SOME SUGGESTIONS TO DECREASE REPTILE ROADKILLS IN RESERVES WITH EMPHASIS ON THE WESTERN AUSTRALIAN WHEATBELT

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In this article we highlight the destruction of native fauna, particularly reptiles, on our roads and offer suggestions to reduce this in nature reserves. In the Western Australian wheatbelt these are comparatively small areas of undisturbed bushland. The animal road deaths in these can have a considerable impact on local populations.

It is common for drivers on bitumen roads in bushland to see roadkilled native fauna. Dead animals are common on unsealed roads also but are not as readily observed. It is a fact that many mammals, birds and reptiles are killed while crossing roads. Of these faunal groups the reptiles are more at risk due to their basking habits, slower movement and inability to detect unnatural danger. Ehmann and Cogger (1985) estimate that five million reptiles and frogs are killed each year on Australian roads.

The numbers of reptiles and frogs killed on a long sealed road with continuous traffic flow is alarming, e.g. the Great Northern Highway from Perth to the north-west (approx. 3,000kms) extends through large areas of bushland rich in reptile fauna. In the north reptile activity continues throughout most of the year due to the climate. During two separate trips on the Great Northern Highway from Wubin to South Hedland, one of which also included a return trip along the North West Coastal Highway from Sandfire to Carnarvon, we found 396 specimens of 28 species roadkilled (see Table 1 below).

Table 1.

GECKOS		LEGLESS LIZARDS	
Diplodactylus c. aberrans	100	*Delma butleri*	1
" *conspicillatus*	86	" *nastuta*	1
" *stenodactylus*	30	*Lialis burtonis*	12
Nephrurus l. pilbarensis	1	*Pygopus n. nigriceps*	17
DRAGONS		**SKINKS**	
Ctenophorus inermis	30	Tiliqua multifasciata	3
" *i. isolepis*	21		
Pogona m. minor	3		
		MONITORS	
		Varanus acanthurus	2
		" gouldi	10
		" p. rubidus	3
		" t. tristis	3
SNAKES			
Aspidites melanocephalus	6	Denisonia fasciata	4
" *ramsayi*	1	Furina ornata	1
Morelia perthensis	4	Pseudechis australis	23
" *s. stimsoni*	19	" butleri	2
Acanthophis pyrrhus	1	Pseudonaja modesta	3
Demansia rufescens	1	" nuchalis	8

Reptiles found dead on road (number in brackets) during two trips along the Great Northern Highway between Wubin and South Hedland, and one return trip along the North West Coastal Highway between Sandfire and Carnarvon, Western Australia. This list represents reptiles found dead during night travel. During the day scavengers remove most of the smaller reptiles.

The numbers killed are increased substantially wherever animals are forced from bushland by disturbance (both man-made or natural). Fire, flooding and land clearing are major factors that push animals onto roads. In the wheatbelt, because of widespread clearing for agriculture, the reserves are generally all that remains of the natural habitat for the terrestrial fauna. These reserves, in many cases they are no more than narrow corridors, are divided by bitumen roads which are a threat to the wildlife that remains there. From a conservation perspective the reserve is there for the indigenous flora and fauna. The very presence of a road in such a restricted and fragile pocket contradicts that purpose. Pressure is greatest on the larger reptiles as they need to forage further and therefore they include the road surface in their foraging area. Many drivers fail to see reptiles basking or moving on the road, and some drivers intentionally run over reptiles out of fear or ignorance. This unnecessary attitude often causes people to behave irrationally, e.g. incidents where vehicles were rolled over attempting to run over snakes (Bush, unpubl.).

The Department of Conservation and Land Management (CALM) whose responsibility it is to manage reserves appears to be doing this inadequately. Many reserves in the wheatbelt, for instance Lake Tooliban, Sir Charles Gardner, Buntine, West Bendering and Moondyne are divided by secondary roads and surrounded by agriculturally developed land. High mortalities on roads in these areas could be avoided by redirecting the roads around the perimeter of the reserve. We estimate this would reduce reptile deaths on roads by 50% and more in these reserves.

Less effective than rebuilding roads but financially more realistic would be the construction of deep culverts with low vertical walls along road edges. This would allow access to both sides of the road with the vertical walls drifting animals to culverts. Additionally, speed humps could be installed on secondary roads (inappropriate on main roads) to force drivers to slow down. These would need to be adequately sign-posted on the approach to a nature reserve with their purpose stated.

The least costly and also the least effective improvement in the management of these reserves would be the erection of informational signs on the approaching roads. These signs would advise motorists on the likelihood of native fauna on the road whilst passing the reserve. If done without one or more of the previous modifications suggested these signs are next to useless, and are no more than a high profile public relations exercise.

Burning, as a control measure to reduce the risk of wildfire, is often carried out in nature reserves, state forests and national parks. From a wildlife conservation perspective wildfire is natural, controlled burning unnatural. An often heard argument in favour of controlled burns is that "the aboriginal people did this for a long time with little detrimental impact". It must be remembered that after a pre-European burn there were peripheral areas of undisturbed bushland. This allowed the recruitment of animals back into the burnt area as its vegetation became re-established. This is not the case today - bushland is surrounded by cleared fields, the burn is usually total throughout the reserve and the impact significant.

If controlled burning must go ahead, then to limit the numbers of reptiles forced onto roads, it would be appropriate to do this in late autumn. Reptile activity is on the decline in late autumn in this region with many species that are less cold-tolerant already in deep below ground shelter, e.g. the agamids, varanids and large elapids.

Already many of the Western Australian wheatbelt reserves are considered more as flora reserves than fauna reserves. If something positive is not done shortly to improve their management then flora reserves are all they will be.

REFERENCES

Ehmann, H. & Cogger, H.G. 1985. Australia's endangered herpetofauna: a review of criteria and policies. In. *The Biology of Australasian Frogs and Reptiles.* (Eds. G.Grigg, R. Shine & H. Ehmann) pp.435-447. Surrey Beatty & Sons, Sydney.