Saving koalas through urban design

August 4 2016, by Darryl Jones

Credit: Markus Spiske from Pexels

Australian cities are remarkable in the sheer diversity of wildlife that somehow manages to live among us, from flocks of raucous cockatoos or noisy lorikeets to the dusk fly-out of huge numbers of flying-foxes.

But such displays of nature in exuberant abundance can be tragically

misleading. For the overwhelming majority of wildlife species, relentless urbanisation has been catastrophic. Most animals simply die following the arrival of the bulldozers.

Obviously, some species are able to cope better than others. So-called urban exploiters tend to share a number of characteristics such as rapid habituation to the presence of people, a generalist diet and an ability to be innovative.

When it comes to behavioural creativity though, Australia's marsupials don't seem to score very well. It was thought that koalas, in particular, were not good candidates for innovation.

But our new study of koalas near roads may provide some hope for an iconic species under very serious threat from urbanisation.

Protecting our threatened species

The 2012 listing of the koala as threatened by the Australian government (in Queensland, New South Wales and the ACT) specifically acknowledged the impacts of habitat loss, dog attacks and road-kill. All are especially intense in areas where residential development coincides with koala populations.

High-growth coastal areas in northern New South Wales and southern Queensland continue to sprawl unabated, while the resident koala numbers plummet.

Recent modelling of koala populations paints a genuinely apocalyptic scenario with local extinction within decades no longer simply a vague possibility.

This grim prospect may lead to resignation but also desperate action.

Following yet another report in 2011 of catastrophic declines in koala numbers in southern Queensland, the Department of Transport and Main Roads sponsored a remarkably insightful project. It was designed to explore ways of reducing one of the principal causes of koala deaths: collisions with cars.

A series of sites were identified in the Brisbane and Redland Bay areas where decent populations of koalas existed alongside some of the busiest roads in the region. With the animals regularly crossing these roads at night, these were also serious koala road-kill black spots.

The first and most obvious task was to prevent the koalas and cars from mixing, a straightforward matter of erecting climb-proof fencing.

But this can also add to the already severe impacts of habitat fragmentation, with wildlife increasingly isolated in smaller and smaller patches. It is vital that animals such as koalas continue to wander widely, but without the threats posed by fast-moving vehicles.

The ledge to the left provides a safer route for wildlife, even the ones who don't like to get wet. Credit: Griffith University, Author provided

Although a wide range of structures specifically designed for wildlife to cross roads safely have been installed over and under roads, this can only be achieved during road construction.

But large box culverts are everywhere. Unfortunately, these are almost always full of water, and most wildlife are reluctant to get their feet wet.

If we build it will they come?

Nonetheless, these square pipes offer a possible wildlife passage solution. By attaching a wide ledge to the side of the culvert leading from one side of the road to the other, animals could potentially traverse the danger zone above.

This possibility proved unexpectedly fruitful. Within only a few weeks, a remarkable suite of fauna including echidnas, wallabies, possums and goannas had found and used the ledges.

But most exciting of all were the numerous koalas captured on the monitoring cameras and tracked by various technologies. These otherwise arboreal marsupials, whose main proclivity is climbing trees or walking – quickly – to the next tree, had somehow discovered a way of avoiding the great risks of the traffic above by travelling below on an artificial ledge over water in a dark tunnel!

A wallaby, possum, echidna and koala all discovering the safer journey. Credit: Griffith University, Author provided

This was something no koala had ever been required to do before.

The simplicity of the structure and the willingness of the koalas to try something new really does offer a glimmer of hope for all. It shows that it is possible to design an urban environment where koalas can learn to coexist with people.

Clearly if the koalas and other wildlife can adapt to this new urban design there is no reason why this idea cannot be extended to other urban areas where wildlife is currently threatened.

The human factor

What might be harder to change is the behaviour of humans, in particular those driving cars through these areas. A lot of research has shown that those overly familiar road signs – the yellow diamonds with a silhouette of a kangaroo, camel or koala – have absolutely no influence on driver speed or attentiveness.

We habituate almost instantly to these static images. But what about a large illuminated sign that changes when we are travelling too fast, such as used routinely around school zones? These do appear to have a discernible effect, with vehicles slowing quickly in response to the conspicuous electronic signal.

Using this as a starting point, Brisbane City Council is about to trial an ambitious new program of specific wildlife zones, complete with speed-activated signage, highly visible entrance and exit notices, coloured road surfaces and even signals that activate when tagged koalas approach the road side.

The idea is to convince drivers that they are being monitored while they travel through a place known for koalas.

It will be interesting to see if humans learn as effectively as the wildlife

how the two can coexist in an urban environment.

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