

A CHRISTMAS MYSTERY: UNLOCKING THE SECRETS OF THE ABBOTT'S BOOBY

Our small convoy was led to a spot in lush, tropical rainforest several kilometres from the Settlement. From the road we went on foot down a narrow, almost indistinguishable track for several hundred metres. The group was brought to a halt and instructed not to move about, talk or make any unnecessary sounds.

This was not some forced-march, hostage-type scenario being played out but one of the unique experiences bird enthusiasts were treated to as part of last September's Christmas Island Bird and Nature Week. During Bird Week, experts in their respective fields escort small groups on tours to see all the Christmas Island endemics. Our party was accompanying Dr Janos Hennenke, from Germany's University of Hamburg, deep into the tropical rainforest to the site of nesting Abbott's Boobies.

With only 5-7,000 adults believed to be in existence, Abbott's Booby is a highly-threatened species. Christmas Island holds the last remaining population of Abbott's in the world and since 1970 numbers are thought to have decreased by nearly 40 per cent. The bird is listed as Endangered on the IUCN's Red List of Endangered Species and is also listed in the Alliance for Zero Extinction initiative (of which BirdLife International is a partner).



Even once you are on Christmas Island, Abbott's Booby is still rarely seen, as when not incubating on their nests, it appears that the birds rest on the ocean, with no records showing them roosting on other islands or landmasses. Parents with small chicks stay closer to the island to enable the young to be fed more frequently, but adults with larger chicks—between five months to fledging—will travel further in search of food. The full breeding cycle of Abbott's Boobies can take up to two years.

Another hindrance in seeing the birds is the difficulty in accessing their chosen homes. Abbott's nest in thick tropical rainforest at the top of the highest trees, so in order to see the birds at close range you need to be shown where they are or be escorted to the nest site by a guide. The outing with Janos and his volunteer team was therefore a unique opportunity to not only gain access to these remarkable birds but to witness field research at close quarters.

The low numbers of Abbott's are thought to be due to several factors, including the clearing of forests for phosphate mining, egg collecting, being hunted for food, the introduction of Yellow Crazy Ants, increased fishing, climate change and marine pollution.

It is likely that the birds are exposed to acute threats when at sea, as much of their remaining breeding habitat is protected on Christmas Island. Little is known about their foraging habits, fish prey species and other behaviour away from land, and there is not yet enough information to evaluate the threats or to develop effective protection measures.

The destruction of suitable nest trees when forests were cleared last century now poses another threat to the species. Forest clearance is believed to have left many remaining nest trees exposed and vulnerable to high winds and turbulence, causing the chicks to be blown from their nests. This may also cause difficulties for adult birds taking flight.

Introduced Yellow Crazy Ants are also causing problems. They are thought to affect chick survival and the adults' breeding performance. The ants also kill the island's famous Red Crabs, which are a key organism in the succession of forest trees on Christmas Island. The lack of crabs alters the plant community and forest composition, potentially making it less suitable as a breeding habitat for birds.

The Seabird Project

Janos initiated the Christmas Island Seabird Project in 2004 in close cooperation with the Christmas Island National Park. The project seeks to discover more about the ecology of Christmas Island's seabirds in order to determine threats and assist in the development of effective management plans. Research is currently focused on the local Red-tailed Tropicbirds and endemic Christmas Island Frigatebirds and Abbott's Boobies.

The latter species' habit of nesting close to cliff edges where it is easier for them to glide or take flight makes the bird particularly difficult to study. The reproductive success and population

By Christopher Tate

Above right: A female Abbott's Booby and her chick on Christmas Island. Photo by Janos Hennicke

Above left: Janos Hennicke makes the tricky ascent to the top of an Abbott's Booby nest tree. Photo by Christopher Tate

