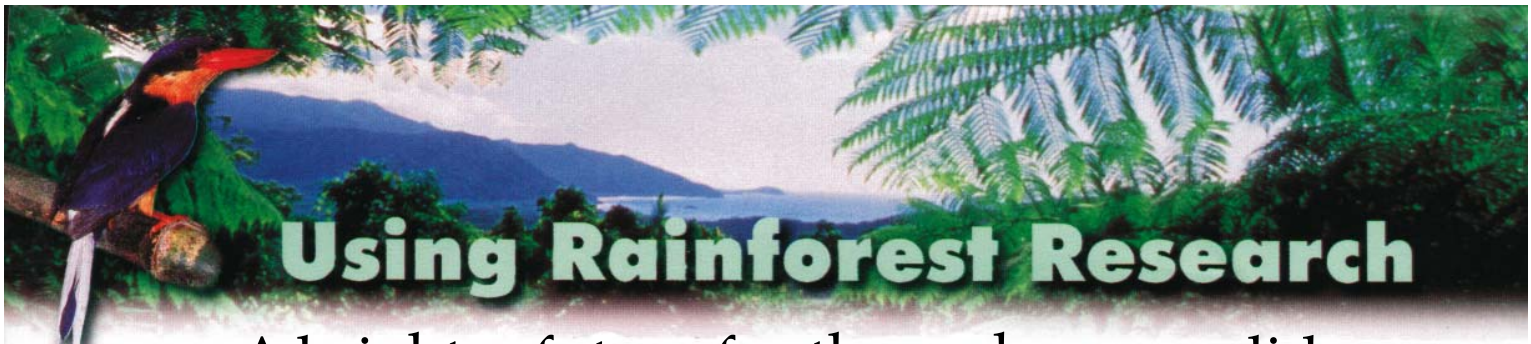


Using Rainforest Research

A brighter future for the mahogany glider

March 1998

The mahogany glider, *Petaurus gracilis*, is a graceful but rare species of gliding possum which survives only in the wet tropics of north Queensland. For more than a century it was considered to be extinct until it was rediscovered in 1989.

One reason it might have escaped detection for so long is that its habitat is restricted to a 110 km narrow band of dry coastal open woodland between Tully and just south of Ingham. Outside this limited distribution, the more common squirrel glider inhabits the open forests surrounding the mahogany gliders' habitat.

Stephen Jackson, a James Cook University PhD student, has been studying the mahogany glider for more than three years. His research aimed to gain a better understanding of these furry fliers and to find ways to prevent the loss of them for good. One of the main focuses of his study was to determine the gliders' habitat requirements to assist with the development of strategies for its protection.

Voracious high fliers

Mahogany gliders prefer to make their homes in forest with an open canopy. When traversing their habitat they glide from tree to tree, soaring an average of 30 metres, although, Steve has recorded glides of up to 60 metres. The mahogany glider breeds seasonally and gives birth to one or two offspring between April and September each year. However, these agile aeronauts appear to only live to the age of five.

Photo: John Young

The mahogany glider - Rediscovered in 1989

They feed on a diverse variety of food items including nectar and pollen from tree species such as eucalypts, bloodwoods, and melaleucas (paper-barks). In particular, mahogany gliders savor the sap from *Albizia procera* and several other species of acacias.

Mahogany gliders also augment their diet with honeydew, insects, acacia arils (the short attachments that connect the seed to the pod) and mistletoe fruit. These food sources have distinct periods of availability, so their diet is influenced by seasonal cycles of flowering and fruiting. Needless to say, reliance on such variety of food requires that the mahogany glider live in an area of high plant diversity.

