

## Wildlife Friendly Fencing

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### **Introduction**

Many people in Australia, especially wildlife carers, have been concerned for a long time about the entanglement of wildlife on barbed wire fences, and some have investigated local solutions. However the issues surrounding the problem require a coordinated national approach. Carol Booth recognised this, and through the distribution of an Action Plan, galvanised support for such an approach. Carol's support was instrumental in the successful application for a grant from the Threatened Species Network (TSN) of the World Wide Fund for Nature (WWF). The grant to Tolga Bat Hospital, was announced on Threatened Species Day, 7 September 2006 and runs to April 2008.

Although the WWF project has a limited life span, the WWF (Wildlife-friendly fencing) project is on-going. It will gather its own momentum as greater sections of the community become involved. We liken the 'wildlife-friendly' fencing concept to that of 'dolphin-friendly' tuna, and the issues of barbed wire entanglement to that of ghost nets that entangle sea animals.

The WWF project will begin the long process of raising public awareness of the impact of barbed wire on all wildlife, especially those already threatened with extinction. The flagship species for the project are Spectacled flying fox (*Pteropus conspicillatus*), Grey-headed flying fox (*Pteropus poliocephalus*) and Mahogany Glider (*Petaurus gracilis*).

We will introduce the concept of "wildlife friendly fencing" to the public, and trial fencing methods that minimise the likelihood of harm to wildlife. The challenge is to make fencing more visible to animals, especially at night. The project is looking for 'champions' within various industries (eg beef, dairy), various landscapes (eg wet undulating, dry flat) and various regions, who will be the pioneer adopters of new fencing approaches, and be the focus of education & awareness building. The project will develop case studies that are then available for others to gain ideas for their properties.

It is an enormous task as there are millions of kilometres of potentially harmful barbed wire fencing across Australia. Funding from WWF is targeting Queensland, in particular the Atherton Tablelands and south-east Queensland. Bat Rescue Inc will administer the project in southeast Queensland. The full extent of the project will be determined by the amount of interest and co-sponsor support we can muster. So far, Bat Conservation International, RSPCA Queensland, and Australian Ethical Investments have lent their support financially; and RSPCA Australia, Wet Tropics Management Authority and Wildlife Preservation Society of Queensland are providing in-kind support.

Barbed wire is an icon in the Australian landscape that has remained unchallenged for too long. There are non-harmful fencing alternatives that are currently in use and that we are trialling with this project. Fencing is integral to good land management but it needs to be done in a way that is wildlife-friendly.






Photo: Ashleigh Johnson Keeping people out in South America

The WWF will involve the following activities:

1. Working with landholders to develop case studies of wildlife friendly fencing. Each time we rescue an animal off a fence, we will try to engage the landowner in the project. We have budgeted for plain wire and a range of other materials to mitigate the impact of barbed wire. Landowners fall into the following categories:
  - Minimal involvement – education and deterrents
  - Moderate involvement – education, removal of barbed wire & replacement
  - Significant involvement – all of the above on a larger scale, possibly an element of research for inclusion as a case study.
2. Develop communication materials
  - Dedicated website [www.wildlifefriendlyfencing.com](http://www.wildlifefriendlyfencing.com)
  - Brochure and CD / DVD with detailed information
  - Appropriate information at barbed wire outlets
  - Caps, T-shirts, bookmarks
  - A3 posters for rural field days, envirodays, conferences etc
  - Press releases for media – printed, TV, radio
  - Signs for participating landowners
  - An educational film, sponsored by BCI Bat Conservation International (in USA)

The website will provide the project with maximal exposure and accessibility. We will be able to change and update information, as we continue collecting more case studies and more partners. We will seek a link to it from the websites of a broad range of organizations.

3. Invite barbed wire manufacturers, distributors and retailers into partnerships for the provision of educational materials at points of sale.
  4. Develop partnerships with NRM groups; NHT committees; peak rural bodies, wildlife and animal welfare groups; wildlife rescue groups and government for distribution of information. We will target industry with high perimeter barbed wire fencing, golf clubs as well as rural landholders.
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5. We would like all barbed wire fencing projects funded with public money eg NHT funds, to be assessed for 'wildlife friendliness' and appropriate measures taken before funding is approved eg a conservation agreement describing fencing methods.
6. Raise awareness of the need to monitor barbed wire fences, and the immediate reporting of any entangled wildlife. This will lead to a greater percentage of entangled wildlife being released, as an early rescue usually ensures fewer injuries. It is vital that the public know who to contact for rescue and we are extremely fortunate in Queensland that RSPCA has a 24hour wildlife rescue number 1300ANIMAL.

### **Injuries - Birds**

When a bird flies it does not look directly ahead of itself, but instead will scan the area a distance off. In nature, obstacles such as trees are quite obvious to a flying bird, while the thin strands of a barbed wire fence are not so obvious.

