Ecological restoration of Browse Island Nature Reserve

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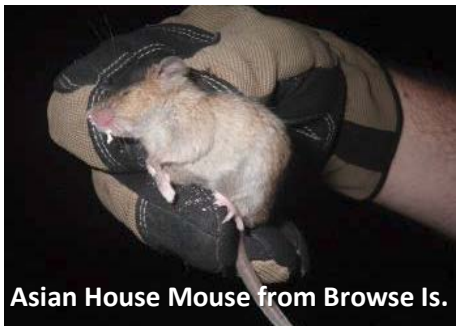
Introduction

Browse Island is a small (~17 ha) island situated 175 km off the Kimberley coast, WA. The island was once labelled the "*jewel in the crown*" of seabird islands off the Kimberley coast, and was described in 1865 as having *"…been appropriated by millions of the feathered tribe, whose eggs lie scattered thickly over every available part of the islet*". However, it was devastated by the activities of guano miners (1872 to 1887). The island's seabird colonies were destroyed at this time and the landform was heavily impacted by these events. Over a century later, manageable threats, notably the presence of an introduced rodent (Asian House Mouse), invasive weeds and low level but persistent poaching, continue to impact on the biodiversity values of the island.

An ecological restoration program at Browse Island would remove these pervasive threats, secure significant turtle rookeries and promote the return of breeding seabirds. In turn, these actions would enhance the regional resilience of seabird and turtle populations. A Browse Island restoration program would also engage local communities, including traditional owner groups, and serve as a model for future island restoration programs.

Threat summary

During ornithological surveys at Browse Island (1-3 visits/year since 2010) Monash University have routinely documented notable threats to biodiversity. Weed species such as buffel grass and caltrop have been confirmed as present in most years. In 2012, Monash and DBCA also confirmed the presence of Asian house mouse (*Mus musculus castaneus*) at moderate densities. As the European house mouse, (*M. m. domesticus)* is the only subspecies established on the Australian mainland the presence of a tropical-adapted house mouse at Browse Island poses an ongoing biosecurity threat to northern Australia. During Monash visits evidence of low level poaching of both nesting turtles and reef fauna has been documented, though encouragingly with the recent increase in oil and gas activity in nearby waters (e.g. *Prelude*) the frequency of shore visits by poachers appears to have declined. Numerous successful island invasive species eradication and restoration projects have been achieved across the globe, which will serve as conceptual models for this project.



Outcomes

A successful island restoration program would return a significant offshore island to a more natural state, improving resilience of breeding seabird and marine turtle populations in the region. Strategically, the proposed restoration is consistent with DBCA's management objectives under the Kimberley Region's nature conservation service plan and makes tangible contributions to strategies identified in the Federal *North-West Bioregional Plan*. Notably, the restoration program would remove the biosecurity threat Asian house mouse poses to the mainland, increase collaboration with relevant research groups and industries, provide evidence-based information to guide management actions and result in species recovery and resilience in the region. Additionally, the project will provide proof of concept and opportunities for future partnerships to restore other islands in the region (such as Adele Island) facing similar threats to Browse Island. Collaborative restoration projects will further increase seabird and turtle resilience in the region.

Partners

Monash University Dr Rohan Clarke is an authority on island ecology and Australian seabirds, with over 20 years of experience in the field. He leads a dedicated research team at a leading Australian University. Experience includes two decades of marine vertebrate data collection from the NW Marine Region; a long research history with marine vertebrates both at-sea and on remote islands (Ashmore Reef, Torres Strait Islands etc) and proven ability to lead and safely implement large-scale expeditions in remote marine areas.

Department of Biodiversity, Conservation and Attractions The Department is responsible for the management of land gazetted under the *Conservation and Land Management Act 1984*, which comprises an array of terrestrial and marine reserves across Western Australia, including Browse Island Nature Reserve. The Department has a rigorous science and research program which underpins strategies to protect, conserve and manage Western Australia's unique environment. The Department has undertaken numerous successful invasive pest island eradication projects and has a long and proven track record in pest management. Staff from the Perth based Science and Conservation Division, along with West Kimberley District, will provide technical guidance and expertise along with on-ground assistance.

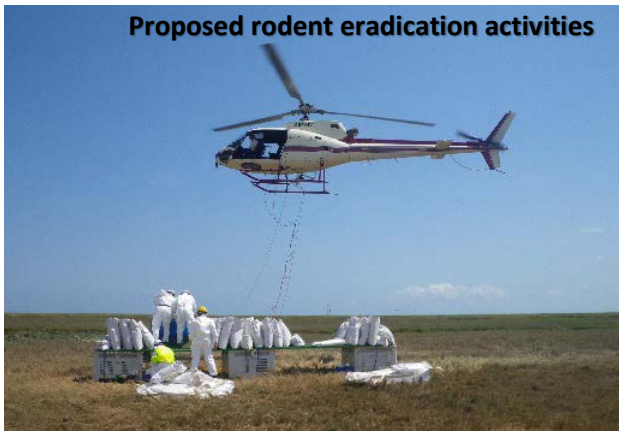
Traditional Owner partnership Browse Island falls outside any native title application areas. However, the Department has recently entered into joint management with a number of traditional owner groups for management of terrestrial and marine reserves across the Kimberley and would seek the interest of relevant traditional owner groups should a restoration project be implemented.

Proposed restoration actions

Timelines provide a guide only, detailed budgeting and timelines will be produced should the project move forward

Year 1: Scoping survey including monitoring to determine rodent density prior to baiting, seabird monitoring, turtle monitoring, weed assessment and invertebrate sampling to determine the presence of any invasive species (particularly tramp ant EP). Planning (eradication plan preparation, permit applications) and preparation of eradication logistics. Establishment of remotely operated camera system to monitoring turtles, human visitation and seabird recovery.

Year 2: Eradication implementation and post eradication monitoring of Asian house mouse (helicopter and hand baiting applications) plus any weed/invertebrates identified in year 1. Seabird recovery planning and logistical preparation.


Proposed rodent eradication activities

Year 3: Monitoring to confirm invasive species eradication. Island restoration. Seabird attraction measures through decoys and call broadcasts and possible translocation of key seabird species to re-establish breeding populations on the island.


Example decoys/sound system

Year 4: Ongoing seabird establishment measures, and population monitoring of seabirds and turtles

The program will be overseen by a dedicated project officer. Other key line items include vessel time, remotely operated camera system, rodent bait, satellite tracking devices for turtles and seabird decoy and call broadcast systems.