



Global Re-introduction Perspectives: 2016

Case-studies from around the globe

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IUCN/SSC Re-introduction Specialist Group (RSG)



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Re-introduction of the threatened Cocos buff-banded rail to the southern atoll of the Cocos (Keeling) islands, Australia

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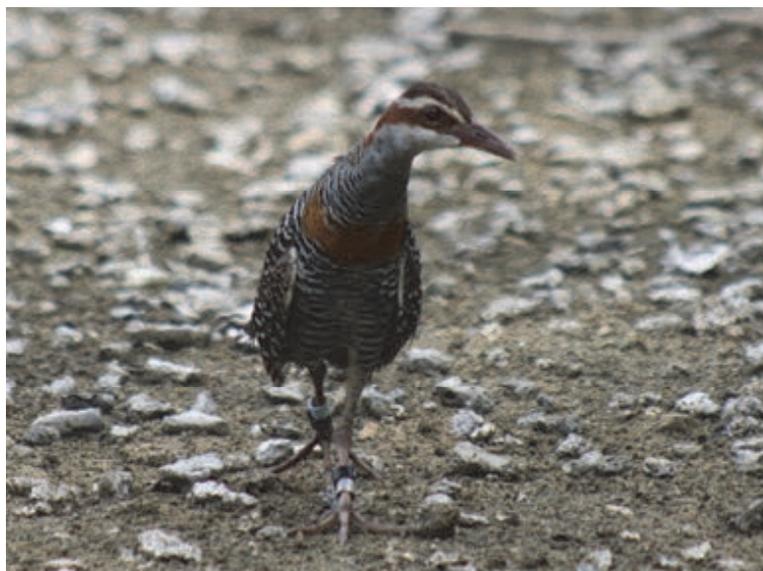
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Introduction

A subspecies of the widespread Cocos buff-banded rail (*Gallirallus philippensis*) is restricted to the very isolated Cocos (Keeling) island group, an Australian external territory in the north-eastern Indian Ocean. This subspecies, *G. p. andrewsi*, declined catastrophically following human settlement of the islands in the early 19th century, largely due to extensive conversion of native forest to



coconut palm plantation and predation by the introduced black rats (*Rattus rattus*) and feral cats. By the 1990s, it was restricted to a population of about 800 birds occupying a single uninhabited 1 km² island, Pulu Keeling (North Keeling Island), lying 24 km north of the Cocos southern atoll (a set of about 26 small islands with a total area of about 14 km²). Given this very small population and area of

Released rail with legbands © Neil Hamilton

occupancy, this subspecies is listed as endangered under Australian legislation. A Recovery Plan for the Cocos Buff-banded Rail recommended that the highest priority conservation management action was to attempt to establish a second population, on at least one island in its former range of the southern atoll of the Cocos (Keeling) group.

Goals

- Goal 1: Identification of one or more islands in the southern atoll that may be suitable for re-introduction, notably ensuring that these are free of the primary threats (black rats & feral cats)
- Goal 2: Support for re-introduction from the Cocos islands community, and their involvement in this program.
- Goal 3: Translocation of rails from Pulu Keeling to a suitable island in the southern atoll, with subsequent breeding, population increase, and establishment of a viable re-introduced population.
- Goal 4: Long-term enhancement of habitat suitability (and control of predators) on multiple islands in the southern atoll, allowing for recolonization of multiple islands.
- Goal 5: Reduction in extinction risk and down-listing of conservation status.

Success Indicators

- Indicator 1: Suitable destination island identified and managed, with support of local community.
- Indicator 2: Monitoring demonstrates breeding and population increase for population on island to which it was re-introduced.
- Indicator 3: Monitoring demonstrates no significant reduction in population of source island (Pulu Keeling).
- Indicator 4: Increase in numbers of islands in southern atoll from which rats and cats have been eradicated.
- Indicator 5: Natural spread of re-introduced population to other islands in the southern atoll.

Project Summary

Feasibility: The project had several major challenges: 1) seeking support, involvement and endorsement of the Cocos (Keeling) community, who collectively own all islands potentially suitable for translocation; 2) identifying one or more islands in the southern atoll of the Cocos group that was suitable (i.e. with adequate habitat and absence of threats) as a re-introduction site; 3) ensuring that individuals taken from the source island (Pulu Keeling) for re-introduction did not jeopardize the viability of that population; 4) ability to monitor the population trends of the re-introduced population, given limitations posed by very dense vegetation and 5) over the longer term, seeking effective control of the introduced black rats and cats across islands in the southern atoll, to allow the natural recolonization to other islands from the initial re-introduction island. The project also had some significant logistical constraints. The source island (Pulu Keeling) is remote from the main inhabited atoll of the Cocos (Keeling) group. Furthermore, fringing reefs around Pulu Keeling dictate that boats cannot land on it, so



Rails have to be transported in boxes to boats by swimming as boats cannot dock © Tanya Detto

visitation to and from the island involves swimming through surf. Hence, rails taken from the island for re-introduction to the southern atoll needed to be placed in watertight containers and guided by swimmers through breaking surf.

