

**JOB PROGRESS REPORT
RESEARCH PROJECT SEGMENT**

STATE: Territory of Guam

PROJECT NO.: W-1R-7
SUBPROJECT NO.: W-4
STUDY NO.: 1
JOB NO.: 2

JOB TITLE: Survey for Mariana Crows and Their Nest Sites on Guam and Rota
(1460, 1470)

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

SUMMARY

Only seven Mariana crows, *Corvus kubaryi*, are estimated to remain in the Guam population, based on call surveys and locations of known individuals. This number includes two Rota females released on Guam in 1997. Six nests were recorded this breeding season. A single egg clutch was recorded in one nest that was lost, possibly due to snake predation or egg dumping.

BACKGROUND

The Mariana crow is found only on Guam and Rota and is the only species of crow in Micronesia. Though once found throughout Guam, surveys in 1981 estimated 380 crows (Engbring and Ramsey 1984) were present in northern Guam. This number was much lower than the estimate of 1,300 crows on Rota in 1982 (Engbring et al. 1986). By 1986, Michael (1987) reported that only 100 crows remained on Guam. By then, most of Guam's native forest birds had disappeared as a result of brown tree snake predation (Savidge 1987, Conry 1988, Engbring and Fritts 1988). In 1990, the Division of Aquatic and Wildlife Resources (DAWR) began annual surveys using tape-playback of crow calls to monitor the species' status. The initial survey found about 100 crows present in northern Guam. Though crow numbers had decreased since 1981, distribution remained the same (DAWR 1990).

Efforts to reverse the decline of the Mariana crow began in 1986 with attempts to protect active nest sites from snake predation. Sheet metal sleeves and Tanglefoot®, an adhesive resin, were placed around trunks of active nest trees to act as a snake barrier and snake trapping was begun. During the early 1990s, increased nest protection was achieved with the development of electrical barriers and effective snake trapping (DAWR 1991).

In 1996, a select committee appointed by the National Research Council (NRC) completed a review of the Mariana crow recovery program (NRC 1997). Their report compliments and reiterates conservation recommendations for crows found in the recovery plan (Beck and Savidge 1990). Included in their recommendations were that all birds being held in the National Zoo and Houston Zoological Garden be released on Guam. In 1997, the crow population on Guam was augmented by the release of eight captive crows (six from the zoos and two from DAWR's breeding facility) into the wild in northern Guam. Currently, four of the released birds are doing well, the status of one is unknown, and three died 13-219 days after their release.

OBJECTIVES

To inventory Mariana crows and their nest sites to implement recovery efforts, including predator control and other reproductive enhancement efforts (Beck and Savidge 1990).

PROCEDURES

1. Recorded-call playback surveys for Mariana crows were conducted in northern Guam during July. At each station, tape-recorded calls were played for 2.5 minutes. This was followed by a 2-minute silent period when the observer listened for crows. Numbers, distances, and plumage condition of the crows detected were recorded.
2. Areas in the northern Guam were searched during the breeding season (from October through May) for crows. Active nests were closely monitored and appropriate measures to protect them were taken. Locations of active nests were mapped.
3. Young, if found, were monitored.

RESULTS

Surveys

Mariana crows were surveyed on 14 transects totaling 211 stations in eight regions of northern Guam in July (Table 1). A total of two crows were detected on one transect (Munitions Storage Area [MSA]) during the survey, as compared to eight birds on two transects last year (DAWR 1998). The number of crows recorded on the FY99 survey is lower than the actual number of birds still surviving. An additional five crows are known to occur in the MSA and Tarague areas (Figure 1).

Table 1. Summary of results from playback of tape-recorded Mariana crow calls conducted in July 1999.

Transect	No. of stations	No. of crows	No. of stations with crows	Known no. of crows missed in survey
1	50	0	0	5
2	36	0	0	0
3	12	0	0	0
4	10	0	0	0
5	8	0	0	0
6	11	0	0	0
7	10	0	0	0
8	23	0	0	0
9	9	2	1	0
10	9	0	0	0
11	7	0	0	0
12	9	0	0	0
13	8	0	0	0
14	9	0	0	0
Total	211	2		5

July 99 crow population estimate = 2+5 = 7 birds

A Rota/Rota pair (“Faia” and “Ahgao”) released in 1997 and known from the previous breeding season was not located during the entire 1998-1999 breeding season. Attempts to find this pair were unsuccessful. The pair had been residing on the upper Tarague Plateau. The estimate of seven birds is a 42% decrease over last year’s count (DAWR 1998) and indicates a continued population decline (Figure 2). This information further supports the importance of translocation to save the crow population on Guam. With only a few remaining birds, efforts to translocate crows from Rota and monitor the released birds should be increased and playback surveys should be discontinued. Information on numbers and distribution would be better obtained from following the known individuals and conducting systematic and intensive searches where birds were last known to exist.

