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Science Division

A biological survey of the Kimberley islands

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Background

The north Kimberley has been identified as one of Australia's biodiversity hotspots. Resilient to many processes threatening biodiversity in other regions of the Kimberley, the north Kimberley has experienced no known plant or animal extinctions to date. Of particular value are the extensive archipelagos and island groups of its submerged coastline. As these islands collectively support most adjacent mainland habitats, they are likely to be important refuges for fauna, particularly as they have been largely sheltered from mainland disturbances. However, more recent activities associated with tourism, fishing and aquaculture, mining, and oil and gas exploration are likely to place increasing pressure on the cultural and biological values of the islands.

In December 2006, the Department of Environment and Conservation, in collaboration with the Kimberley Land Council, Western Australian Museum and Australian Museum, commenced a biological survey of selected islands off the north Kimberley coast.

The main aims of the survey are to:

1) build on existing knowledge of targeted components of biodiversity (i.e. mammals, reptiles, frogs, land snails, birds and plants);
2) identify locations of species susceptible to mainland threats, including cane toads;
3) provide baseline information for future monitoring/survey; and
4) provide the knowledge base to underpin decisions involving conservation and sustainable development.

St Andrew Island (Mount Trafalgar in background)

Golden-backed tree-rat

Findings

To date, 20 sites on 13 islands have been sampled twice (once during the wet and dry seasons). Although identifications continue, the survey has revealed the presence of additional island populations of many vertebrates (particularly snakes and frogs), and more than doubled the species lists for most of the islands visited. Among the mammals, the red-cheeked dunnart (small carnivorous marsupial), western chestnut mouse (native rodent) and agile wallaby are new to the Kimberley islands, the latter being a new record for all Western Australia islands. The golden-backed tree-rat, now restricted to the north-west Kimberley, was recorded for the first time on Augustus Island. Northern quolls, which are known from several islands, but have nearly disappeared from the eastern Kimberley, were discovered on Adolphus Island in the east Kimberley.

Some highlights for the reptiles include; the first record of a taipan from Middle Osborn Island, new records of a black-headed python on Boongaree and Uwins Islands, and a Merten's water monitor sighted for the first time on Augustus Island. During the last wet season survey, the normally allusive brown tree snake, or boiga, was recorded for the first time on three different islands.

Being the most diverse biological groups, it is expected that the majority of new information in terms of adding to overall species lists will come from the plants and land snails. Preliminary results from the first 13 islands sampled revealed 63 species of camaenid land snails, 27 of these are new and at least one genus is new. All snail species appear to be endemic to the islands (i.e. do not occur on the mainland) and each island tends to have a unique suite of species.

Camaenid land snail

Brachychiton sp.

Kimberley spadefoot

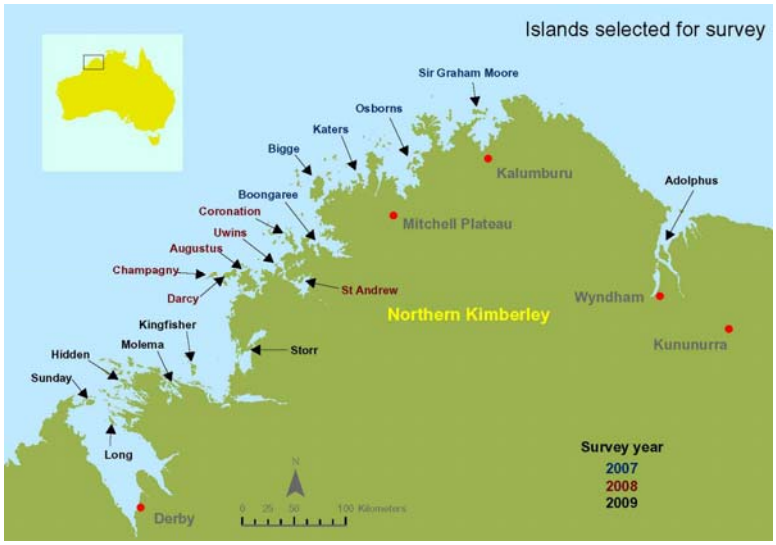
Black-headed python

Management Implications

Inappropriate fire regimes, over-grazing, encroachment of weeds, and predation by introduced animals continue to threaten biodiversity in the broader Kimberley. The arrival of the cane toad into this region is likely to further exacerbate these problems. As such, the relatively intact ecosystems of the Kimberley islands are likely to be important refuges for fauna, particularly those threatened on the mainland by the above processes. Some islands may also act as future safe-havens for translocated species.

Results from the survey so far indicate just how little is known about the island distributions of many species. If the biodiversity values of the Kimberley islands are to be maintained, management strategies that incorporate recommendations for conservation and sustainable development are essential. The Kimberley islands biodiversity survey will provide the knowledge base to underpin these decisions and future management actions.

The islands form part of several native title claims. Traditional Owners from these claim groups have participated in all field work to date. This is an important partnership as Aboriginal people also have management responsibilities for the islands through native title, Aboriginal reserve tenure, proposed Indigenous Protected Areas and developing ranger groups.



Researchers with olive python

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