Implementation: Pulu Keeling is a national park managed by the Australian government's Parks Australia. Rangers for this park include members of the Cocos (Keeling) community. Over several years prior to the re-

introduction attempt Parks staff engaged the Cocos (Keeling) community and its representative governance body, and the project was enthusiastically supported, with landholders endorsing use of nominated islands as potential re-introduction sites. Based on assessment of the extent of remaining native vegetation, and particularly the absence of black rats and cats, one island in the southern atoll, the 1 km² Horsburgh Island, was selected as the preferred site for re-introduction.

In April 2013, 39 rails were captured on Pulu Keeling, using mist nets and small cage traps. These were all individually colour-banded and transported to Horsburgh Island. All individuals survived this transport.

Post-release monitoring: The fate of the re-introduced birds has been monitored with three techniques: 1) radio-tracking of a subset of birds to assess short-term (1 - 2 weeks) survival; 2) camera-trapping to assess the medium term (2 weeks to 18 months) survival of the color-banded birds moved from Pulu Keeling, and to assess any influx to the population of un-banded birds (assumed to represent increase due to breeding) and 3) transect sampling and density estimates, using the program DISTANCE, to assess medium and longer term trends of the re-introduced population.

Radio transmitters were attached to 10 of the re-introduced individuals, and radio-tracking immediately post-release and for 2 weeks thereafter showed no short-term mortality. A set of 20 remote cameras placed around Horsburgh Island provided more than 2,000 images of rails. These cameras first detected chicks in September 2013, five months after the re-introduction, and thereafter an increasing proportion of un-banded birds (i.e. individuals resulting from successful breeding of the re-introduced population). Nonetheless, some color-banded (i.e.

re-introduced) individuals were shown to have persisted at the re-introduction site across the entire period (18 months post-release) covered by camera trapping.

Estimates of the re-introduced population, derived from analysis of transect censuses, indicated that the population initially declined from the 39 re-introduced individuals (April 2013) to 23 in February - March 2014, but subsequently increased to 54 in October 2014, and increased further to 122 individuals in May - June 2015, a 300% increase from the initial number of re-introduced individuals over a 26 month period. This monitoring program will continue.

Not all re-introduced individuals (or their descendants) remained on Horsburgh Island, with one banded individual (i.e. one of the re-introduced birds) subsequently recorded on West Island (~6 km distant from Horsburgh Island) in May 2014, and an initial record in June 2014 and then increasing number of individuals on the nearby (~4 km distant) Direction Island. It is likely that this natural spread to Direction Island will be successful, because black rats have been at least temporarily eradicated from it, and it does not have feral cats. However, further natural spread to return to other islands in the southern atoll is unlikely to be successful until rats and cats have been eradicated from those other islands.

Monitoring is also continuing on Pulu Keeling and this has indicated no reduction in population size since the removal of individuals for the re-introduction project. The area of occupancy of this threatened subspecies has now been doubled, and extinction risk substantially reduced because it no longer is restricted to a single small site. However, its total population size (~920 individuals) and area of occupancy (2 km²) remain very limited.

Major difficulties faced

- Logistic constraints on access to and transport of rails from the source island, Pulu Keeling.
- (For the future of the program) eradication of black rats and feral cats from all islands in the southern atoll, in order to allow the natural spread and return of (and increase in) the re-introduced rail population.
- The small size (total area of 15 km²) and biosecurity challenges of the Cocos (Keeling) island group may mean that this subspecies may



Releasing rails on Horsburgh Island

© Caitlyn Pink

always be susceptible to extinction, no matter how successful this conservation project is.

Major lessons learned

- Given the control of threats (in this case especially predation by black rats and feral cats), this threatened subspecies responded very positively and rapidly to re-introduction.
- Support of the local land-holding community was vital to achieve this success.
- Investment in different types of monitoring was important to document post re-introduction trends.
- The re-introduction program was guided by a recovery team that included a range of independent experts and community representatives, and this collaborative network was important for the project's success.

Success of project

Highly Successful	Successful	Partially Successful	Failure
	√		

Reason(s) for success/failure:

- The re-introduction program was strategically developed through an approved recovery plan process.
- A substantial consultation process helped engender community support.
- Resourcing was adequate to allow the translocation project and subsequent monitoring.
- (For the future) further increase through natural spread of the rail to other islands in the southern atoll will be dependent upon ongoing support of the Cocos (Keeling) community and the eradication of black rats and effective control of cats.

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