

POTENTIAL SOLUTIONS TO CASSOWARY ROADKILL AT MISSION BEACH

Collated by Terrain NRM for discussion purposes May 2010

“People who live or work at Mission Beach have contributed many ideas”

Introduction

Collision with motor vehicles is the major recorded cause of cassowary death at Mission Beach (59 in 15 years, including 3 adults in the last 6 months). The following article consists of cassowary roadkill “solutions” proposed by various organisations and individuals to date. The ideas are not necessarily endorsed by Terrain or any other organisation, or in any order of priority. Some may be unaffordable, not permitted or ineffective. Nevertheless they are all presented here to encourage discussion and progress. Everyone is welcome to contact Terrain with comments or additional ideas on Ph 4043 8000 or tonyo@terrain.org.au.

Some roads are managed by Queensland government, some by local government. Governments have limited resources to implement solutions. Activities that increase traffic could contribute resources to implement solutions. Solutions need to enable cassowaries to move between habitat areas without negative impacts from motor vehicles. Solutions need to meet government requirements including road safety and environmental protection. Solutions need to be acceptable to the community. Some solutions would work best on certain sections of road. Some would cost more than others. Some would impact more on the community. Some would work better for cassowaries. Community input into the discussion, selection and design of solutions will result in better solutions.



Cassowaries are important to our environment, community and economy and are protected under Queensland and Australian legislation. Much has already been done to address roadkill through signage, reduced speeds and traffic calming. Unfortunately cassowary roadkill continues. Traffic is increasing. Terrain is committed to working with the community, road managers, scientists and other stakeholders to help find and implement effective solutions.

Information including roadside signage

Accurate information on cassowary behaviour associated with roads will benefit drivers and road managers. Different messages might need to be tailored for the different groups of drivers (e.g. residents, workers, tourists, age, gender). We don't yet know if any particular group is associated with roadkill. Particularly for visitors, information

advising of the large size of cassowaries and their endangered status may influence driving. Roadkill information in addition to roadside signage could be considered, e.g. education programs, driver surveys. Regularly updated information might keep the community engaged. It's assumed that tourists generally take notice of existing roadside cassowary signage, probably because it is large. Static signage is less noticed by locals after they've seen it a few times. Existing cassowary signage is reflective but not illuminated, partly because cassowaries generally don't cross roads after dark. Temporary signage designed by the local school for the



Photo courtesy Ron Dalington

Sustainability Film Festival influenced some drivers (including locals) because the messages and/or images appealed to them and/or they knew it was made by local kids. QPWS rangers install temporary “recent cassowary crossing” signage following reports of recent crossings. Ideally, the signage is removed after a week or two so drivers can be confident that any signed area is a currently active crossing. However cassowary roadkill has occurred in a location with such signage. A variable message sign (VMS) is an electronic roadside sign that displays information regarding the oncoming road. The message can be updated readily. The sign may be on a relocatable trailer. There is currently a VMS in place on the main road near Mission Circle advising “cassowary crossing zone, please slow down”. Regular reports could be provided by radio, email or text message regarding currently active crossing zones. When existing roadside cassowary signage needs to be replaced, e.g. due to age, local residents including the school could be invited to help design new signage. Standard signage is preferred by some, including road managers.

Driver training and education

Local drivers could be provided with driving training and education. Improving or adjusting driving techniques and increasing awareness of how accidents occur could help reduce or prevent the incidence of collisions. Training could include a special focus on cassowary crossings and the local road environment and rules. Improved driver skill would have obvious benefits beyond cassowaries. Inappropriate training could produce overconfident drivers who driver faster than previously.

Audible cassowary crossing markers

Rumble strips on the road cause vehicles driving over them to vibrate and make noise, alerting the driver to an upcoming road situation, e.g. a cassowary crossing zone. Rumble strips are applied in a series across the direction of travel and could be effective where cassowary crossings are concentrated. Rumble strips are usually applied either side of the crossing (rather than the crossing itself) so that drivers reduce speed before entering the crossing area. Impacts on cyclists and motorcyclists would need to be addressed. On-site speed limit reduction (advisory or regulatory) and signage advising of the rumble strip's purpose would be required. Potential noise issues might limit use adjacent to residences. The impact of noise on cassowaries would need to be considered, e.g. it may favourably alert cassowaries to vehicles or the noise might scare them away altogether. Even at known cassowary crossings, cassowaries sometimes cross a bit further up or down the road, possibly seeking to avoid another territorial bird. Drivers would need to be informed that cassowaries may also cross outside of indicated zones. Rumble strips wear out over time.

