

**JOB PROGRESS REPORT
RESEARCH PROJECT SEGMENT**

STATE: Territory of Guam

PROJECT NO.: E-2-3
SUB-PROJECT NO.: A
JOB NO.: 3

JOB TITLE: Translocation of Mariana Crows

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

SUMMARY

Activities associated with the translocation of Mariana crows (*Corvus kubaryi*) from Rota to Guam continued with the issuance of endangered species permits from the U.S. Fish and Wildlife Service's (USFWS) and Commonwealth of the Northern Marianas Islands (CNMI). Eighteen crow eggs and chicks were translocated to Guam from Rota. Five of the 11 surviving hand-reared birds were released in the Munitions Storage Area (MSA), Andersen Air Force Base (AAFB). In addition, an adult and juvenile male, confiscated by the USFWS on Rota were also released in the same area. Attempts to capture a pair of adult crows on Rota were unsuccessful.

BACKGROUND

Since the Brown treesnake (*Boiga irregularis*) invaded Guam in the late 1940s, the island's avifauna has rapidly declined (Savidge 1987, Conry 1988, Jaffe 1994). As a result of this impact, Mariana crows have declined to very low numbers in the wild.

The federal recovery plan for native forest birds on Guam and Rota makes an interim recovery objective for the Mariana crow as the maintenance "...of at least 700 crows on Rota and to restore the Guam population to at least 700..." (Beck and Savidge 1990). A recent study of the status of the Mariana crow by the National Research Council (NRC) stressed the importance of having multiple populations and recommended that an additional crow population be established on another island (NRC 1997). The translocation of Mariana crows from Rota to Guam, as outlined in the recovery plan, is currently the best avenue to achieve the above objectives. Recently, the USFWS Mariana Crow Recovery Team, organized to oversee the preservation and recovery of the species, endorsed the translocation of a limited number of crows from Rota to Guam.

Techniques required to successfully conduct a translocation project have been tried by the DAWR and proven satisfactory, including protection of nest trees from Brown treesnakes (BTS) and hand-rearing of crow chicks. The development of an effective electrical barrier to protect crow nests from BTS predation resulted in 5 crows fledged from wild nests between

1993 and 1995 (Aguon et al. 1998). In 1996, 2 crows were successfully hand-reared from eggs retrieved from protected nests and artificially incubated. These juveniles were hacked into the wild in 1997. Of these birds, 1 died 219 d after its release due to unknown causes, while the status of the second crow in the wild remains unknown.

In 1993, 6 crows were captured on Rota and sent to the National Zoo's Conservation and Research Center in Front Royal, Virginia and the Houston Zoo. They were then transferred back to Guam and released into the wild in 1997. Two of the crows currently remain alive and are interacting with wild Guam crows, while the status of 2 others is unknown. A female and a male crow died 13 d and 34 d, respectively, after their release. Causes of death are unknown, but necropsies found no evidence of BTS predation. The decline of the population of crows on Guam will continue unabated without supplementation of birds from Rota with BTS control.

OBJECTIVES

- 1) To support reproduction of Mariana crows on Guam
- 2) Translocate adults, eggs, and chicks from Rota.
- 3) Continue BTS controls on Guam.

PROCEDURES

- 1) Collect eggs and/or chicks from nests of Mariana crows on Rota and transport them to Guam.
- 2) Hand-rear nestlings and hold them in captivity until their release in appropriate areas.
- 3) Prepare release sites by trapping for snakes prior to the introduction of crows.
- 4) Capture adult Mariana crows on Rota and release them as soon as possible in appropriate forested areas on Guam.
- 5) Monitor crow movements after their release and record locations, as well as the date, time, weather conditions (percent cloud cover, wind speed, and presence or absence of rain), habitat type, activity of the bird, the species of tree being used, location in tree, and height above ground.
- 6) Necropsy the carcasses of any birds that die to determine the cause of death. If possible, keep specimens for museum purposes as partial or complete skeletons or skins.

