

Island Treasures – A biological

By Dr Lesley Gibson - A/Senior Research Scientist, Department of Conservation and Land Management

The Kimberley Region of Western Australia conjures images of wild, rugged beauty, but despite its relative isolation, the Kimberley has been exposed to many human-related impacts.

Biodiversity loss has largely been blamed on a combination of changed fire regimes, over-grazing and predation by introduced animals, and infiltration of introduced weeds. The arrival of the cane toad into this region is likely to add further pressure.

The coastline of the Kimberley contains hundreds of islands which have been largely buffered from mainland disturbances (i.e. they have no cats or cattle, and fewer weeds and fires). As these islands also contain many of the habitat types present on the adjacent mainland, they are likely to be important refuges for fauna. However, more recent disturbances associated with tourism, fishing and aquaculture, mining, and oil and gas exploration have been placing pressure on the coastal region's natural and cultural values.

In December 2006, the Department of Environment and Conservation (DEC), in collaboration with the Kimberley Land Council, Western Australian Museum and Australian Museum, commenced a project to survey the plants and animals on 19 of the largest islands off the north-west Kimberley coast. The main aim of the survey is to provide the knowledge base to underpin decisions involving conservation and sustainable development.



Islands selected for the survey

This survey focuses on mammals, birds, reptiles, frogs, land snails and plants. These groups are most at risk from threatening processes affecting the mainland, including the arrival of cane toads.

Many mammal species have disappeared throughout the Kimberley with remaining populations concentrated in the north-west, and cane toads pose an additional threat. Frogs, goannas, snakes, large skinks and dragons are targeted for survey because they are likely to be particularly vulnerable to toads. Some bird species, such as raptors, that eat toads are likely to be under threat, as well as seed-eating birds affected by unsuitable fire regimes. Land snails, being relatively immobile, are particularly susceptible to the impacts of fire and other factors that affect their sheltered habitat, and

frequent burning and erosion threaten many plant species and communities in the Kimberley.

The survey involves small research teams with biological expertise in the relevant groups above, as well as traditional owners. All teams are transferred to, and between, islands by a helicopter with logistical operations coordinated out of a base camp. The survey itself includes a variety of detection techniques such as:

- box (Elliott) and cage traps (mainly for mammals);
- funnel traps (reptiles, particularly snakes);
- spotlighting (mammals and reptiles);
- active searching (reptiles and snails);
- call recognition (bats, birds and frogs), quadrats (plants); and
- opportunistic observations (all).



clothing, hats and sun block. Keep in mind that children may fret on long trips and first timers may be nervous going far offshore.

Skippers should check if their passengers have any special medical problems, and if so, check if they need to carry medication with them. If there is an injury on board, is there a first aid kit and does the skipper have the skills to use it?

Skippers are required to carry safety equipment. The quantity and type of equipment varies depending on how far offshore the vessel is, and it is important to understand that these are minimum requirements. Equipment

such as life jackets, flares and an EPIRB may need to be carried. All safety equipment must be maintained in very good condition and be accessible at all times. It is a good idea for skippers to tell passengers where it is stowed, how to use it and when to use it when they board the vessel.

The discharge of sewage from vessels, especially at popular destinations, reduces water quality, creates a human health risk and is universally loathed aesthetically. To limit the impact of sewage on our environment, the State Government has adopted a regulatory plan that establishes three sewage discharge zones based on the degree of risk to public health and/or the environment:

- areas of water where sewage discharge is completely prohibited for health and/or environmental reasons;
- areas where treated sewage discharge is acceptable; and
- areas, mostly well offshore, where untreated sewage can be discharged from vessels safely.

State and Commonwealth laws cover all kinds of marine pollution including rubbish, oil, plastics and sewage. Penalties can be up to \$200,000.