Visible cassowary crossing markers

Known cassowary crossing zones (and their approaches) could be indicated to drivers by a system of non-standard coloured reflectors placed on existing roadside guide posts. Similarly, road shoulders in known cassowary crossing zones could be painted a colour, similar to some on-road bicycle lanes. Markers could be placed on the road itself, not just roadsides, e.g. cassowaries or their footprints could be painted across the road. Paint on roads might have safety issues for motorcyclists. Bands of alternate coloured bitumen across



the road already exist. Drivers would need to be informed that cassowaries may also cross outside of indicated zones. Drivers would need to be made aware of the meaning and intent of the visible markers, ideally by adjacent signage depicting a cassowary.

Environmental gateways

Symbolic gateways could be constructed at the start of the major habitat areas on the roads in from Tully and El Arish (e.g. at South Maria Creek and east of Merryburn) so that drivers know they are entering a special environmental area where particular driving behaviour is needed.

Roadside cassowary memorials

When a cassowary is killed in a road accident, a roadside memorial of acceptable dimensions could be installed nearby and within sight of drivers. Main Roads has a Roadside Memorials fact sheet that outlines an application process and the need

to ensure that memorials (including their installation) do not interfere with road safety. Details on individual cassowary deaths could be publicised.

Flashing headlights

Drivers who see a cassowary near the road could warn oncoming drivers of a potential hazard ahead by flashing their headlights. This practice already occurs.

Wildlife detectors

Wildlife detectors activate signals (such as roadside flashing lights) to alert nearby drivers when a large moving object or tracked animal is sensed approaching a monitored section of road. Detec-



Photo courtesy Karl Depak artist impression

tors might include cameras sited to detect large animals moving onto roads. Detectors could possibly be triggered by large moving objects other than cassowaries or might detect adults but not chicks, although chicks are usually in company with an adult. Alternatively, cassowaries could be micro-chipped or fitted with radio transmitters. The transmitters would connect to electronic signs along roadsides where cassowaries frequently cross. When a tracked bird moved near a monitored road, the nearest electronic sign would be activated until the tracked bird moved away from the monitored area. This method might require capturing cassowaries to attach the transmitter. Data from signals could also be used for cassowary ecological/behaviour studies. Drivers would need to be informed that the flashing lights indicate cassowary presence. Drivers might assume that if there is no warning sign, there is no cassowary nearby and therefore drivers might be less attentive. Information would need to be provided to drivers regarding whether some cassowaries may not be triggering warning signs, e.g. there may not be resources to fit all cassowaries, fitted cassowaries might lose their transmitter or the transmitter or signage might become faulty, chicks leaving the dad and new cassowaries moving into Mission Beach might not be fitted. Cassowary detection might be compromised in forest and may be more effective with wide, well-maintained, cleared road verges.



Roadside vegetation

Existing slashed road verges could be slashed

more frequently and/or existing slashed areas could be extended into existing forest to widen the cleared road verge. In either case, increased slashing of roadside vegetation could have a range of impacts. Drivers might be better able to see fauna on the roadside. Drivers might drive faster because the road environment appears safer. The faster a vehicle is travelling, the longer it takes to slow down/stop. Fauna dependent on forest connectivity might be less able to cross the road. Rope bridges over roads could assist possums etc to cross. Maintenance may not be possible in very wet periods or when slashing resources are inadequate, resulting in overgrown verges with poor visibility. Weed and feral animal access to forest might increase. Grazing on road verges by wallabies might increase. Natural scenery might be diminished. Approvals would be required for forest clearing. Alternatively, some existing cleared verges could be revegetated with low-growing natives or high-crowned trees that don't conceal cassowaries and don't produce cassowary fruits. This might reduce speeds and improve scenery.