Owls and other birds often fly into the top strands of these types of fences and are then caught in the barbs, unable to struggle free, and so frequently dying slow, agonising deaths. The Birds of Prey Working Group is investigating various methods to make fences more visible, in particular to nocturnal birds, and this will prevent countless unnecessary death'. *Endangered Wildlife Trust, South Africa*



*Photo: Jack Shield Kookaburra*



*Photo: Ashleigh Johnson Ibis*



### Injuries - Bats

Injuries in flying foxes include:

- Mouth. In desperation many bats will try to bite themselves off the barbs. This can result in severe damage to the roof of the mouth, loss of teeth and even fractures of the jaw.
- Wing membrane. Most bats are caught on the fence by their wings, and this results in tearing, puncturing, severe bruising, inflammation and death of tissue.
- Bones. Bones can be broken, or stripped bare.
- Body. Bats can be entangled by the hair and skin anywhere. The resulting puncture wounds can be of varying severity.

Do not be tempted to rescue the bat and let it go. There is usually a die-back process in the wing that may not be evident for several days. The damage may look quite minimal at first, but lack of blood supply to the wing while it is still entangled can lead to a surprising amount of die-back, or loss of wing membrane



*Photo: Ashleigh Johnson. The twisting that can occur. Note barbs have been removed before trying to remove bat from fence.*



*Photo: Ashleigh Johnson. The dieback that occurs some days after rescue. The resulting slit will make it impossible for this bat to fly.*

The Little Red flying foxes are affected more than the 3 larger species of flying foxes, presumably as their flight is weaker in windy conditions. It is not uncommon for large numbers of Little Red flying foxes to get caught over a few weeks, especially when the young cannot fly well enough to cope with windy conditions. On the Atherton Tablelands, these mass events usually occur in August to October. In 1994, 442 Little Red flying foxes were caught, mostly along one 10 km stretch of barbed wire. Little Reds occur across northern and eastern Australia extending inland long distances depending on the availability of flowering trees.

We have often rescued bats from government-funded fences that are protecting revegetation plantings from cattle. The irony is that one goal of the revegetation plantings is to improve biodiversity, but when bats come to offer their seed dispersal and pollination services, they are caught. As the plantings increase in height, the situation often improves.

### **Injuries - Gliders**

Gliders are commonly caught on barbed wire fences. Good work is being done by the Wildlife Preservation Society of Queensland through their Glider Network.

The Mahogany Glider of far north Queensland is listed at both the federal and state levels as endangered. There have been 10 taken off fences in the last decade, 5 of which died, 2 released and 2 in captivity and 1 currently in care. Daryl Dickson's experience with these animals has shown if the damage is not too severe, the membrane will heal remarkably well without stitching. As with all other species, no one is aware of the real number entangled by fences.



Photo above by Louise Saunders, not a Mahogany glider, a sugar glider

### **Guidelines**

There are two broad options:

- (a) replace or remove the barbed wire and
- (b) make the barbed wire fence more visible.

As far as we know, there has been no research on the relative effectiveness of barbed wire and other fencing options for various purposes, or the impacts on wildlife of different fencing options. The suggestions below are preliminary, so you may use these suggestions at your own risk. We welcome any information you have about fencing and wildlife. We propose to develop a comprehensive wildlife friendly fencing guide once we have sufficient case studies completed.

### **A. REMOVAL / REPLACEMENT / ALTERNATIVE FENCING MATERIALS**

1. Use plain wire or other fencing material: The best option is for barbed wire not to be used at all in fences. Replacing the top one or two strands with plain wire will resolve most problems#. Other fencing options include the use of 'borderline' or 'knightline', which are solid high tension nylon sighter 'wires' (no steel), used mainly for horse fencing. Knightline glows in the dark. They are significantly more expensive than plain wire, but would be useful in high-risk areas.
2. Remove fences: In high risk situations, such as along ridgelines or around wetlands, the best option is to remove the fence altogether and erect else-where if need be.



3. Cover the barbs on existing fences: Barbs can be covered with tubing, particularly in entanglement hot spots. Gadgets have been designed for splitting poly pipe quickly and for applying the pipe to the fence. See photos below. In entanglement hotspots, another option is to install an 'apron' of chicken mesh or similar over the fence.

*# Ballina Shire has recently replaced the barbed wire on the two top strands of a fence around four sewage treatment ponds (Cheryl Cochran, FFICN, 2005). In Townsville, the 10th Terminal Regiment of the Australian Army installed plain wire on all their fences to avoid entanglements of juvenile bats which are released on its land and other bats at the Ross River colony (Dominique Thiriet, pers. comm. 2006).*

4. Use electric fences: Electric fences can be effective to control stock access, although the vegetation management required to maintain them can be costly and time consuming, particularly in northern Australia. Sometimes cattle are prepared to suffer electric shocks, and the fences may not be effective. Some sorts of electric fences may also kill and injure some native wildlife. For example, some animals respond to electric shocks in ways which make them particularly vulnerable to death on electric fences, e.g. snakes often curl around a wire after being shocked, sugargliders may wrap their tails around the wire and echidnas curl up in a ball (Lund & De Silva 1994, cited by Long & Robley 2004). We are still undecided about the efficacy of electric fencing as a WFF option.