Active nests

Nesting activity decreased in FY99, with six nests recorded this year as compared to nine nests in 1997-1998 (Table 2, Figure 3). Only one single egg clutch was laid during the breeding season. However, this egg was lost, possibly due to snake predation or egg dumping. Two Rota-Guam pairs accounted for five of the nests (Table 2). Their nests were found in *Ficus* (3) and *Elaeocarpus* (2) trees. A Guam pair nested once in a *Glochidion* tree. Its nest was found after it was abandoned.

Table 2. Summary of crow nests constructed on Guam, the stage at which they were found, and their outcome. Productivity of crows is summarized in Table 3. Pairs A, B, and C are the Pipeline/Pengua, Fadang/Guam male, Mag8OL pairs, respectively.

No.	Pair ID	Nest No.	Date Discovered	Nest Stage	Tree species	Snake Proofed	Outcome
1	A	334	10/21/98	Early Base	<i>Ficus</i>		Nest destroyed
2	B	335	12/3/98	Base	<i>Elaeocarpus</i>	12/23/98	No eggs laid
3	A	336	1/25/99	Base	<i>Fiascoes</i>	2/1/99	1 egg
4	A	337	3/2/99	Complete	<i>Ficus</i>	-	Abandoned
5	B	338	4/15/99	Complete	<i>Elaeocarpus</i>	-	Abandoned
6	C	339	4/23/99	Complete	<i>Glochidion</i>	-	Abandoned

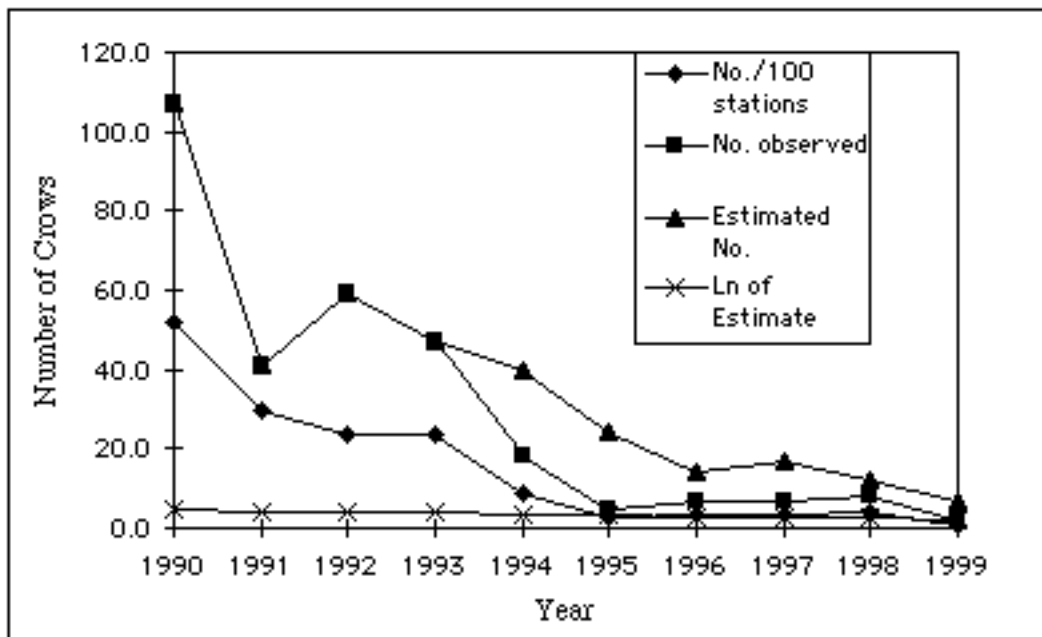


Figure 2. Yearly results of Mariana crow playback surveys made on Guam. The number of birds estimated in 1999 includes 2 Rota crows released in the wild in 1997.

There is a single Guam female in the MSA. This female failed to mate.

RECOMMENDATIONS

1. Discontinue annual crow surveys.
2. Continue searches for active crow nests and take appropriate measures to protect these nests from snake predation.
3. Collect pertinent information on the locations of crow nests.
4. Augment the Guam crow population with birds from Rota.

PROGRAM COST

The estimated cost of the Mariana crow project under W-1R-7 is \$80,000.

