

GLOBAL RE-INTRODUCTION PERSPECTIVES

Re-introduction case-studies from around the globe



**Edited by
Pritpal S. Soorae**



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Cover photo: Clockwise starting from top-left:

- Formosan salmon stream, Taiwan
- Students in Madagascar with tree seedlings
- Virgin Islands boa

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The re-introduction of the red-billed curassow at Reserva Ecológica de Guapiaçu, Rio de Janeiro state, Brazil

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Introduction

The red-billed curassow (*Crax blumenbachii*) is a Cracidae endemic to the Brazilian Atlantic Rain Forest. It is considered to be globally endangered by IUCN and BirdLife International (2008). It is estimated that none of its sub-populations number more than 250 adult birds. Originally, this species occurred in a restricted geographical range in eastern Brazil, in lowland areas up to 500 m above sea level. Nowadays it can be found only in four areas in Bahia state and in two areas in Espírito Santo state. Hunting and the dramatic reduction of the Atlantic forest, mainly over the last 100 years, are important factors affecting survival of the red-billed curassows. This bird was extinct in Minas Gerais state in the early 20th century, and successful re-introductions have occurred since 1991 in three areas. In Rio de Janeiro state, the curassows vanished from the forests presumably in the 1960's. In August 2006 the re-introduction program of this species started in the Atlantic forest of a property located in one of the largest remnants in the state of Rio de Janeiro (Reserva Ecológica de Guapiaçu). All the re-introduced individuals are monitored post-release, with a backpack transmitter with a life span of 2.5 years.



Red-billed curassow (*Crax blumenbachii*)

© Edson Valgas Paiva

Goals

- Goal 1: The re-establishment of a viable population of a Cracidae species, which is considered globally endangered, in an area where it previously occurred.
- Goal 2: The return of a potential seed-eater and seed disperser, as well as an important prey for medium/ large carnivores of the Atlantic Rain Forest.
- Goal 3: To accumulate basic biological information about the species with relevance to future re-introductions (patterns of

movement, home range size, association of the birds, survival rates, commencement of breeding etc).

Success Indicators

- Indicator 1: The birth of second generation chicks in the re-introduction area.
- Indicator 2: A viable population of red-billed curassows.
- Indicator 3: Good local awareness about the red-billed curassow re-introduction program.

Project Summary

Feasibility: Need for species conservation actions - the red-billed curassow is an endemic and an endangered species of a very restricted part of the Atlantic Rain Forest, which is one of the most threatened ecosystems in the world. Habitat loss and hunting removed this species from its distributional range, mainly during the 20th century. On 27th May 2003, the species was officially considered threatened by extinction in Brazil. In 2004, the Action Plan for the red-billed curassow listed the most important actions to recover the species from its endangered conservation status, including re-introduction programs and long-term monitoring of the released birds. During the 1990's, three re-introduction programs occurred in Minas Gerais state, Brasil, but post-release monitoring was done only by eventual direct observations of the released individuals. Large number of birds available for re-introduction purposes:- the techniques for captive-breeding have dominated the work of the Crax Brasil breeding center, and a large number of birds have been bred since the 1980's.

Availability of potential sites for re-introduction: the Reserva Ecológica de Guapiaçu (REGUA) was suggested in the Action Plan as a potential site for re-introduction in Rio de Janeiro state as the forest is protected and hunting no longer occurs. There are eight park rangers patrolling REGUA; in addition, the environmental education programs, developed since 2000, make local children and teenagers aware of the consequences of hunting in the fauna and flora of their region. REGUA has roughly 5,500 ha of Atlantic Rain Forest, located within the Três Picos State Park (46,000 ha). Rivers are abundant in the region, which is another important factor in the re-introduction of a Cracidae which requires water resources. Financial support for the re-introduction program at REGUA, including the post-release monitoring of individuals through telemetry techniques, was provided by the Brazilian Atlantic Rain Forest Trust (UK). Country official authorization- the national environmental agency (IBAMA), as well as the state environmental agency (Instituto Estadual de Florestas - IEF) licensed the re-introduction program at REGUA.

Implementation: Infra-structure/ facility-building- the selected site for re-introduction must have easy access such as a trail system in the area to facilitate the research after the dispersal of the released birds. A release pen must be constructed in the forest, near water bodies and fruiting trees (where the birds are enclosed for roughly 40 days to acclimatize), but with vehicular access to facilitate the transportation of the birds to the release pen. Park rangers are required to accompany the researchers and assist in the monitoring etc. Selection,

preparation, transportation and adaptation of the birds - Crax Brasil breeding center has developed a protocol, described in the action Plan of the red-billed curassow. Choose the appropriate radio tag design - before fitting the bird with a radio-transmitter, a trial should be conducted to verify which tag design may be more appropriate for the target species. Communication with local communities and lectures to communities near REGUA are given, aiming not only to inform and increase awareness of local people, but also to help change their environmental attitudes through conservation activities.

Post-release monitoring: All the released birds at REGUA have backpack radio-transmitters, that weigh 46 g and have a life span of 2.5 years. The use of radio telemetry equipment (SIKA model receiver in conjunction with Yagi 3 elements antennae supplied by Biotrack, Dorset, UK) attempts to reveal key missing information about the biology of all the re-introduced red billed curassows at REGUA. This information will assist with the planning of future re-introductions, such as the patterns of movement of the released individuals, the use of home range by males and females (as well as its temporal variation), spatial and temporal patterns of pair bonding, survival rates etc. The triangulation protocol method is used to locate the animals in the region. They are quickly located in a standardized order, starting with a different bird each day. This schedule avoids repeated locations of birds at the same time of day and allows to monitor all the birds that are interacting/ avoiding each other.

Major difficulties faced

- Semi-wild dogs, which belong to inhabitants that live in communities near REGUA, were recorded near the release pen. They were responsible for four curassow's deaths in a period of 17 months.
- It is difficult to obtain licenses from the national/ state environmental agencies to transport live or dead birds.
- Two females became very tame when they reached one of the communities nearby REGUA.



Overview of release site

© Thor Ostbye

Major lessons learned

- Always talk to people who live near the areas where the red-billed curassows are to be released. Showing them the picture of male and female increases the reliability of future records by them.
- Always have back-up telemetry equipment to replace faulty or damaged equipment.
- At Crax Brasil breeding center (May 2006), Brian Creswell (Biotrack®, Dorset, UK) supervised us on testing three different radio-transmitter models in some captive

male red-billed curassows: necklace, tail mount and backpack design. The backpack (46 g or roughly 1% of the curassow body mass) was chosen mainly because it is quickly fixed in the bird, it has long-durability harnesses and it is more difficult to the birds detach it due to its position in relation to their bodies. We also verified that after three months, the harnesses did not hurt the bird or limited their movements to fly and/or roost.

- Two females presented tame behavior when reached one of the communities nearby REGUA.

Success of project

Highly Successful	Successful	Partially Successful	Failure
-	-	-	-

Success not listed - see reason below

Reasons for success/failure:

This project began in August 2006, and all the re-introduced individuals are still young. They will be able to reproduce in the next breeding season (August 2008 - April 2009). Although it is too soon to answer this question, the survival rates of the re-introduced birds show that there is a high chance of success (38 re-introduced birds and 17 alive after 18 months).