

## Fragmentation and Biodiversity



Across the Northern Territory, the natural vegetation remains relatively intact with limited modification. In recent years native vegetation has come under increased threat, from agricultural development. The Northern Territory has the rare opportunity to enact clearing controls informed by the principles of ecological sustainability, to ensure long-term maintenance of the Territory's native biodiversity. Understanding the requirements of biodiversity is paramount to create effective conservation and management strategies for future developments and agricultural areas. Planning for these requirements through maximising the retention of native wildlife within agricultural landscapes can help achieve a balance between development and conservation of the natural environment.

### Research

A study commenced in 2000 as part of a PhD through CDU and supported by the Biodiversity Conservation Unit of NRETA that aims to investigate the effects of habitat loss and fragmentation on the fauna of Australia's tropical savanna woodlands. To find out how these habitat alterations affected different species, general flora and fauna studies surveys were conducted in fragments of varying size, isolation and connectedness and natural intact habitat.

In particular, the project focused on the effects of habitat fragmentation on the survival and dispersal of medium sized mammals because they are believed to broadly encompass the needs of other species.

Traps to capture four medium mammal species Black-footed Tree Rat (*Mesembriomys gouldii*), Northern Quoll (*Dasyurus hallucatus*), Northern Brown Bandicoot (*Isodon macrourus*) and the Common Brushtail Possum (*Trichosurus vulpecula*) were set, so researchers could compare the populations of the animals in the different habitats. Of these four species, the Black-footed Tree-rat was radio-tracked in the two habitats to investigate possible differences in dispersal behavior.

Results show that the survival of animals within fragmented habitats is lower than animals living in intact areas. The distances animals can move to access resources is impeded in fragmented habitats, although animals are able to move across small areas of modified habitat to reach native vegetation. Most species can cope with a certain amount of fragmentation, however too much could cause significant losses to the biodiversity of an area. This has implications for future landscape planning of agricultural systems that could potentially maintain substantial areas of habitat for wildlife that are sustainable.