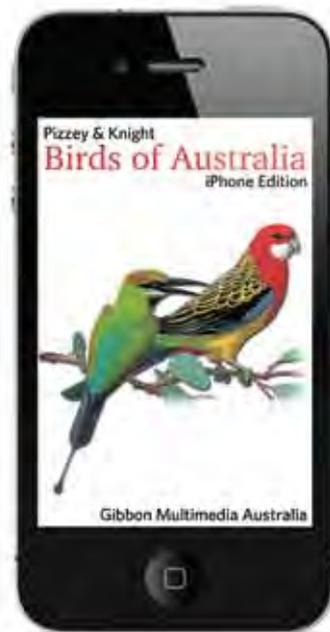
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Left: An injured male Abbott's Booby recovers at the island's seabird rehabilitation centre.
Photo by Ken Haines

dynamics of Abbott's Booby can only be established by regular nest monitoring and banding of adults and chicks. It is on the basis of this information that efficient plans to conserve the species can be developed, but to successfully capture these birds requires a tree which is accessible and climbable with ropes containing an active nest with a chick at the correct age.

It takes considerable time and effort to find the right tree and a nest that contains young that are at an age that can be captured. The tree must be climbable and strong enough to hold a person. For safety reasons, Janos wears a helmet, and protective clothing. He carries all sorts of ropes and equipment that must make it very hot and uncomfortable in the tropical rainforest.

It is quite a time-consuming process in hot, tropical humidity and I would think that only one or two birds could be captured and 'processed' in one day. Even though the rope was already in place in the tree on the day we arrived it still took two to three hours of effort as Janos has to climb the tree, pass down the bird in a bag, measure and weigh it and attach data recording devices (see breakout box), then return it to the nest before climbing back down from the tree.

Chicks leave the island after 15 to 18 months for a life at sea, diving to depths of 2.5–8 metres in search of squid, flying fish, and other small fish, not returning to the island again for two to five years. Like all diving seabirds, Abbott's Boobies require large fish such as tuna and swordfish to drive small fish close to the surface within reach. When fishermen harvest these larger fish unsustainably, Abbott's are unable to find enough food for their survival. It is hoped that tracking the tagged juveniles will help determine their foraging habitats after fledging to find out what specific threats the dispersing young are exposed to on their first trips.

As Janos finally made his way down to *terra firma* after another successful tagging session, I couldn't help but wonder if this will be the chick that will help crack the riddle of this rare seabird's ocean wanderings. Any visitor who gets the chance to visit Christmas Island and meet him cannot help but be impressed by Janos and his team's remarkable dedication to unravelling the mysteries of the life of this unique species and their endeavours to protect and preserve it for future generations.

For more information on Abbott's Boobies and other Christmas Island seabirds contact Dr Janos Hennicke via www.seabirdproject.cx

This year's Christmas Island Bird and Nature Week runs between 31 August to 7 September. For more details visit www.christmas.net.au

Tracking devices

Three different tracking devices are used on Abbott's Boobies, depending upon the bird's age and rearing cycle, to determine their movements and positions. Tests have shown that they do not impede or harm the birds in any way. The three devices are:

1. GPS loggers. Costing around \$150, these are high-precision devices used to establish the position of parent birds, their home range, trip duration and foraging areas. The loggers are used during early chick rearing and incubation. The device stays on the birds between three days and three weeks before retrieval.
2. Satellite transmitters, which initially cost \$3,000. Data transmission costs add another \$2,000. This device is used on dispersing fledglings for a period of four to eight weeks until it falls off. These are low-precision devices that are not necessarily always retrieved to get the data.
3. Geo-locators are also used as loggers. They cost \$200-\$250 and must be retrieved to get data. The bird's position is calculated on sunrise, sunset and day-length. Geo-locators are attached to the adult's leg band and weigh just 2-3 grams. The device provides information on migration/long-distance movement during the post-fledging care period and non-breeding period and can stay on the bird for years. The geo-locator is retrieved after one to four years, depending on the breeding activity of the adult.

Janos also uses Temperature-Depth-Recorders. Costing \$700 each, these are used to gather information on the bird's diving behaviour. These and other project costs are funded from private sponsors, donors and grants.