MGA Zone 56

Koala Habitat Classes

- Primary Habitat
- Secondary Habitat (Class A)
- Secondary Habitat (Class B)
- Secondary Habitat (Class C)
- Other vegetation
- Water body



A TALE OF THREE KOALAS

Arnie, Marie and Lulu are fanciful names given to three Koalas in a socially stable breeding population in Koala Beach whose home-ranging behaviour has been intensely studied over a period of 12 months. The beauty of the following stories and hypothetical examples is that the population is real, not made up. They illustrate the social organisation of a small population which is breeding successfully. The land is used in such a way as to have each individual animal's home range overlapping with its neighbour. They fit neatly together like a jigsaw puzzle.



For the purposes of this story, only Arnie, Marie and Lulu have been named. The other Koalas are just shown on the following diagrams to be male or female, and numbered M1 (male one), F1 (female one) and so on.

Arnie (named after Arnold Schwarzenegger) thanks to his size, fitness and muscular torso is currently the dominant male in this population. He weighs 10 kg, is probably 4-5 years of age and has by far the largest home range in the group, overlapping with the home range of four breeding females. Much of his home range is treeless land, and therefore was not chosen for access to food but rather for access to females.

Marie currently has a weaned baby living within her own home range, and another baby in the pouch. Her home range is overlapped by that of Arnie, as well as another subordinate male (M2) and another female (F3) with weaned young. Arnie's home range also overlaps that of F3 and, like Marie, she is pregnant to Arnie.

It makes evolutionary sense that if you were a female Koala, you would try to find the biggest, strongest male to mate with so that your baby carried the strongest genes. Arnie is 10kg of muscle – a magnificent specimen of a koala; strong, fit and healthy.

Lulu, travelled approximately 1 km (a long way for a little Koala) out of her own home range to mate with Arnie. We can only assume that she was in oestrus, and, despite the fact that his home range overlaps hers, he was not there when she wanted to mate so she chased him all the way to where he was at the time (in Marie's home range) and they mated there. Unlike males, females tolerate the presence of other strange females in their territory, but not indefinitely.



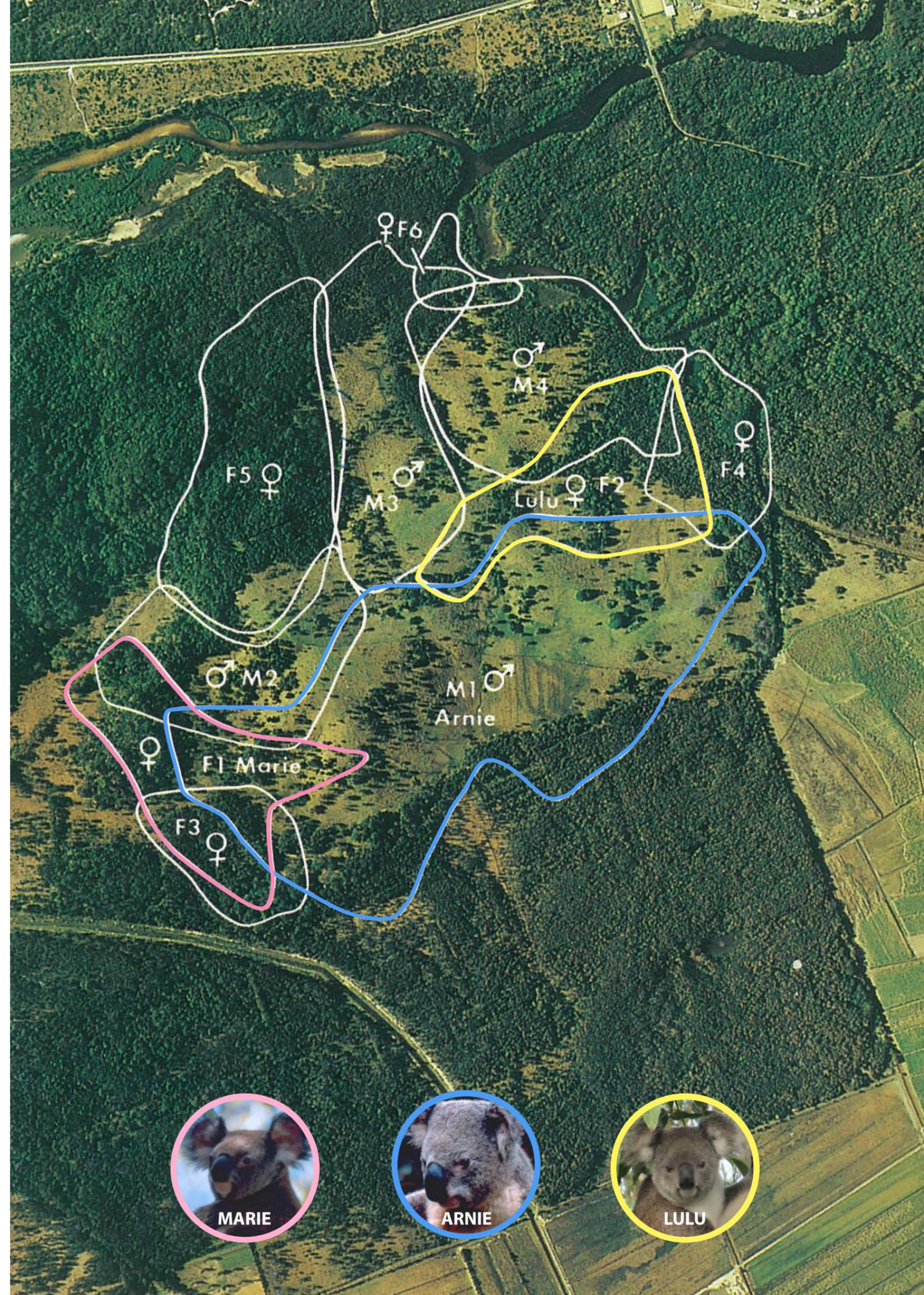
You will see in the diagram how males (especially dominant males) have home ranges which are larger than those of females and which overlap with usually more than one female. Arnie's home range is a classic example of the large size of a dominant male's domain; it is 33 hectares in area, while M2's home range is only 17.6 hectares. While much of Arnie's home range is bare of trees, it covers the home ranges of the maximum number of females as possible. During the breeding season, Arnie regularly traverses the length (1 km) and breadth (300-400 metres) of his home range in a night.