RESULTS

Permits

DAWR received the USFWS Endangered Species Subpermit GDAWR-3 and GDAWR-4 for its Mariana crow project during the 1999-2000 breeding season. GDAWR-3 allowed the take of up to 6 adult crows and 18 eggs/chicks. The CNMI issued scientific collecting permits No. 99-01508 and No.99-01512 to DAWR. Restrictions in the CNMI permits reflected conditions set by USFWS.

Translocation of Crow Eggs and Chicks

Twenty-five crow nests were found during the 1999-2000 breeding season (Figure 1) and 10 nests were harvested. Seven nestlings from 6 and 11 eggs, originating from 4 clutches, were transported from Rota to Guam from October through December 1999. One crow chick was transported to Guam in January 2000 (Table 1). Of the harvested eggs and chicks, 11 birds were fledged.

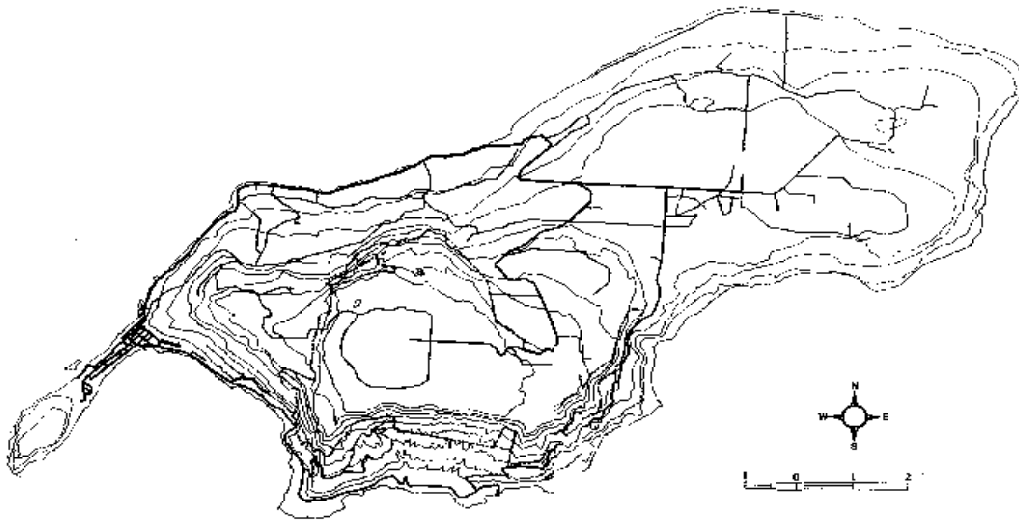


Figure 1. The location of crow nests found on Rota from Oct-Dec 1999, and Jan-Feb 2000.

Translocation of Adult Crows

The first attempt to capture a pair of adult crows located in the West Duge area and outside the proposed HCP was made on February 21. This pair brooded a single chick at the time. At

approximately 1730 h, the first capture attempt involved placing nooses around the nest cup, but not inside to avoid entangling the crow chick. Unfortunately, the birds were able to see and avoid the nooses as they maneuvered around to get to the chick. Continuous monitoring of the nest was conducted as night fell, while the nooses were left on the nest. The female avoided the nooses and settled in the nest for the night.

Table 1. First and second nesting attempts of Rota Aga pairs from which eggs and chicks were taken and translocated to Guam during FY00, which includes: A-clutch or brood size; B- approximate age of the nestling or days into the incubation period (IP); C - number hatched for clutches that were pulled and D – the status of the nest as abandoned (AB), brooding (Br), building (Bld), predation (Pr), or the number of surviving young being held in captivity.

