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Decision support system for prioritising and implementing biosecurity on Western Australia's islands

Animal Science

Project Core Team

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Project Team	granted
Program Leader	granted
Directorate	granted

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Context

The goal of this project is to prioritise island management actions such that we maximise the number of achievable conservation outcomes for island biodiversity in the face of threats from invasive species. Western Australia has over 3700 islands, many of which are essential for the survival of threatened species and provide critical breeding sites for seabirds and sea turtles. Many islands are also popular sites for recreation, and contain culturally significant sites. Invasive species are the single biggest cause of loss of native species from islands. The increased use of islands by the public for recreation, and oil, gas and mining industries, means an increased likelihood that invasive species will colonise pristine islands.

This project will develop:

1. decision support software for day-to-day use in making accountable and cost-effective decisions on the management of islands to promote the persistence of native species; and
2. an island biosecurity model for prioritising biosecurity actions.

The project will initially focus on the 600+ islands along the Pilbara coast.

Aims

- Develop a single comprehensive database on Pilbara island characteristics, fauna and flora values, and threats.
- Develop an operational decision support software for day-to-day use in making accountable and cost-effective decisions about where to spend limited funding on management of islands to promote the persistence of native species.
- Develop an island biosecurity model for use in prioritising surveillance tasks for non-indigenous species on Pilbara islands.

Progress

- Version 2 of decision support software presented to Parks and Wildlife staff and external researchers at dedicated symposium.
- Graphical user interface refined, and user manual drafted.
- Development of island biosecurity model complete, manual being drafted.
- Pilbara island database: 99% available historical data entered; new data from Pilbara Regional staff regularly entered.
- Species attributes database is under development.
- Pilbara islands habitat map is being refined and validated.
- Presentations at Island Arks Symposium III, Australasian Wildlife Management Society, 27th International Congress for Conservation Biology, 7th Annual Conference of the Australasian Bayesian Network Society, and the 30th Association for the Advancement of Artifical Intelligence Conference.
- Journal articles, four published, four in review.

Management implications

- The decision support software will result in more cost effective management of island conservation reserves.
- A single comprehensive and easily accessible database on Pilbara island characteristics, biodiversity values and threats will facilitate island planning and management.

- A species attributes database will facilitate species management across Western Australia and the identification of priorities with regard to quarantine, surveillance, and biological survey on Pilbara islands.

Future directions

- Finalise decision support tool and biosecurity model user manuals and develop training courses.
- Use habitat maps to identify gaps in island biodiversity knowledge and survey history, and model native species distributions and assemblages.
- Use decision support software to draft an initial set of management priorities for Pilbara Islands and identify island surveillance priorities for priority non-indigenous species.