

## **JOB PROGRESS REPORT RESEARCH PROJECT SEGMENT**

**STATE:** Territory of Guam

**PROJECT NO.:** E-2-2

**SUB-PROJECT:** B

**JOB NO.:** 1

**JOB TITLE:** Captive Propagation of Guam Rails

**PERIOD COVERED:** October 1, 1998 to September 30, 1999

### **SUMMARY**

The number of Guam rails, *Gallirallus owstoni*, at the Division of Aquatic and Wildlife Resources' (DAWR) captive breeding facility decreased from 129 birds on October 1, 1998 to 120 birds on September 30, 1999. Eighteen breeding pairs produced 223 eggs, 165 (74%) of which hatched. One hundred twelve (68%) chicks lived for at least 30 days of age, were banded, and added to the captive flock by September 30, 1999. One hundred rails were sent to Rota and released in the wild, 16 rails were released in Area 50 on Guam, and 2.2 (males:females) rails were transferred to Guam from mainland zoos. Six birds died at the DAWR breeding facility, while one young bird died during its transfer to San Diego Zoo for medical treatment.

### **BACKGROUND**

The Guam Native Forest Bird Captive Breeding Program began in 1983 as a cooperative effort between the DAWR, member zoos of the American Zoo and Aquarium Association, (AZA) and the U.S. Fish and Wildlife Service (USFWS) (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 five species of Guam endemic species or subspecies were nearing extinction in the wild. Unfortunately, by 1984, attempts at captive breeding three 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 disappearance from the wild (DAWR 1984).

The Guam rail and Guam subspecies of the Micronesian kingfisher were successfully brought into captivity (DAWR 1983-1986), with the capture of 19 and 31 wild birds, respectively. Rails first bred at the DAWR's facility on Guam and later at the Conservation and Research Center of the National Zoological Park during 1984. In FY99, 14 rails hatched in mainland zoos, with eight surviving to fledge.

### **OBJECTIVES**

1. Manage captive breeding programs for the Guam rail at zoos on the U.S. mainland through the AZA Species Survival Plan (SSP) by providing breeding recommendations. Produce at least four offspring per year from every pair of Guam rails in zoos.

2. Produce 120 Guam rails annually on Guam for release and establishment of an experimental wild population on Rota, Commonwealth of the Northern Mariana Islands.
3. Produce at least four offspring per year from genetically valuable birds (birds with mean kinships lower than population average and founder representation from under represented family lines).

## **PROCEDURES**

1. Conduct routine maintenance and operation of a cooperative captive breeding program for the Guam rail with the AZA and its member zoos.
2. Network with recognized authorities regarding captive breeding methodology, facility designs, 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. Acquire all necessary local and federal permits.
4. Breed rails in sufficient numbers (120 birds per year) to support the continuing introduction of the Guam rail to Rota.

## **RESULTS**

There was a net decrease of nine Guam rails at the DAWR captive breeding facility during FY99. Eighteen pairs produced 223 eggs, of which 165 (74%) hatched and 112 (68%) survived to fledge. Six deaths occurred at the facility. One female died as a result of mate harassment. One female was eggbound. A tame rail died of suspected poisoning. A young bird was killed by a neighbor that gained access to its cage through a hole in the wire mesh. One rail with an old severe leg injury died of emaciation. One rail died of old age. One death occurred away from the facility, when a young rail with a serious leg injury was being sent to the San Diego Zoo for medical treatment. The bird froze in the cargo compartment of the aircraft while in transit. The facility received 2.2 rails in November that hatched at San Diego Wild Animal Park (2.0), Lincoln Park Zoo in Chicago (0.1), and Baton Rouge Zoo (0.1). One adult female escaped from a breeding pen and was subsequently captured after three days.

At the beginning of FY99, seven of the 10 breeding pairs at the DAWR facility had to be separated due to increased productivity and limited cage availability. A total of 22 holding pens were added to the facility and breeding was resumed in February.

The large amount of offspring produced allowed for three releases on Rota and Guam in FY99. The first release of 16 rails took place in November on Guam in Area 50, a fenced 24-ha plot of natural habitat that had been subjected to intense snake trapping and removal. One hundred birds were released on Rota in February (50 birds) and August (50 birds). Successful reproduction was documented after all three releases.

## **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. Acquire all necessary local and federal permits for shipment of rails between Guam and mainland U.S. zoos.
4. Breed rails in sufficient numbers (120 birds per year) to support the continuing introduction of Guam rails to Rota.
5. Coordinate with all SSP participants for the 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 under E-2-2 is \$150,000.

### **LITERATURE CITED**

- Bahner, E.L. 1989. 1988 North American Regional Studbook for the Micronesian Kingfisher, *Halcyon c. cinnamomina*. Zoological Society of Philadelphia, Philadelphia, Pennsylvania.
- Bahner, E.L. 1993. SSP Master Plan (1993) & 1992 North American Regional Studbook for the Micronesian Kingfisher, *Halcyon c. cinnamomina*. Zoological Society of Philadelphia, Philadelphia, Pennsylvania.
- 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). 1983-1986. 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* 68:660-688.
- Shelton, L.C. 1986. Captive propagation of the Micronesian Kingfisher. *Philadelphia Zoo Review* 2: 28-31.

Report prepared by: Suzanne Medina and Kelly Brock