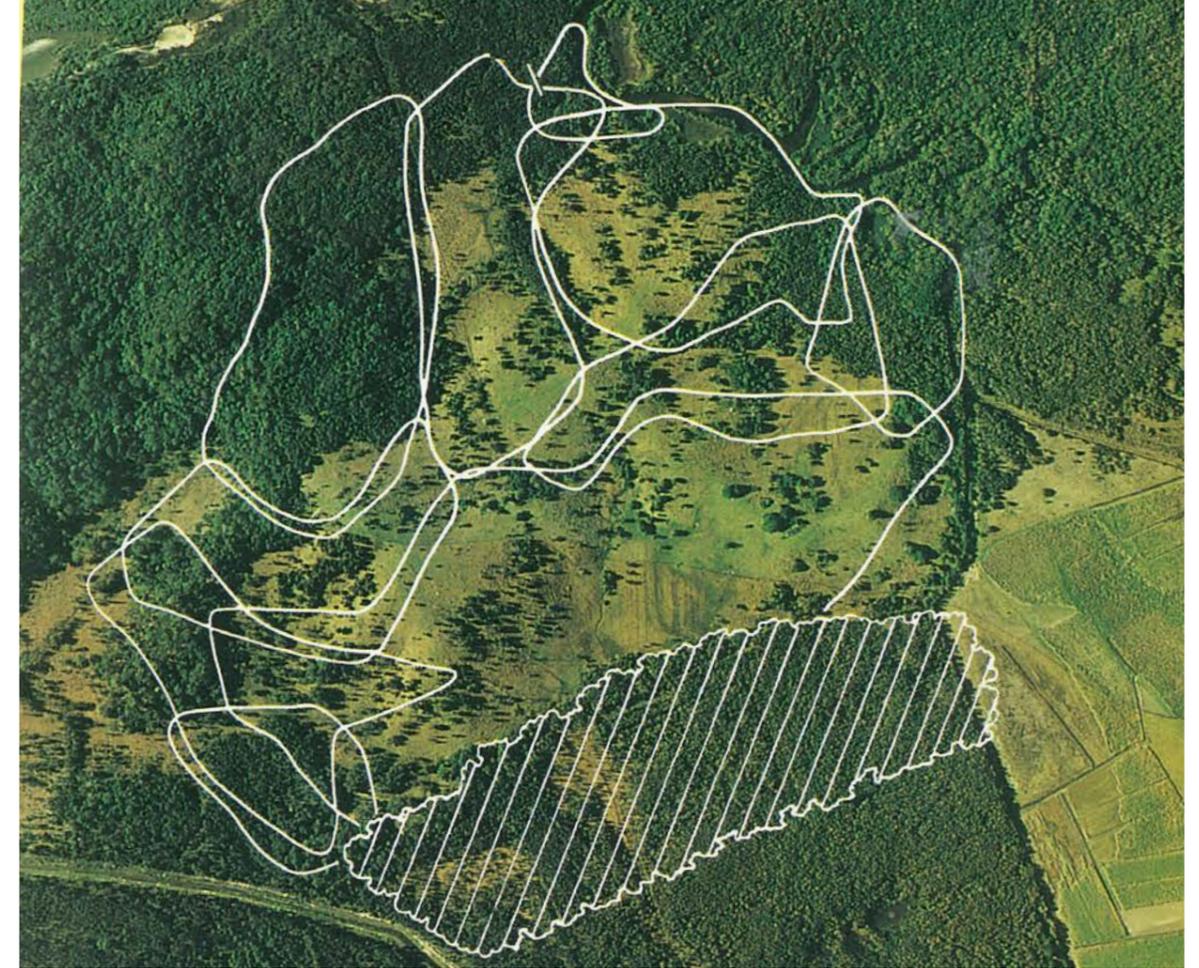
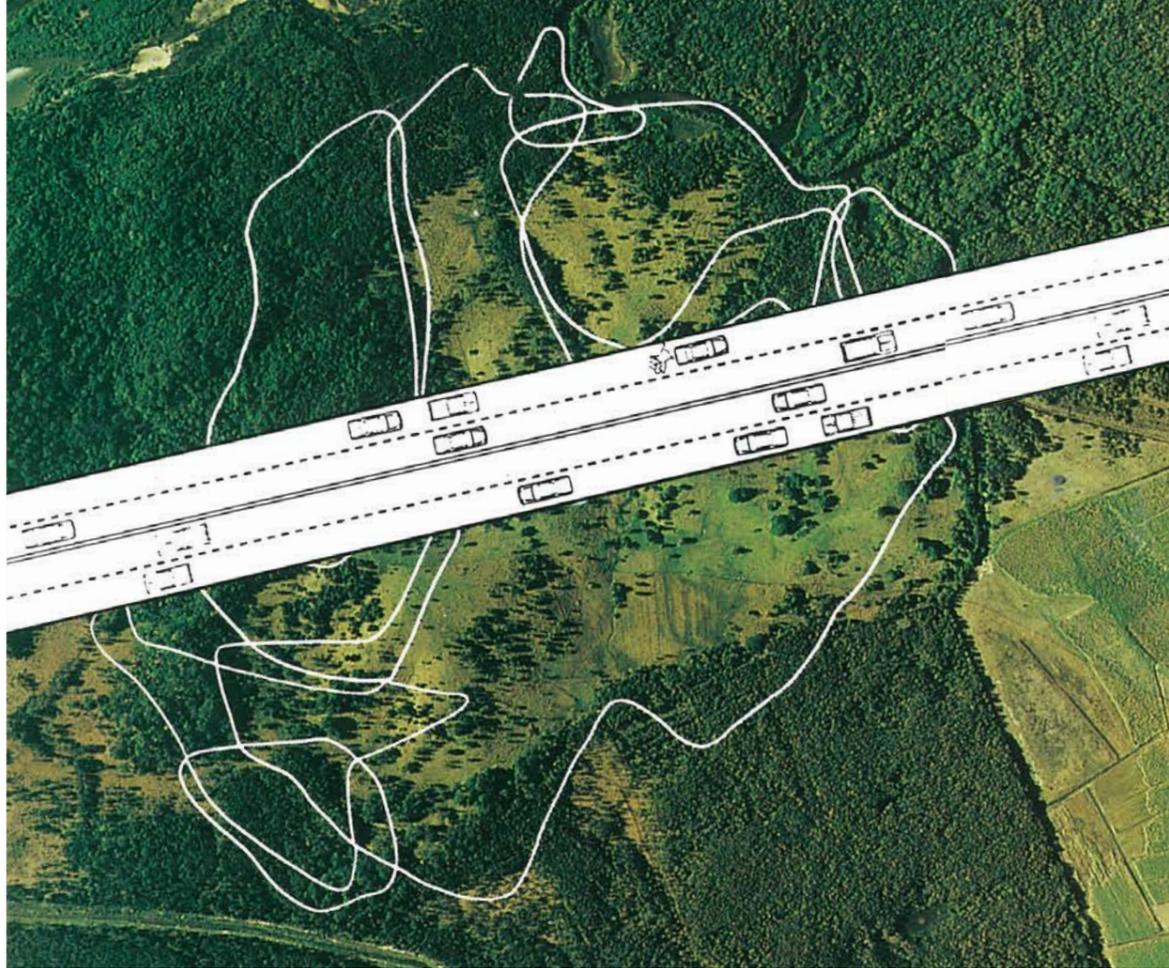
The boundaries of the animals F4, M4 and F6 are defined by the creek line, and they abut those of their neighbouring Koalas.