#	Nest #	Pair ID	Locale taken	Tree Spp	Date Found	Date Taken	A	B	C	D
1st Nesting Attempt										
1	99-01	Pekngasu	Pekngasu Rota	Psychotria		9/26	1c	18d		1
2	99-03	I Batko	I Batko	Intsia	10/22	12/9	1c	3d		0
3	99-04	Lookout	Sanctuary Lookout	Pisonia	10/26	10/28	1c	14-18d		1
4	99-09	Mochong	Mochong	Neisosperma	11/10	12/9	3e	10d-IP	2	1
5	99-10	West Duge	West Duge	Guetarda	11/11	12/20	2e	19d-IP	2	0
6	99-13	Gampapa	Gampapa	Intsia	11/20	12/20	3e	14d-IP	2	2
7	99-14	Okgok	Okgok	Cyanometra	11/22	12/10	2c	18d		2
8	99-16	Taksunok	Taksunok	Pisonia	11/28	12/20	3e	13d-IP	2	2
9	99-18	Kiln	Saguagaga Area	Pisonia	12/9	12/20	1c	18d		1
2nd Nesting Attempt										
10	99-20	I Batko	I Batko	Intsia	1/30	n/a	0			Bld
11	99-21	Okgok	Okgok	Cyanometra	2/1	n/a	0			Ab
12	99-22	Taksunok	Taksunok	Premna	2/2	n/a	?			Pr
13	99-23	West Mochong	West Mochong	Neisosperma	2/2	n/a	2c			Br
14	99-24	West Duge	West Duge	Premna	2/4	2/21	1c	18d		1
15	99-25	Pekngasu	Pekngasu Rota	Psychotria	2/10	n/a	?			Pr

An alternative method was then tried using hand nets and at about 1930 h, 3 large hand nets with mist netting (~0.75–1 m dia.) were employed to trap the female crow by blocking the sides of the nest. Unfortunately, the adult crow on the nest had flushed from it before the nets could be placed in position. The crow had escaped by scrambling through the vegetation above the nest, which was not blocked off with hand nets. Since there were no adult crows on the chick, it was removed from the nest at about 2020 h and placed in a portable brooder, kept warm by the heat from a warm-water filled rubber container.

Nooses were left in the nest, 2 dummy eggs were placed inside, and it was checked every 2-3 h through the night until next morning. During the following morning the crow pair had returned, but only visited the nest for a few moments and then flew off, thus abandoning the nest. Subsequent checks of the nest on 24 February revealed that the crows had visited the nest and had repeatedly pecked at the dummy egg. It appears that the brooding crows may not be easily turned back to incubating the eggs.

The translocation of crow adults remains problematic until the technique to capture focal crows is found. Future attempts to catch crows should include pre-baiting and using other forms of trapping or a combination of trapping techniques. Trapping at old nests may increase netting success, but Mariana crows are known to visit old nests to possibly forage for insects hidden among the stick structures. Use of live caged crows might excite wild crows enough to cause them to fly into the mist nets, but no matter what technique is used, e.g., focal trapping or trapping a particular bird or pair of birds, will probably be much more difficult than trapping birds randomly.

Release Site Preparation

Snake trapping was conducted within MSA, AAFB to prepare hacksites for the release of translocated crows. Perimeter trapping began in June 1998, with 112 traps installed on the edge of the forest block A (Figures 1, 2).