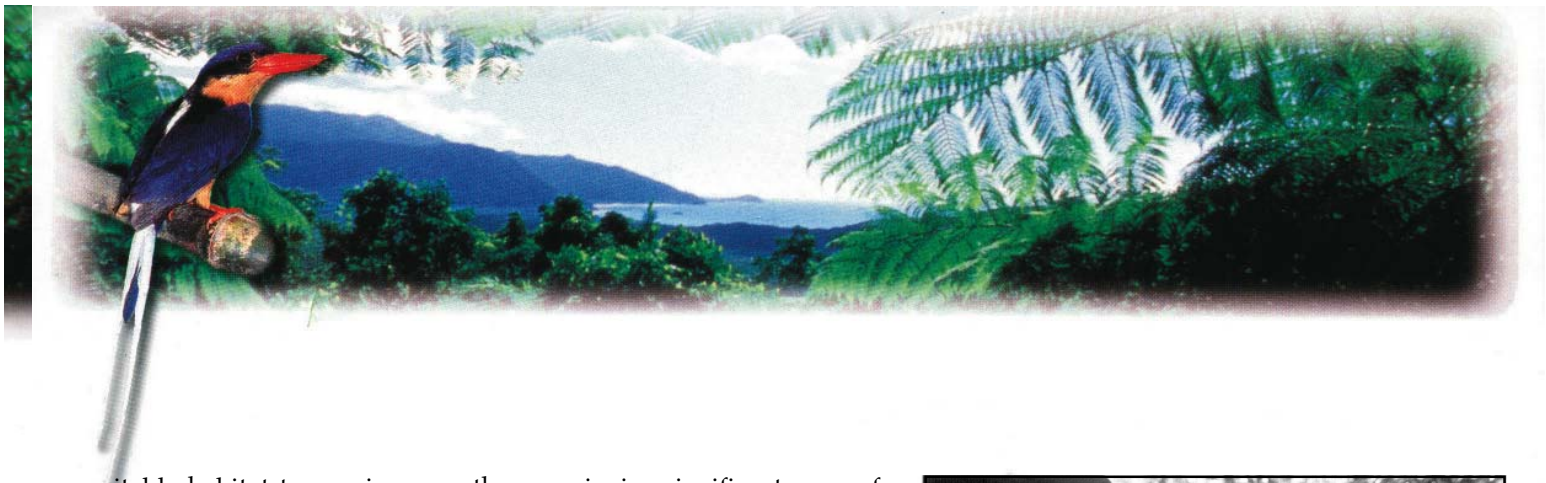
Why are they rare and endangered?

As a result of their highly limited distribution and the small amount of habitat within protected areas, the mahogany glider is endangered with extinction. Their shaky foot-hold is further jeopardised because a large percentage of their habitat, approximately 80%, has been cleared for agriculture and forestry. There is a great risk that their remaining habitat could also be cleared.

This clearing has fragmented the remaining mahogany glider habitat, isolating small groups within each patch of forest. The small numbers harboured in a fragment could fall victim to natural collapse, either by inbreeding, disease or natural disaster, such as a cyclone or fire. Mahogany gliders do not readily come to the ground, so it is nearly impossible for the gliders to migrate to other forest fragments separated by fields or paddocks. Consequently, it is unlikely that the animal could recolonise fragments from which they have disappeared.

How much habitat do they need?

Steve's research suggests that 800 mahogany gliders require at least 8000 hectares of



suitable habitat to survive over the long term. He has found that in a continuous forest, individual gliders require an area of 19-20 hectares which they share with their mate and any offspring. A pair of gliders could have up to 13 dens within their home range.

Unlike many other possums in north Queensland, the mahogany glider does not appear to readily utilize the rainforest for either food nor shelter. In fact, as more wet sclerophyll and dry woodland is engulfed by rainforest, mahogany gliders may suffer a further loss of habitat.

