The Rail Road To Recovery

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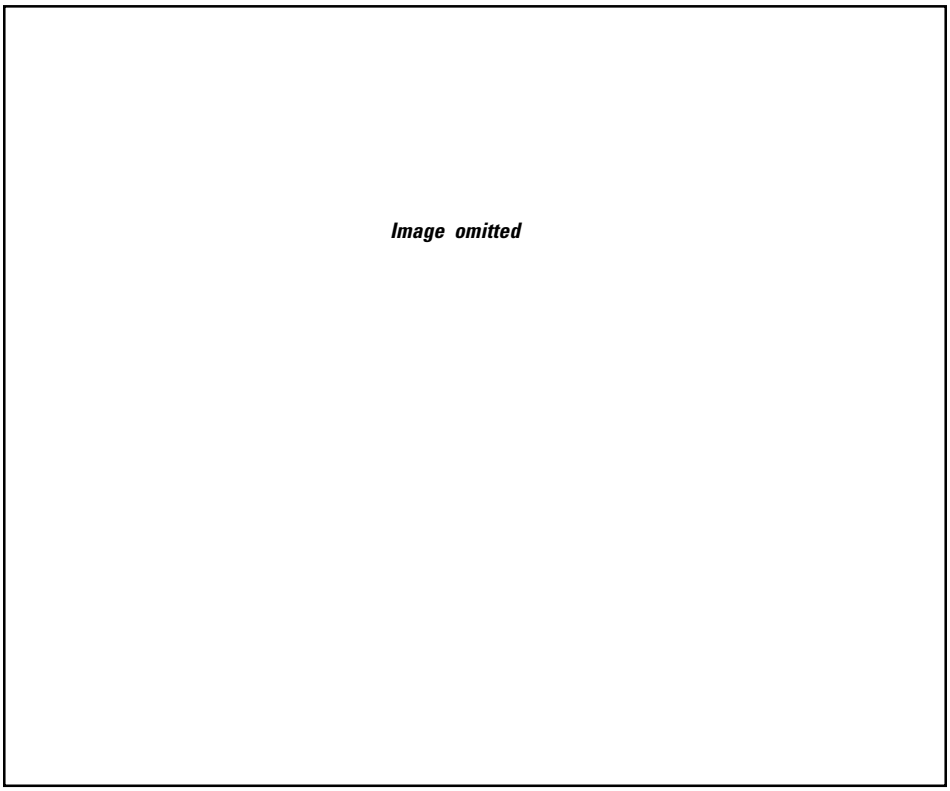

Photographed on the island of Rota, this is a captive-reared Guam rail released into habitat similar to the limestone forest inside Area 50 on the island of Guam.
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The Guam rail *(Gallirallus owstoni)* was once a common bird on the Pacific island of Guam. In the early 1980's, however, this species, along with seven other native forest birds, was extirpated from the wild due to predation by the invasive brown tree snake *(Boiga irregularis)*. But now the Guam rail is making a comeback. The Guam Department of Agriculture's Aquatic & Wildlife Resources Division (DAWR) is leading efforts to reduce the threat from non-native predators and reintroduce captive-bred rails back into their native habitat. Numerous researchers and cooperators from a wide range of territorial and federal agencies, universities, zoos, and conservation organizations are providing important assistance.

The road to recovery for the Guam rail began in December 1989 when we initiated attempts to establish an experimental population of rails on Guam's neighboring snake-free island of Rota in the Commonwealth of the Northern Mariana Islands. Between December 1989 and August 1999, we released 267 captive-reared rails while evaluating the success of different release methods. Control of feral cats in the release area enhanced rail survival and we first documented reproduction by captive-reared rails on Rota in 1995. During the summer of 1999, at least three pairs of captive reared Guam rails successfully produced 5 nests with eggs and hatchlings.

Before reintroduction of the rail to its native habitat on the island of Guam could begin, the brown tree snake had to be controlled. The Biological Research Division of the U.S. Geological Survey developed snake barriers, and small-scale perimeter trapping methods developed by the U.S. Department of Agriculture's Wildlife Services agency proved highly effective in reducing and controlling localized snake populations. In September 1997, the DAWR adopted both tools for the first large-scale operation to deplete the snake population in a 60-acre (24-hectare) plot containing mixed native habitats. The plot, known as Area 50, is located in the Guam National Wildlife Refuge overlay on Andersen Air Force Base in northern Guam. The Air Force was instrumental in designating Area 50 as a test site for habitat management, snake control, and species recovery.

Weekly capture rates declined precipitously within the first 9 weeks, from 14.9 to 1.5 snakes per 100 trap

nights, by trapping around the perimeter of Area 50. After achieving a capture rate of 0.6 snakes per 100 trap nights, we maintained it for another 15 weeks. Twenty-six weeks into the control program, we erected a snake barrier around Area 50 and activated a grid of traps evenly spaced throughout the area. The capture rate in the interior of the plot was not significantly higher after activation of the grid, demonstrating that perimeter trapping alone could achieve the desired level of snake control. Eventually the grid was deactivated, while the barrier, and continual trapping of the perimeter, were used to control a re-invasion of snakes.

In November 1998, confident that the brown tree snake population was significantly depleted and controlled, the DAWR released 16 captive-reared Guam rails into Area 50. We monitored the rails by radio telemetry to document movements, survival, and nesting activity. Rails paired off and established territories almost immediately. By late December 1998, we discovered the first nest. Although not all of the released rails survived, no losses could be attributed to predation by snakes or other predators. By October 1999, 9 rails made at least 16 nesting attempts, yielding 46 eggs. Apparently all but six of the eggs hatched.

Support for Guam rail recovery efforts by the American Zoo and Aquarium Association (AZA) began in 1984. Participating institutions have bred nearly 800 Guam rails, most of which were produced and maintained in the Guam Department of Agriculture's captive breeding facility. Currently, 14 zoological institutions participate in the Guam Rail Species Survival Plan. The role of the zoos is to implement captive breeding recommendations that aim to preserve the genetic diversity of the Guam rail, as well as to produce young rails for the reintroduction program.

With the successful reproduction of captive-reared rails released into the wild, and the development of efficient, relatively low cost methods to control localized populations of brown tree snakes, the future is looking brighter for the Guam rail. We are hopeful that a network of controlled areas on Guam can be established to permit the reintroduction and recovery of other native forest birds as well.

The front gate into Area 50, with the snake barrier (the wire mesh attached to the cyclone fence) and snake traps that are used in and around the area. The habitat edge just beyond the gate is part of a territory set up by two rails that paired and successfully bred.
Guam Department of Agriculture, Aquatic & Wildlife Resources Division photo

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Brown tree snake
USFWS photo