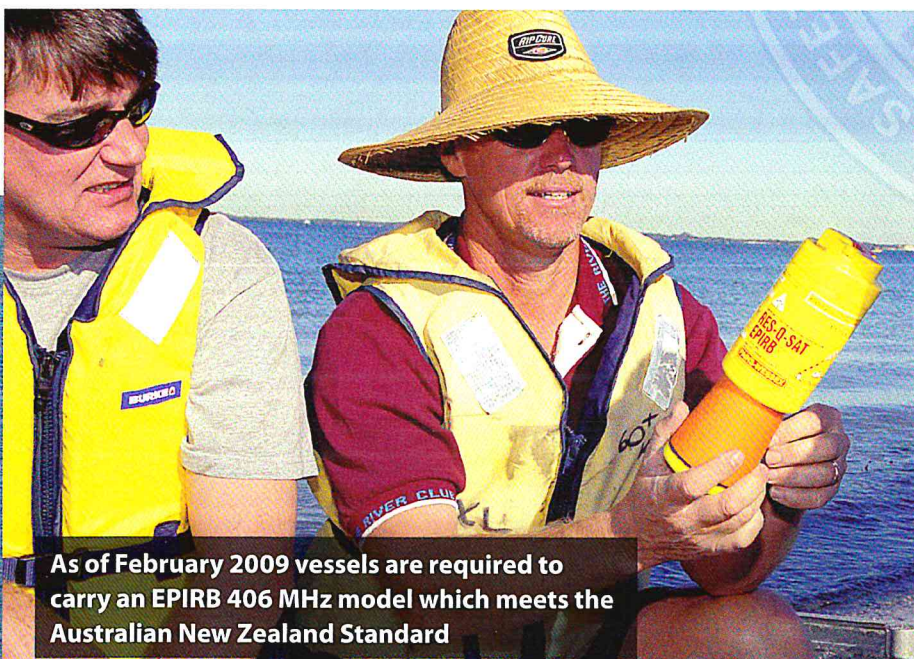
There are international regulations for preventing collisions at sea. These are the traffic laws of the sea, and every vessel afloat has to obey them. Skippers have responsibility to avoid collisions. Actions must be clear, in good time, and large enough so other skippers will understand your intentions.

Before leaving on a trip, skippers need to check there is more than enough fuel for the planned trip. This can be calculated using fuel consumption from the vessel's previous trips. Record the hours the motor runs for on a trip and the litres needed to top up the tank; divide the hours run into the litres use and this gives a litres per hour consumption rate. To calculate the minimum litres of fuel needed for a trip, multiply the litres per hour by the estimated duration of the voyage.

Skippers need to be aware that fuel consumption varies greatly, especially with a change in the sea conditions. They should aim to carry 50 per cent more fuel than what's expected to be used for the planned length and distance of the trip.

The Department for Planning and Infrastructure has developed an RST Workbook, which contains all the information that you need to know about safe boating. These workbooks are available for free from any DPI office, your authorised assessor or boating and fishing outlets.

For further information about the RST or safe boating, visit www.dpi.wa.gov.au/imate or contact DPI on (08) 9216 8966.



As of February 2009 vessels are required to carry an EPIRB 406 MHz model which meets the Australian New Zealand Standard

survey of the Kimberley islands



Bigge camp - Photo: Patricia Handasyde

While a work in progress, early results show that many vertebrates have been recorded for the first time on the Kimberley islands, and several species have been added to each island list (particularly snakes and frogs). 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, and have all but disappeared from the eastern Kimberley, were discovered on Adolphus Island in the east. This

is a significant find as this island is likely to be one of the first where cane toads may populate in the Kimberley, and therefore is a potential site to monitor the quoll population pre- and post-cane toad arrival. Being the most diverse, it is expected that most of the new information adding to the overall species lists will come from the plants and land snails.

This project will provide the first detailed and comprehensive fauna and flora information for many islands along the Kimberley coastline. The information collected will guide future land managers, both Aboriginal and non-Aboriginal, to make sound management decisions into the future.

For further information about the survey of the Kimberley Islands, please contact Dr Lesley Gibson at the Department of Environment and Conservation on (08) 9405 5152 or email Lesley.Gibson@dec.wa.gov.au.



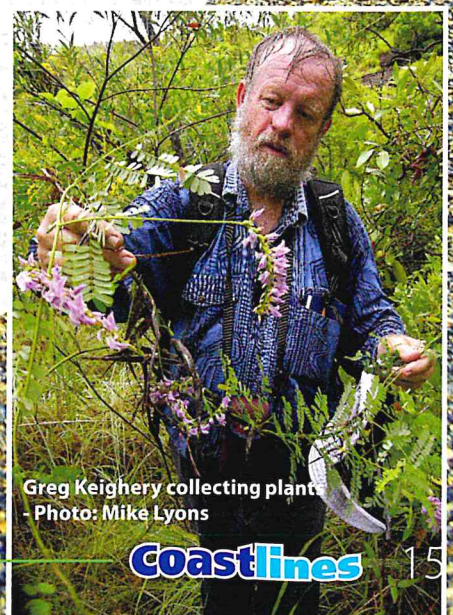
Litoria splendida - Photo: Lesley Gibson



Heteronotia planiceps - Photo: David Pearson



Roy Teal and Mark Cowan with an Olive Python - Photo: Lesley Gibson



Greg Keighery collecting plants - Photo: Mike Lyons