

Attachment to Question 3:

Outline of proposed research projects for Christmas Island National Park

We plan to continue banding-based research projects into the biology, movements, life history and ecology of island species: Abbott's Booby, Christmas Island Goshawk, Island Thrush, Java Sparrow, Red-tailed Tropicbird, Brown Booby, Red-footed Booby, Great Frigatebird, Lesser Frigatebird, Christmas Island Frigatebird and Brown Noddy. There is currently virtually no data on the endemic species and basic biology is unknown. Information gathered will assist in management of EPBC Act listed species in the Christmas Island National Park. All projects have been approved under the Australian Bird & Bat Banding Scheme (ABBBS). Details are:

Abbott's Booby (ABBBS project 8026/2):

This study aims to investigate the foraging distribution and ecology Abbott's Booby *Papasula abbotti*. This species is listed as Endangered under the EPBC Act 1999. The study will link foraging ecology to population dynamics and the marine habitat environment. Methods will focus on the strategic use of electronic tracking devices (including data loggers and satellite transmitters), supplemented by monitoring of nests and the analysis of prey samples. The results will be used to determine the marine habitat critical to the survival of Abbott's Booby and to develop effective management strategies, based on a sound scientific footing, to protect the bird in its marine environment.

Christmas Island Goshawk (ABBBS project 8026/1):

To assess population size, survival rates, habitat use and ecology of Christmas Island Goshawk (demography, movements, ecology), to inform management initiatives in the recovery of this endangered species (see National Recovery Plan for Christmas Island Goshawk).

Christmas Island seabirds (Tropicbird, Brown Booby, Red-footed Booby, Brown Noddy, Greater, Lesser and Christmas Frigatebirds) (ABBBS project 8026/3):

This proposal is to investigate various aspects of seabird ecology on Christmas Island, Indian Ocean. It covers all nine species of seabird breeding on Christmas Island, under five different subprojects. The purposes differ slightly between species and/or subprojects, and are described in detail under subprojects 1-5 (below). The purposes can be summarised as follows:

- to investigate the breeding biology of some species;
- to monitor the population trends of some species;
- to monitor the nesting success of some species;
- to augment data on feeding ecology that is primarily collected by electronic tracking and logging devices; and
- to monitor the success of an ongoing seabird rehabilitation program.

Essentially the banding project is designed to add significant momentum to seabird research (see Background) that is currently underway on Christmas Island by a large number of contributing researchers. The knowledge gained through these studies will assist our capacity to determine the population viability and conservation management of Christmas Islands' seabirds.

Three of the five subprojects involve the use of readable bands or colour bands. In all cases this is strategically designed to either minimise the impacts of subsequent monitoring (Brown and Red-footed Boobies) or to specifically investigate the role of courtship display (Red-tailed Tropicbirds). The project is specifically designed to take advantage of ongoing research activities on Christmas Island by a large number of contributing researchers, to instigate intensive and long term monitoring of banded birds, a situation that is extremely rare on tropical seabird breeding islands. In addition, it will be coordinated to compliment the Christmas Island Biodiversity Monitoring Programme that is investigating broader biodiversity issues.

Island Thrush (ABBBS project 8026/4):

The main objective is to facilitate and augment detailed studies of nesting biology by intern students. PANCI has initiated an ongoing project for successive intern students that involves detailed observations of nesting biology. Initial results indicate that nests are easy to find, birds are tame and approachable, and basic questions like clutch size, inter-laying incubation and brooding and post fledging care periods can be easily determined. However, incubation and brood shifts cannot be reliably determined without individual marking of birds. Thrushes appear to have multiple broods and perhaps lay and incubate the next clutch while the previous one is still in post-fledging care, but again individual marking is required to confirm this. The appended list of questions give an indication of the scope of the student project.

Two study sites have been selected, one in an urban area and one at PANCI's research station. It is proposed that birds at these locations be colour-banded to facilitate the next stage of student research. Banding will be incorporated as an activity during the Christmas Island Bird week (see www.christmas.net.au).

Java Sparrow (ABBBS project 8026/5):

This study aims to investigate the population size and movements of Java Sparrow on Christmas Island. Birds will be caught in mist nets and colour banded. Population parameters and home ranges will be estimated from retraps and resightings of colour-banded birds.