

**JOB PROGRESS REPORT
RESEARCH PROJECT SEGMENT**

STATE: Territory of Guam

PROJECT NO.: E-2-3

STUDY NO.: B

JOB NO.: 1

JOB TITLE: Captive Propagation of Guam Rails

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

SUMMARY

The number of Guam rails, *Gallirallus owstoni*, at the Division of Aquatic and Wildlife Resources' (DAWR) captive breeding facility increased from 120 on 1 October 1999, to 133 on 30 September 2000. Twenty-one breeding pairs produced 353 eggs, 266 (75%) of which hatched. One hundred and thirty-nine chicks lived for at least 30 days of age, were banded and added to the captive flock by 30 September 2000. One hundred and seventeen rails were transferred to Rota and released into the wild. Two female and male rails were transferred to Guam from mainland zoos. At the DAWR captive breeding facility, 1 young bird escaped and 16 birds died.

BACKGROUND

The Guam Native Forest Bird Captive Breeding Program began in 1983 as a cooperative effort between the DAWR, member zoos of the American Association of Zoological Parks and Aquariums (now known as the American Zoo and Aquarium Association, or AZA), and the U.S. Fish and Wildlife Service (DAWR 1983, Derrickson 1986, Shelton 1986). Predation by the Brown tree snake, *Boiga irregularis*, now believed to be the single most important factor in the recent drastic decline of Guam's native forest birds (Savidge 1986, 1987; Conry 1988), precipitated the need for a captive breeding program when by 1982 at least 5 species of Guam endemic species or subspecies were nearing extinction in the wild. Unfortunately, by 1984, attempts at captive breeding 3 of these species, the bridled white-eye, *Zosterops c. conspicillata*, rufous fantail, *Rhipidura rufifrons uraniae*, and the Guam flycatcher, *Miagra freycineti*, were abandoned due to their virtual disappearance from the wild (DAWR 1984).

The Guam rail and Guam subspecies of the Micronesian kingfisher, *Halcyon c. cinnamomina*, were successfully brought into captivity (DAWR 1983-6), with the capture of 19 and 31 wild birds respectively. Rails first bred at the DAWR facility on Guam and at the Conservation and Research Center (CRC) of the National Zoological Park in 1984. Anita Cramm, Curator of Birds, Phoenix Zoo, was elected as the Species Survival Plan (SSP) coordinator for the AZA's Guam rail program in August 2000. In FY00, 16 rails hatched and successfully fledged in mainland zoos.

OBJECTIVES

- 1) Manage captive breeding programs for the Guam rail in facilities on Guam and at zoos on the mainland U.S. through the American Zoo and Aquarium Association.
- 2) Produce at least 120 Guam rails for release and establishment of an experimental wild population on Rota, CNMI.
- 3) Produce at least 4 offspring per year from genetically valuable birds, with mean kinships lower than population average and founder representation from underrepresented family lines.

PROCEDURES

- 1) Continue routine maintenance and operation of cooperative captive breeding program for the Guam rail with the AZA and its member zoos.
- 2) Continue to network with recognized authorities regarding captive breeding methodology, facility designs, and captive population management techniques.
- 3) Consult and coordinate with U.S. Fish and Wildlife Service, U.S. Department of Agriculture, and other government agencies with jurisdiction over the interstate movement and captive maintenance of wildlife. Acquire all necessary local and federal permits.
- 4) Breed rails in sufficient numbers (≤ 120 /year) to support the continuing introduction of the Guam rail to Rota, Commonwealth of the Northern Mariana Islands.

RESULTS

There were net increases of 13 Guam rails at the DAWR captive breeding facility during FY00 in addition to the following:

- 1) 21 pairs produced 353 eggs, of which 266 (75%) hatched and 139 (39%) survived to fledge;
- 2) 16 deaths occurred at the facility;
- 3) 2 birds died of stress related to capture;
- 4) 1 died of pneumonia;
- 5) 1 egg-bound female died during surgery;

- 6) 2 birds, both over 13 years old, died of old age;
- 7) 1 female died of aggression from her cage mate;
- 8) 1 young bird died due to constraint methods by the handler;
- 9) 1 young bird died from lack of food and water;
- 10) 1 young bird died of chronic wasting disease;
- 11) 2 young birds died of unknown causes;
- 12) 1 bird, over 15 years old, died of a lesion on the left wing which led to septicemia;
- 13) 2 young birds, 1 with a deformed leg and the other with dislocation of the left gastrocnemius muscle, were euthanised;
- 14) 1 bird was found with paralysis of the legs and was euthanised after 10 days of veterinary care (necropsy results from this bird found high iron concentrations of the liver and cause of death due possibly to iron overexposure); and
- 15) 1.2 rails were received in February and 1 rail in April hatched at the San Diego Wild Animal Park. A young bird escaped from its holding pen and was not recaptured.

The large amount of offspring produced allowed for 117 birds to be released on Rota. The releases took place in January (43 birds), August (15 birds), and September (59 birds). No releases were held on Guam.

Dr. Kelly Brock, program leader for the rail project on Guam as well as Guam rail SSP coordinator, resigned in January. In May, an SSP meeting was held at the Toledo Zoo, Ohio, and was attended by nine of the 14 facilities participating, including GDAWR. Anita Cramm, Curator of Birds from the Phoenix Zoo, was then elected as the new SSP coordinator.

Suzanne Medina was promoted to Biologist III in June and sent to the AZA's Studbook I course in Denver, CO in August.

RECOMMENDATIONS

- 1) Continue the routine maintenance and operation of a cooperative captive-breeding program for the Guam rail with the AZA and its member zoos.
- 2) Continue to consult with recognized authorities regarding captive breeding methodology, facility design, and captive population management techniques.

- 3) Consult and coordinate with USFWS, U.S. Department of Agriculture, and other government agencies with jurisdiction over the interstate movement and captive maintenance of wildlife.
- 4) Acquire all necessary local and federal permits for shipment of rails between Guam and mainland U.S. zoos.
- 5) Breed rails in sufficient numbers (at least 120 birds per year) to support the continuing introduction of Guam rails to Rota.
- 6) Coordinate with all SSP participants for transfer of Guam rails produced in zoos to Guam for the purposes of captive breeding at the Guam facility or for release on Rota.

PROJECT COST

The estimated cost of this project is \$156,350.

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

LITERATURE CITED

- Conry, P. J. 1988. High nest predation by the brown tree snake on Guam. *Condor* 90:478-482.
- Derrickson, S. R. 1986. Captive Propagation of the Guam Rail. *The Philadelphia Zoo Review* 2:19-23
- Division of Aquatic & Wildlife Resources (DAWR). 1961-1989. Job Progress Reports - Federal Aid to Fish and Wildlife Restoration. Department of Agriculture, Guam.
- Kuehler, C., M. Kuhn, B. McIlraith, and G. Campbell. 1994. Artificial incubation and hand-rearing of 'Alala (*Corvus hawaiiensis*) eggs removed from the wild. *Zoo Biology* 13:257-266.
- Savidge, J. A. 1986. The role of disease and predation in the decline of Guam's avifauna. Ph.D. Thesis. University of Illinois, Urbana-Champaign.
- Savidge, J. A. 1987. Extinction of an island avifauna by an introduced snake. *Ecology* 68(3):660-688.
- Shelton, L.C. 1986. Captive Propagation of the Micronesian Kingfisher. *The Philadelphia Zoo Review* 2: 28-31.