**Photo: Cheryl Cochran**



**Photo: Cheryl Cochran**

*Above: The polypipe splitter device that simultaneously splits and installs the pipe over barbs. The gadget has been developed by a member of the Northern Rivers Wildlife (Cheryl Cochran, Northern Rivers Wildlife Carers pers. comm.. Feb 2006).*

## **B. IMPROVED VISIBILITY**

Barbed wire can be made more visible to animals by adding visible and/or audible markers to the fence, such as tape, plastic flags, metal tags, and aluminium cans. Considerations include the danger to cattle, introduction of waste to the environment, the effort required for installation and maintenance, and the cost.

Plastic ribbon or second-hand caryard bunting/flags cannot be used where there are cattle as they may eat stray plastic, suffer digestive problems and die. Plastic flagging can be used to mark fences on army bases or rural rubbish tips.

1. Electric tape: Discarded white electric fence tape can be strung above the top strand of barbed wire, secured to wooden fence posts with fencing staples or to star pickets with cable ties. If tying lengths of tape together, avoid loose ends if likely to tempt grazing livestock. The tape offers good visibility, as it is white and shimmies in the wind; it also acts as a physical barrier. It is cheap, quick and easy to put up, especially over long distances.



***Photo: Ashleigh Johnson***

***Photo: Ashleigh Johnson. Landowner Brian Naughton with old electric fence tape as a marker.***

2. Plastic signals: Plastic bunting, flagging made from surveyors tape, or plastic warning tags such as those used on road-works, can be added to barbed wire to provide a visual and aural warning to wildlife. Bunting needs to be replaced annually because of deterioration. Second-hand bunting can be obtained from car yard dealers. Plastic flags made from tape are cheap, but need to be regularly replaced due to deterioration. Flags need to be placed at least every 30 cm or so. A flying-fox has been entangled on barbed wire less than 40cm from flagging (Dominique Thiriet pers. comm. Feb 2006). Plastic should not be used on stock fences.

Bunting has apparently been successful at preventing flying-fox entanglements for >10 years at the Rockhampton rubbish tip (Nigel Tuckwood, Waste Coordinator, Rockhampton City Council, pers. comm. April 2005) and also at the Amberley airforce base (Rebecca Worrill, Civilian Environment Officer, Amberley Airforce Base, pers. comm.. April 2005).

3. Metal signals: Metal tags or other shiny objects, such as metal plates or beer cans, can also act to make barbed wire more visible.  
*Metal tags* have been used on a DPI facility in Cleveland with no bat deaths recorded since (Louise Saunders, Brisbane Bat Rescue, pers. comm. April 2005).  
*Aluminium one-person pie dishes* are simply bent and clamped by hand over the barbed wire (Meredith Ryan, pers. comm. April 2005).



*Metal plates* have been installed between the top two barbed strands atop a cyclone mesh fence around a power substation in the Pilbara. In this case, barbed wire was required since substations should meet Australian Standards regarding the Restriction of



Photo:Jon Luly. Army Barracks Townsville.



Photo:Jon Luly. Metal tags.

Entry (point 10.4; AS 2067-1984) and plates were considered to be the best alternative (Kyle Armstrong, pers. comm. March 2006).

Beer cans have been used by iron ore mining companies in the Pilbara (Kyle Armstrong, pers. comm. March 2006) and on camel fences at Newhaven, Birds Australia's property in the Northern Territory.

4. *Others*: Brightly-coloured plastic balls (like airstrip powerline markers) have been used to prevent power line strike by cranes in Europe and the US and may also be useful for fences. These would be a relatively expensive option for extensive lengths of fencing.

### C. OTHER OPTIONS

1. Remove food trees: Food trees close to barbedwire could be removed if this is the reason flying-foxes are getting caught. Unless the tree is a weed, however, this is not a good option for wildlife, and can be expensive.
2. Manage vegetation: In some cases, managing the height of vegetation may prevent entanglements. Birds and bats tend not to be caught on surrounding barbed wire once closely-planted trees grow to fence height. Where fenceline grass is long, bat deaths may be reduced. Furthermore, hedges of vegetation can be planted to replace barbed wire fences – prickly vegetation may inhibit access as well as barbed wire. Regular vegetation management is probably not feasible on relatively large properties.
3. Check fences: Improved surveillance of fences and timely rescues would save some entangled creatures, however this will not address the causes of entanglement. While it may not be realistic to expect farmers with many kilometres of fences to regularly check them, this could reasonably be asked of landholders with short fences, such as those in industrial areas or rural residential areas. It should be requested in addition to other measures.



For up-to-date information visit [www.wildlifefriendlyfencing.com](http://www.wildlifefriendlyfencing.com)