Fines for killing endangered species

Drivers causing cassowary roadkill due to speeding could be fined under Queensland and Australian government legislation and possibly lose points and their licence. This prospect might encourage better driving in known (sign-posted) cassowary habitat. The fear of a fine might discourage some drivers from reporting a roadkill and therefore we lose the opportunity to learn from the incident, or the unreported bird might be injured (not dead) and need medical attention, or it might be a cassowary dad that's killed and his chicks are left unattended on the roadside.

Speed limit compliance

The faster a vehicle is travelling, the longer it takes to slow down/stop. There is currently some speeding in cassowary crossing zones. The Mission Beach community could publicly commit to voluntarily



comply with the existing speed limit, rather than authorities using resources to enforce compliance. Community leaders could publicise their commitment to speed limit compliance.

The additional benefits of speed limit compliance could be promoted, e.g. enhanced public safety and reduced traffic accidents. Mission Beach could be promoted as a relaxed "slow down town" where people don't speed. Signs advising drivers of their current speed could be installed. Speed compliance could be monitored and reported back to the community against a target of zero speeding. If voluntary compliance didn't work, the public and/or stakeholders could request policing of the speed limit with mobile and/or fixed speed cameras at known crossing points. Queensland Police Service Traffic Manual includes Police policy on speed cameras and site selection based on public complaints and stakeholder concerns. Fixed cameras could

address specific crossing points whereas point-to-point cameras (which average a driver's speed over a distance) could address broad crossing areas (e.g. roads through National Park). Some people find it difficult driving 80 kph on a road designed for 100 kph.

Speed limit reduction

Speed limits could be lowered throughout Mission Beach or just in particular areas, e.g. National Park/World Heritage Areas or winding sections (e.g. Fenby Gap) or known crossing hotspots. Reducing speed limit through the National Park on El Arish-Mission Beach Rd from 80 to 60 kph would increase travel time by less than one minute. Lowered speed limits might need to be coupled with enforcement and/or changes to the road speed environment to encourage compliance. Speed limits could be lowered at different times of the day or year according to fauna behaviour, e.g. cassowaries generally don't cross at night (but wallabies do; also the May 2010 cassowary roadkill was after dark); cassowary chicks hatch at a certain time of year and have less road sense than adults. Lowering speed limits immediately adjacent to existing low speed areas may be more acceptable to the community and government but there are important crossing zones distant from existing low speed areas. Lowered speed zones could be relocatable to respond to crossing hotspots. "Advisory" speed limit signs could be installed at crossing zones encouraging drivers to voluntarily drive at a certain lower speed. Advisory signs currently exist at Lacey Creek and east of Fenby Gap and are not known to reduce speed. Some local people could strongly oppose further speed limit reduction unless there is evidence that reducing speed reduces cassowary deaths.



Speed bumps and roundabouts

Speed bumps and roundabouts force drivers to slow down. Speed bumps may be dangerous for motorcycles and trucks and generally are not suitable for 80 kph or higher speeds. Roundabouts require a large space and substantial lighting.

Wildlife underpasses and overpasses

These are dedicated fauna passageways, separate from traffic. Cassowaries rarely use culverts because the culverts are small, so sections of road might need to be elevated on piers like a bridge for cassowaries to cross under, or the road could be in a tunnel so cassowaries cross above. Fencing would be required to funnel cassowaries to the underpasses or overpasses.

Fences

Fencing could be installed to stop cassowaries from crossing certain roads. Cassowaries might follow the fence to where it ends and cross there instead. Individual cassowaries have a large home range and can be territorial. Fencing could block access to habitat, shorten cassowary's range and force conflict between individuals. Fences might separate adults from chicks. Separating populations might result in inbreeding. Cassowaries get confused by fences and could exhaust and/or injure themselves trying to get through. Cassowaries could become entrapped on the road side of the fence, especially after cyclones. Dogs could use fences to corner cassowaries. Fences could be unattractive. Fences (and overpasses/underpasses) might be appropriate at Smith's Gap on the Bruce Highway where traffic volume and speed is much higher and options more limited than at Mission Beach.

