

**JOB PROGRESS REPORT
RESEARCH PROJECT SEGMENT**

STATE: Territory of Guam

PROJECT NO.: E-2-3
SUB-PROJECT NO.: D
JOB NO.: 1

JOB TITLE: Establishment of a Guam Rail Population at Area 50, Northwest Field, Andersen Air Force Base

PERIOD COVERED: October 1, 1999 to 30 September, 2000

SUMMARY

Five of the 16 Guam rails (*Gallirallus owstoni*) released in Northwest Field Area 50 (NWF-A50) in FY99 still had active radio transmitters at the start of FY00. Three birds were found dead, 4 rails were trapped in cat traps (including one with a non-working transmitter), and 1 nest was discovered. Four cats and 3 monitor lizards were trapped and removed from the area. A mark and recapture survey in December found no birds. Playback surveys, using recorded rail territorial calls, conducted in February and March detected 10 rails in NWF-A50. Three birds were observed in June and July using fixed-point observations. A biologist was hired in September to assist in the Guam rail recovery efforts.

INTRODUCTION

Census data collected between 1960 and the early 1980's documented the reduction in range and numbers of the Guam rail, *Gallirallus owstoni* (Witteman *et al.* 1990). The extirpation of the Guam rail from the wild was due primarily to predation by the introduced Brown treesnake (BTS), *Boiga irregularis* (Savidge 1987). In 1984, the Guam rail was listed on the U.S. Endangered Species List. In 1982, Guam's Division of Aquatic and Wildlife Resources (DAWR) developed a captive breeding program for the Guam rail and by 1986 collected all known remaining rails from the wild (N=21). The rails have reproduced well in captivity and there are currently between 200-210 rails distributed between Guam and 14 mainland zoos (Orndorff 2000).

Between 1989 and 2000, 384 Guam rails were released on Rota, CNMI, for the purpose of establishing an experimental, wild population in a snake-free environment (Medina and Aguon 2000). In 1995, 1999, and 2000 reproduction at NWF-A50 was suggesting that the technical aspects of introduction are achievable.

Current BTS control methods include the reduction or eradication of snakes from large-scale areas utilizing traps and barriers (Brock *et al.*, in prep.). NWF-A50 is a 24 hectare plot of mixed forest on Anderson Air Force Base (AAFB), Guam (Figure 1). It is surrounded by old

runway tarmacs and enclosed by a 2 m tall chain link fence and set aside for the purpose of environmental recovery activities to include: 1) the removal of BTS, feral pigs (*Sus scrofa*), and Guam deer (*Cervus mariannus*); and 2) the recovery of several native species including the Guam rail, Mariana crow (*Corvus kubaryi*), Micronesian kingfisher (*Halcyon cinnamomina*), and the Fire tree (*Serianthes nelsonii*).

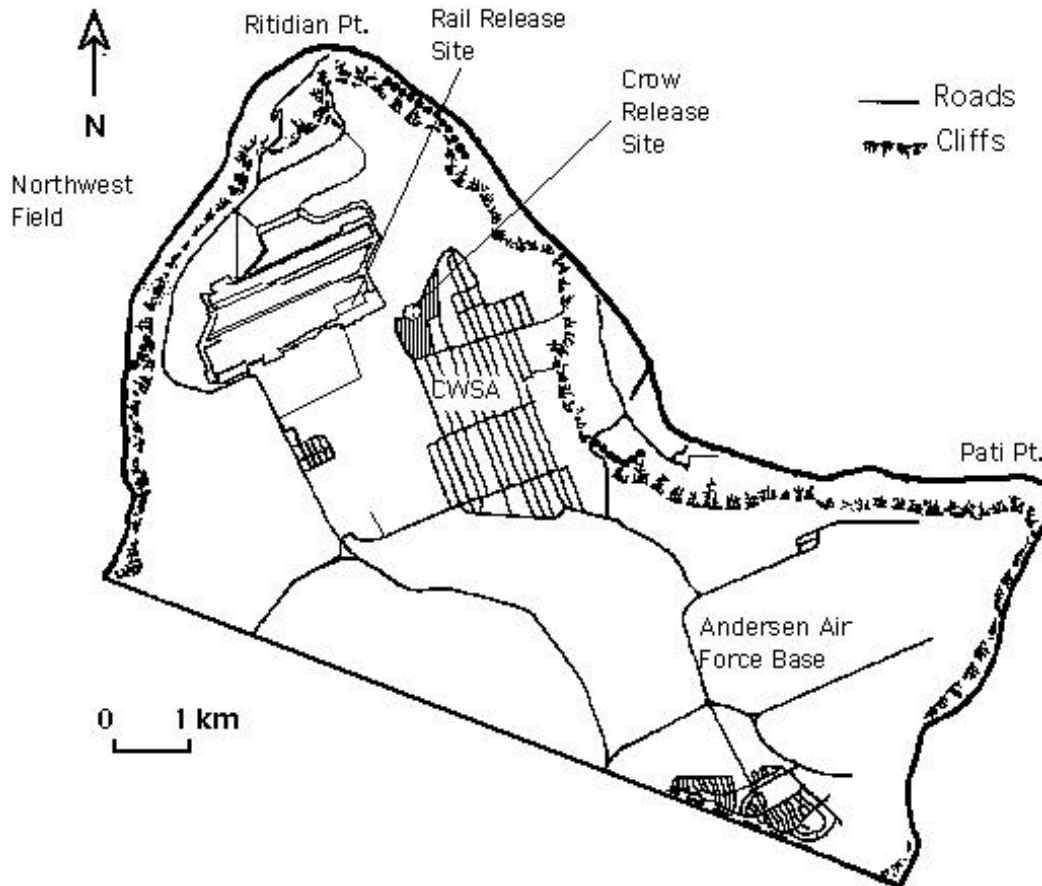


Figure 1. The locations of release sites for Guam rails and Mariana crows in Area 50 and CWSA in northern Guam.

