CASSOWARY RESEARCH PROJECTS

ELLA BAY, INNISFAIL, NORTH QUEENSLAND

GENERAL PROJECT TITLE

CASSOWARY STUDIES

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These projects are currently part of a **Post-doctoral Research Project** submitted to JCU/CSIRO Tropical Landscapes Joint Venture (TLJV) - Australian Tropical Forest Institute (ATFI) at James Cook University, Cairns, for approval pending funding. It is envisaged that components of the two year project(s) could begin in early 2008. Post-doctoral study approx. $200k over two years – approximately $67k/year plus admin support & research/travel costs.

PROJECT 1a

POST-DOCTORAL PROJECT

Microhabitat usage by cassowaries: mapping critical cassowary usage areas for application in species management and fragmented landscape planning.

The cassowary microhabitat modelling sub-project will aim to produce a management tool for desktop environmental impact assessment and population estimation by conservation managers, rather than undertaking costly and time-consuming ground surveys. It would allow cassowary habitat values within management areas to be mapped and reserve management or fragmented landscape restoration strategies to be prioritised.

There are distinct cassowary usage patterns of rainforest that express preferential use of existing topographic and landscape features. This preferential usage varies with the shape, width, slope, connectivity, and location of ridges, plateaux, streams and valleys in the overall rainforest landscape. By quantifying the usage of landscape and vegetation by cassowaries, biotic and abiotic features can be classified, counted and statistical models constructed to better understand how cassowaries make use of available rainforest habitat. Using DTMs, BIOCLIM, and other more sophisticated modelling techniques, it is possible to identify critical or high-use movement corridors; areas that provide critical resources to maintain the carrying capacity needed for long-term viability of the local cassowary population; identify refuges after natural catastrophes such as severe cyclones; and locate areas that provide alternative food supplies in times of shortage.

Cassowary field survey data obtained from 1993 to 2006 will be used to drive the initial microhabitat modelling and the primary study area will be the Ella Bay National Park complex, on the coast north of Innisfail. Rainforest microhabitat models will be developed at three spatial scales, the individual cassowary territory (micro-scale), social system arrangement (meso-scale), and the landscape (macro-scale).

The subsequent microhabitat usage model will be applied to fragmented landscapes where cassowaries still persist. An area encompassing a section of the lowlands between Innisfail and the foothills to the west will be used as the study site for this component of the project. Modelling would aim to clarify how birds function in fragmented environments; evaluate potential cassowary usage and values of various patch sizes; the use and importance of riparian and other remnant vegetation corridors between fragments or continuous forest; and provide the information necessary for risk assessment and conservation management strategies.

Cassowary Recovery Plan 2001 - 2005: Improving knowledge.
3.4.3:   Relationship between the cassowary and its habitat.

PROJECT 1b

Cassowary population ecology and behavioural studies

Receiver behind Ella Bay resort could provide technology necessary for radio tracking known cassowaries over the medium to long-term. Study animals would be anaesthetised by dart using methodology developed by Katie Read (?) and the following data would be taken from each animal

- Morphological measurements
- DNA tissue/feathers etc
- Blood sample (disease & DNA)
- Health specimens e.g. cloacal swabs for TB etc
- Photographs of birds for identification database
- Birds would be micro-chipped for future monitoring in case of death or recapture

Studies of the Seymour Range cassowary population would include:

1. Long-term monitoring of population numbers and demography
2. Social organisation and behavioural studies
3. Movements and home range studies
4. Breeding systems and nesting studies i.e., telemetry will allow the location of courting birds and nesting males to be determined
5. Cassowary interaction with roads and urban infrastructure i.e., Ella Bay access Road, Jubilee grove Road, FFP & EB Resort

Cassowary Recovery Plan 2001 - 2005: Improving knowledge.
3.4.3: Relationship between the cassowary and its habitat.

PROJECT 2

Field application of DNA collection and extraction from cassowary dung for estimating population size and genetic health of cassowaries (Ella Bay, Mission Beach, WTWHA, CYP).

Cassowary Recovery Plan 2001 - 2005: Improving knowledge:
3.4.1: Population assessment techniques.

PROJECT 3

Preliminary assessment of the disease load and genetic health of cassowaries: importance of avian disease to cassowary conservation (faecal samples gathered for DNA study to be analysed for parasites and other diseases - Ella Bay and Mission Beach, WTWHA, CYP).

Cassowary Recovery Plan 2001 - 2005: Improving knowledge
3.4.2: Population trends and effects of different threats
 (Collaboration with JCU - Veterinary School and Tropical Biology TBD).