Culverts upgraded to bridges

Where waterways have been put into culverts and the surrounding area filled, culverts and fill could be removed and a bridge installed instead. Cassowaries cross under the Hull River bridge.



Directional mounds

Earth mounds could be constructed along roadsides instead of fences. Mound sides could be steep on the habitat side to discourage cassowary entry onto the road and gentle on the road side to enable cassowaries on the road to get back to habitat.

Sonic Animal Deterrents

These are inexpensive whistle-like devices fitted externally to motor vehicles. When the vehicle is travelling over 50 kph, air flowing through the unit emits a high frequency sound to the fore of the vehicle. The sound is apparently audible to animals up to two kilometres away and "warns" them away. Efficiency is influenced by unit maintenance, roadside terrain, corners and weather conditions. Effectiveness on cassowaries is unknown. Deterrents could affect pets that live near roads.

Road hierarchy

A greater variety of traffic calming options are allowed on roads managed by local government compared to State-controlled roads. Transferring certain roads from state control to local government could allow more fauna crossing options but at a cost to local government. South Mission Beach Rd is currently a main road that could possibly be a local road. Traffic could be encouraged to use Bingil Bay Road rather than El Arish-Mission Beach Road which cuts through the middle of the National Park.

However there are important ecological and social values on Bingil Bay Road too, travel times would increase for some, and a Bingil Bay Rd upgrade would require major works.

Flattening roads (vertical realignment)

In areas where the topography is naturally undulating, the driver's visibility of the road ahead might be blocked by the next crest. Crests could be levelled and gullies bridged to create a flatter road so that drivers could see further ahead, including fauna on the road. Increased visibility might result in increased driver speed and decreased stopping time as well as aesthetic and drainage impacts.

Unstraightening roads (horizontal realignment)



Long straight stretches of road (like the Wongaling stretch) could be given a more winding alignment (like Collins Avenue in Cairns) to encourage lower speeds (and improve aesthetics). Chicanes are traffic islands placed near the road edge making the road less straight. They might need to be lit at night. Winding roads could reduce visibility of cassowaries.

Narrowing roads

Pavement width could be narrowed or road shoulders could be painted (e.g. with chevron marking) to make the road appear narrower and discourage speeding in crossing zones. Painted shoulders already exist on parts of Tully-Mission Beach Rd but fade over time.

Double white lines

Double white centre lines could be painted on roads through cassowary crossing areas to disallow overtaking. Cassowary roadkill has been caused by a vehicle overtaking another vehicle that had slowed to allow a cassowary party to cross.

Traffic volume management

Traffic volume is currently increasing due to ongoing car-dependent development. Traffic growth could be moderated by ensuring future development is low density; voluntarily buying back undeveloped development sites; providing best practice bike paths, walkways and public transport; and providing services and facilities in each village so people don't need to drive frequently between villages (and through habitat). There may not be sufficient population at Mission Beach for a viable best practice bus service. We need to plan for future traffic volumes.



Ecotourism development

Cassowary friendly driving could be encouraged by developing ecotourism as the local business of the future. If local people were employed in nature-based industries, they could be economically motivated to maintain the natural values and minimise roadkill. Tourist transport would need to be carefully managed.

Learning from roadkill

We need to understand the factors that contribute to roadkill in order to help prevent future accidents. Factors include driver and cassowary behaviour and environmental factors, e.g. what was the driver's speed; was the driver a local or visitor; did the roadkill occur at a known cassowary crossing point; was it a straight or winding road section; a flat or steep road; was the road verge forest or mown grass? People involved in traffic accidents (or near misses) with cassowaries can

provide this critical information. Cassowary road incidents should be reported to the DERM hotline phone 1300 130 372 so that DERM and partners can respond to cassowary roadkill incidents and understand the contributing factors. People involved in cassowary accidents could be traumatised and concerned about how they will be perceived by the community and may need support.

Conclusion

People who live and/or work at Mission Beach have invaluable experience and have suggested many of the above ideas. Please think about the above ideas but remember that many of them are as yet unproven and are not endorsed by Terrain or others. If you have comments or additional ideas, please contact Terrain on Ph 4043 8000 or tonyo@terrain.org.au. Terrain is working with all stakeholders to help find and implement effective solutions.