Continuing study shows how the animals interact with one another. For example, Arnie and M2 share a tree in common with Marie, which could suggest that their ranges 'overlap' but, in reality, they never visit that tree at the same time. There is no confrontation and they are careful to avoid one another, but the tree is common nevertheless and serves to allow them to maintain large enough home ranges.

Koalas are popularly thought to use mainly eucalyptus trees, but by looking at every tree, regardless of species, field work for the Koala Habitat Atlas is beginning to show that Koalas spend just as much time in species of non-eucalypts as they do in eucalypts. They may not eat as much foliage from other trees, but they are using them nonetheless. This illustrates the importance of knowing exactly which trees Koalas use so as not to attempt to protect the wrong ones, or protect an inadequate number of trees. Some trees provide a cool resting place on a hot day rather than food, a role which is equally important to the Koala's whole life.

A very interesting thing happened during the course of the study which concerned Lulu, the female who chased Arnie to mate. She swam the creek and travelled south, covering a distance of approximately 2 km. She stayed in the vicinity of her destination for a day or two and then returned, covering the 2 km and swimming the creek again to return to her own home range. She made this foray on four different occasions in the space of one month. We do not know the reason for this, but our hypothesis is that she may have been visiting her mother's home range – the places where she grew up – possibly to show Mum the new baby in her pouch. This is only speculation, but it makes a lovely story.





Hypothetical Case 1: Four-lane highway

The diagram below illustrates how a four-lane highway would seriously affect this Koala population. For the purposes of this example, we have placed it arbitrarily through the middle of the population, but no matter where it is placed, if it cuts through a breeding population such as this, a road will have a major impact.

It is easy to see how such a road would cut off contact between Arnie and Lulu as well as Arnie and F4. It would also cut off contact between M2 and F5. It cuts through the home ranges of more than half the population. If they survived the initial impact of building the road, not only would the area available to each of them be reduced, but their normal ranging movements would bring them into direct contact with the road and motor vehicles. For any Koala living adjacent to a road, it is only a matter of time before it will be hit by a passing car or truck.

When something like a road is built through their habitat, Koalas do not just move away for a while and then return later. Adjoining habitat is already occupied and surviving Koalas will stay 'at home', trying to survive on a greatly reduced food resource and in constant danger of being run over. Koalas not directly affected by the road will be gradually affected by the dissolution of the social group to which they belong.



Hypothetical Case 2: Corridor

The 'corridor' marked here was almost a reality. The local council which governs the area where this Koala population lives, drew a 'wildlife corridor' on the map which was to be retained to support the Koala population on the site. The whole area occupied by the population was to be given over to a housing development. The proposed corridor was 120 metres wide, a seemingly generous donation of space, and from a lay-person's perspective, could be assumed to support Koalas.

Such planning decisions are made regularly with little understanding of simple biology. The trees in the proposed 'corridor' were not even the right species to support Koalas, let alone cover an adequate acreage to support a population.

Had this 'corridor' of land been retained and the rest of the site cleared, the Koala population would have been destroyed. Alone, it is not even the size of Arnie's home range, and it would not have facilitated the movement of the local Koala population as it was supposedly designed to do. Without understanding the Koala's home ranging behaviour, it is clear how easily decisions can be made to protect the wrong places.





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