Steps toward mahogany glider conservation

In order to conserve the mahogany glider a number of issues will need to be addressed. These include:

1. The retention of areas of habitat to maintain viable populations of the mahogany gliders.
2. The establishment and maintenance of wildlife corridors between key populations.
3. The use of fire to control rainforest expansion into open woodland habitat where the mahogany glider survives.
4. Encouraging landowners not to make gaps in habitat greater than 20m wide so the mahogany glider can glide over the gap in habitat.
5. Encouraging landowners to use plain wire for fences as barbed wire is a significant cause of mahoganyglider mortality.
6. Undertake further research to fill present gaps in our knowledge of the mahogany glider that includes:

   - Conducting a baseline study to examine the present genetic diversity in each of the major remaining populations to examine if inbreeding is occurring.
   - Completing a detailed examination of the remaining habitat in regard to vegetation types, size of habitat fragments remaining, and the potential use of corridors between fragments.
   - Examining the large scale habitat requirements with the aim of developing a model to predict the occurrence of mahogany gliders in particular habitat.
   - Completing a broad scale study to examine the use of corridors of different lengths and widths of corridors in order to determine the limits to what they will traverse. Assessing the impact of rainforest expansion along corridors and in continuous habitat.
   - Examining the impact of different fire regimes in controlling rainforest expansion within key corridors and remnant habitat.

Following this and other research on the mahogany glider, a number of steps have been initiated by the Federal and State governments to protect the mahogany glider including:

1. the purchase of land;
2. the development of conservation agreements with land owners;
3. the initiation of a recovery team to make decisions on the management of the glider; and
4. the development of a management plan by the recovery team which will assist in the long term management of this species.

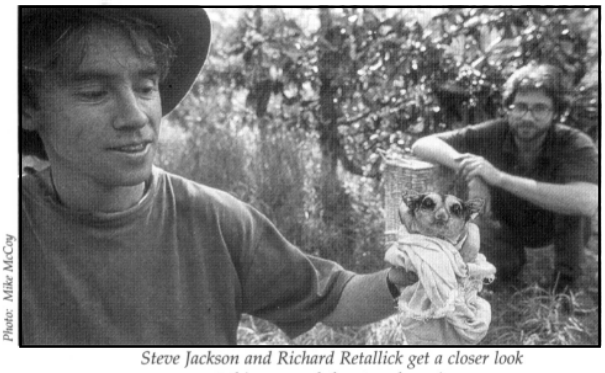


Photo: Mike McCoy

Steve Jackson and Richard Retallick get a closer look at this rare and threatened species

For more information

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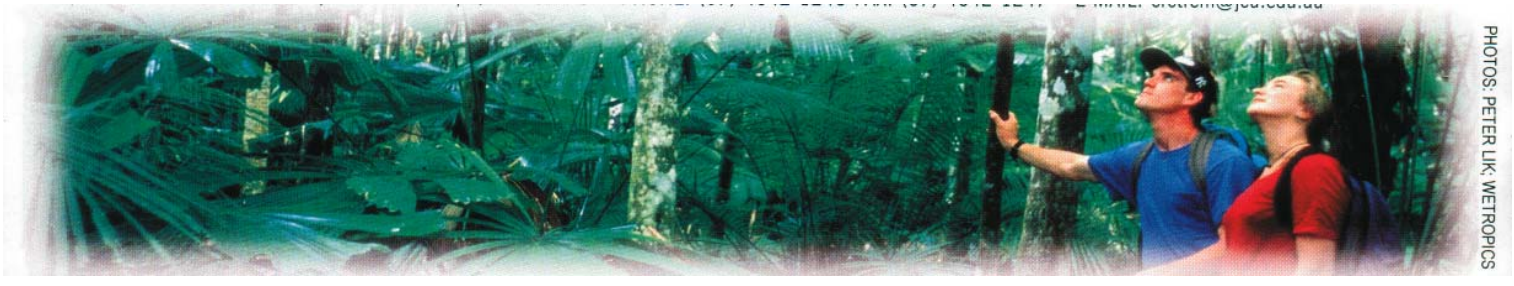
Acknowledgements:
This research was funded by Environment Australia, Queensland Dept. of Environment, Thorsborne Trust and Australian Geographic.



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