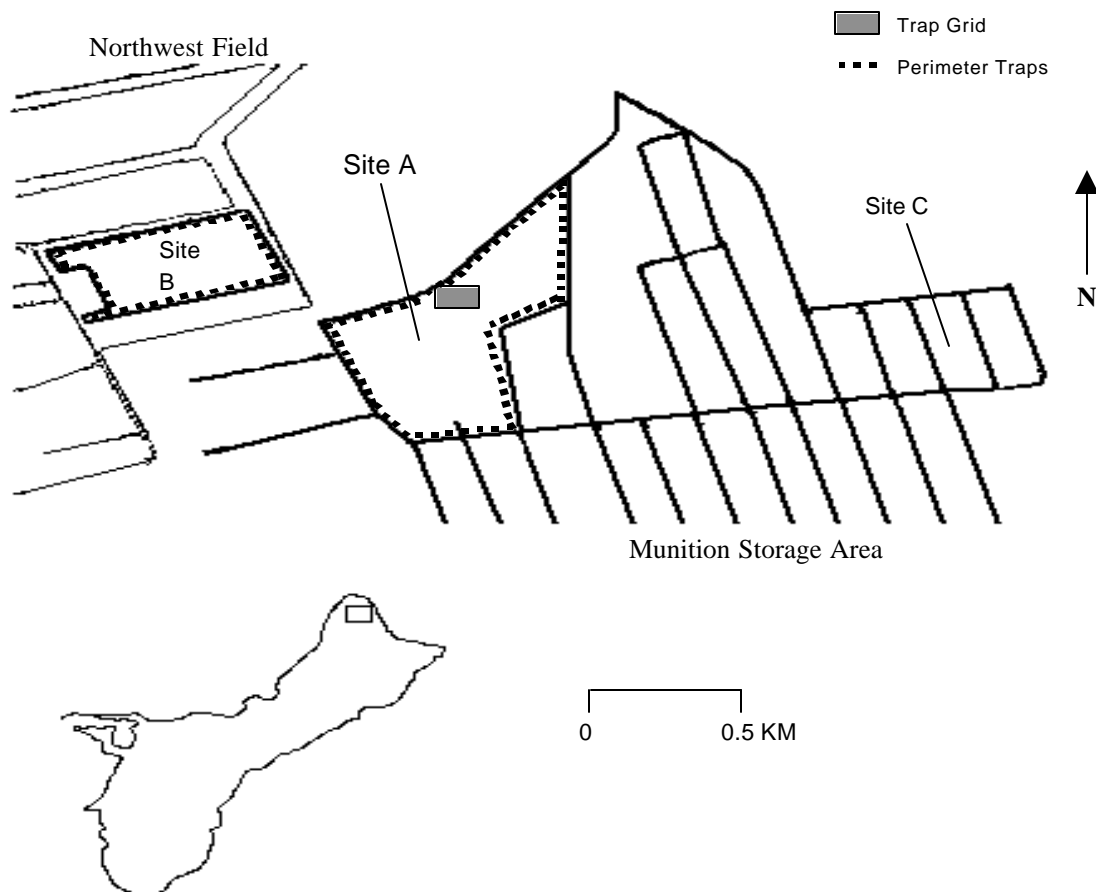


Figure 2. Locations of three sites slated for Mariana crow releases and area-wide snake control. Seven Mariana crows were released in Site A (42 ha in size). Snake control is ongoing in Areas A (perimeter and grid trapping) and B (24 ha in size), also known as Area 50. A static snake barrier attached to an existing cyclone chain-link fence encompasses Area B. Guam Rails, *Gallirallus*

owstoni, have been reintroduced into Area B. Snake trapping is not being conducted in Area C (MSA-2). Two crows were released in Area A in August 1999.

In July 2000, the distance between traps was changed to a uniform 30 m apart, which reduced the number of perimeter traps from 112 to 99. The capture rate in the perimeter traps ranged from 20.54 (first week of trapping) to 0.25 BTS per 100 trap nights (after 110 weeks of trapping in June 2000). As of September 30, 2000, perimeter traps had removed 1,017 BTS.

Survival of Released Crows

Only 2 of the 6 Rota crows released on Guam in 1997 were known to survive during the 1998-1999 season. Both are females with Guam mates and have now been in the wild for 1,291 d and 1,278 d (as of September 30, 2000). The status of 2 other crows is unknown.

Seven crows, 5 hand-reared and 2 confiscated by USFWS, were released in September 2000. The 5 hand-reared crows, 3 males and 2 females, were released on September 11, 2000 in Area A (Figure 2). Two confiscated crows with an adult and juvenile male, were released 2 days later in the same area by representatives of USFWS.

Two crows, a female (hand-reared) and a male (confiscated juvenile) died 9 d and 20 d after their release, September 20 and October 2, respectively. The crow bodies of were found in tact. The female's body was found 2 days after her death, which cause of death could not be determined. Results of the second crow necropsy are still pending. However, predation by BTS, cats, or dogs was ruled out for both crows.

RECOMMENDATIONS

- 1) Continue the translocation of adults, eggs, and chicks from Rota to Guam.
- 2) Live model with hand-rear chicks or in the company of other chicks.
- 3) Cross-foster chicks into active nests on Guam, using non-egg producing pairs as surrogates.
- 4) Continue snake-proofing active nest trees.
- 5) Continue monitoring Rota crow releases on Guam.
- 6) Explore new techniques for capturing crows.
- 7) Renew DAWR permits from the USFWS and CNMI in order to continue translocation activities.

PROGRAM COSTS

The estimated cost for this project is \$45,000.

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