OBJECTIVES

1. Establish a wild population of Guam Rails in a snake-free habitat on northern Guam.
2. Monitor survival, dispersal, reproduction, and establishment of released rails through radio telemetry and recorded observations.
3. Use rails born in NWF-A50 as stock for introductions of birds to other snake free areas on Guam.

METHODS

Radiotelemetry

Prior to release, rails were banded with a number tag and radio transmitter fitted. Birds were tracked using Telonics© TR-2 portable receiver/scanner and hand-held flexible yagi antenna. Locations of radio-marked were marked on a map of NWF-A50.

Predator Control

From eight to 35 live traps (@ Have-A-Heart traps) baited with canned cat food were set in the interior of NWF-A50 throughout the year, and 5 to 9 traps were placed along the perimeter (outside) to control feral cat (*Felis domesticus*) and monitor lizard (*Varanus indicus*) populations. Captured animals were euthanized, weighed, measured, aged, sexed, and gut remains checked (rails only).

Mark and Recapture Survey

Interior trapping was conducted over 8 days, 7-17 December, using 33-35 cat traps set in NWF-A50. Traps were baited and wired open for 1 week prior to the survey to acclimate the rails with the traps. Bait used was canned cat food as rails had been caught on both Rota and Guam using this bait.

In addition, perimeter trapping was conducted from 28, 29, and 30 December after interior traps were removed.

Playback Census

Eighty-six stations, randomly selected throughout NWF-A50, were surveyed over a period of 21 days, 23 February to 15 March (6 morning, 2 evening). At each station, a recorded rail territorial call was played 4 times at 2-minute intervals using a game-caller (@ Lohman Game Caller). Three persons were involved in each survey, 1 played the recorded calls and 2 as observers. All 3 persons recorded auditory and visual observations of rails. The observers were placed 40-80m apart from the person conducting the playbacks.

Fixed Point Observations

Over 3 mornings, 29 June, 1 July, and July 6, fixed-point observations were made in NWF-A50. These points were chosen based on present and past known rail locations as well as probable rail locations determined by their preferred habitat, e.g. scrub forest with edge habitat, secondary growth forest.

RESULTS

One bird (band #695), whose transmitter failed in FY99, was trapped in a cat trap in the same area as where he was last recorded. Colored leg bands were placed on the rail and his failed transmitter was not replaced. One bird (band #693) had radio failure in December and her carcass was discovered in April in the same area as where she was last recorded.

Nesting was documented from one pair, male band #696, female band #10-302, in December with 4 eggs. During incubation, the female was found dead less than one meter from the nest. The male completed incubation and chicks were heard. It is unknown how many chicks hatched. The male was trapped in May and his failed radio transmitter was replaced to frequency 671.

A pair of breeding birds; male band #622 and female band #10-302, were trapped in March and their radios were replaced to frequency 054 and 212, respectively. The male was later found dead in April. The female subsequently paired with male band #696 (frequency 671). This pair has not been known to nest. The radio transmitter from the female failed in September.

Predator Control

Four cats and 5 monitors were captured with traps. Stomach contents of one cat trapped in the interior of NWF-A50 in December contained at least 2 juvenile rails, based on the size of the feathers. Monitor lizard stomachs did not have any rail parts.

Mark and Recapture Survey

Eleven days of trapping for rails in the interior and perimeter of NWF-A50 failed to catch any birds. Bait was ruled out for the failure to trap as cat food has been used in the past to catch rails.

Playback Census

A total of 23 h and 12 min (17 h and 29 min between 0505–0834 h, 5 h and 43 min between 1645–1947 h) was spent surveying NWF-A50. At least 10 rails, including 2 pairs, were recorded.

Fixed Point Observations

Six hours of observations (2 h/d between 0500–0700 h) recorded 3 birds.

DISCUSSION

All surveys performed remain inconclusive to the total number of rails in NWF-A50. Rails did not always respond to playbacks even though, at times, playbacks were conducted in areas with radio-marked birds. In some instances, rails were seen only because birds were

investigating calls. Improved methodologies are needed for censuring Guam rails (cryptic birds).

Cat predation is probably a significant threat to the survival of rails in NWF-A50. BTS technicians reported observing feral cats climbing the barrier into NWF-A50. As a feral cat was trapped inside with stomach contents containing at least 2 juvenile rails, modifications need to be made to the snake barrier to keep feral cats out.

RECOMMENDATIONS

- 1) Continue effective trapping and removal of feral cats from in and around NWF-A50 by modifying the barrier.
- 2) Continue to trap BTS and have stomach contents analyzed for all BTS trapped inside NWF-A50.
- 3) Eradicate feral deer and pig populations.
- 4) Develop more efficient censuring techniques for Guam rails.
- 5) Release 10 Guam rails and radio fit to monitor movements, reproduction, and habitat use. Utilize this population to better understand rail behavior, communication, and survival in a snake-controlled environment.

PROJECT COST

The estimated cost of this project is \$50,000.

This report was prepared by: Suzanne Medina, Wildlife Biologist III.

LITERATURE CITED

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