Bonville Upgrade Fauna Overpass

**Overpasses**

The use of vegetated overpasses in Australia has had relatively little investigation in Australia due to the high costs of building and maintaining bridge like structures or tunnelling roads. Generally for an overpass to allow successful movement of arboreal species, an upper canopy is considered necessary to provide gliding ability. This would require a substantial amount of ground surface on the fauna overpass to allow tree growth. [2]

For this reason, the depth of the soil used for the fauna overpass is greater than previous examples along the Pacific Highway. Please refer to the handouts provided with the CIG meeting #2 notes for soil depths.

**Adjacent vegetation**

Hunt et al. (1987), referenced in ‘Fauna Sensitive Road Design’ also established that the presence of vegetation adjacent to culverts was found to significantly increase fauna activity near the culvert entrances in case studies in Western Australia. [2]

The vegetation to be planted on the Bonville Upgrade fauna overpass will include sufficient vegetation to encourage fauna activity and use of the overpass.

**The speed limit along the service road**

Trials of Koala Zone Speed Limits have been undertaken in Redlands Shire, south-eastern Queensland. The speed zones require that drivers lower speeds between the months of August and December and between 7pm and 5am when koalas are most likely to be moving on the ground. This has met with limited success in terms of reducing car speed (de Villiers, 1999). [1]

However, Redlands Shire did find that a reduction in speed from 100km/hr to 80km/hr did reduce the number of koalas killed on the roads. [2]

The speed limit along the service road will be 80km/hr.

**Road design**

The use of speed humps and additional lighting on urban roads also slows traffic and increases the chance that koalas on roads can be seen and avoided. Detailed discussions are also provided in Wellwood (1995). [1]

Painted sections across roads and rumble strips have also been proposed in the draft Greater Taree Plan and draft Campbelltown Plan as a way of further alerting drivers to koala ‘black spot’ areas (J. Callaghan, AKF, pers. comm.). [1]

Several options to assist with decreasing traffic speed are currently being discussed for the Bonville Upgrade service road to reduce the possibility of fauna casualties.
Fauna exclusion fencing

In Australia, fencing is most commonly used for the conservation of koalas and to exclude macropods from the roads. Guide fences are mainly associated with underpasses and culverts, leaving large sections of road unfenced. This is necessary in areas where culverts are impractical, but also prevents animal deaths from fire, where the ability of an animal to escape may be impeded by extensive lengths of fence without suitably spaced and sized underpasses. [2]

It is necessary to ensure that all koala proof fencing is located or maintained so that trees do not grow within approximately 3m of the fence.

Temporary fauna fencing (4km in length) is currently being installed and will be complete prior to any clearing. The location of the permanent fauna fence will be available at the Community Information Centre.

Overpasses locations

The following examples of overpasses were researched in the design phase of the Bonville Upgrade fauna overpass.

Australia

- Crompton Road, Brisbane, constructed in 2004, passing through Karawatha Forest – 1.3km of divided dual carriageway with a fauna overpass. Also includes several culvert style underpasses to provide multiple crossing locations

- Pacific Highway, Yelgun to Chinderah – The Bonville Upgrade Overpass is modelled on the fauna overpasses on the Yelgun to Chinderah Upgrade for consistency of appearance.

Overseas

- United States of America
  - 2 overpasses in Utah primarily targeting deer passage, 1 in Hawaii, 1 in New Jersey, 1 in Montana and 1 in Florida as a combined recreation and fauna overpass.

- Canada
  - 2 overpasses to allow fauna passage across the Highway through Banff National Park. This is used by deer and Black Bears.

- France
  - 125 fauna overpasses. Widths vary between 15m to 800m. France was the first country to introduce ‘hour glass’ shaped bridges to reduce costs.

- Germany
  - 32 fauna overpasses, as well as 8 under construction and 20 more planned (as of 2003). The widths of overpasses vary from 8.5m to
870m and include forest or agricultural tracks on approximately half of the structures.

- **Slovenia**
  - 5 Overpasses constructed for the passage of Brown Bears

- **Switzerland**
  - 24 Overpasses have been constructed for a range of species. A Swiss study of 12 overpasses has been examining the links between width and wildlife usage. The study indicated that for between 20m and 50m in width, the frequency of use increases significantly and then flattens off. Small passages under 20m width were not readily used. Overpasses with a width of 50m or greater are used by the greatest variety of species. [6]

- **Netherlands**
  - 4 Fauna Overpasses, 17 to 50m in width. These structures have been considered to be successful, as within a 1 year period 4000 various deer and wild boar crossed a fauna overpass near Terlet.
Overpass Images

Pacific Highway, Yelgun to Chinderah

Crompton Road Land Bridge, Brisbane
An Example from Switzerland

A French ‘hour glass’ example with solid screens for fencing, as viewed from the fauna approach side

An example from Germany
An example from the Netherlands of an overpass with solid screens.
Another example from Europe

An example from Switzerland

REFERENCES:


OTHER RELEVANT REFERENCES FOR FAUNA OVERPASSES:


Ishta Consultants (1999) *Report on the observed limitations on the implementation of koala underpasses and barrier fence systems*.