LITERATURE CITED

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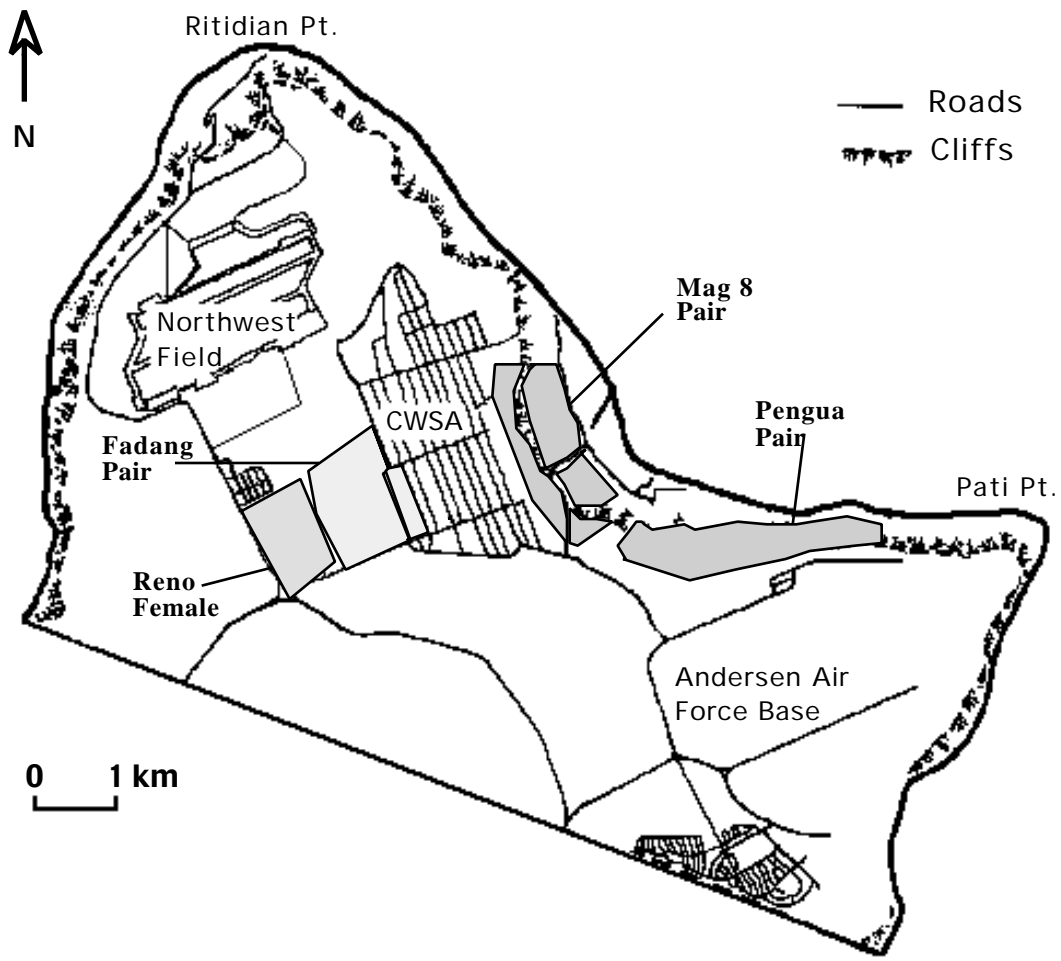


Figure 1. Locations of known crows in the Northwest Field, Munitions Storage Area (CWSA), and Pati Pt. areas as of July 1999. The hatched and dotted areas indicate the approximate home ranges of the birds.

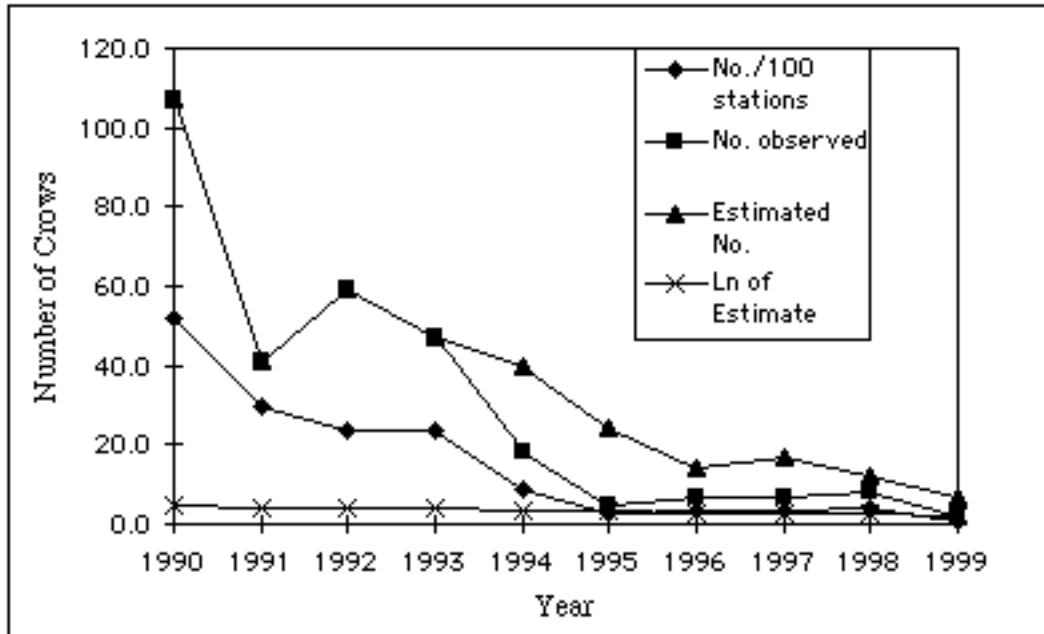


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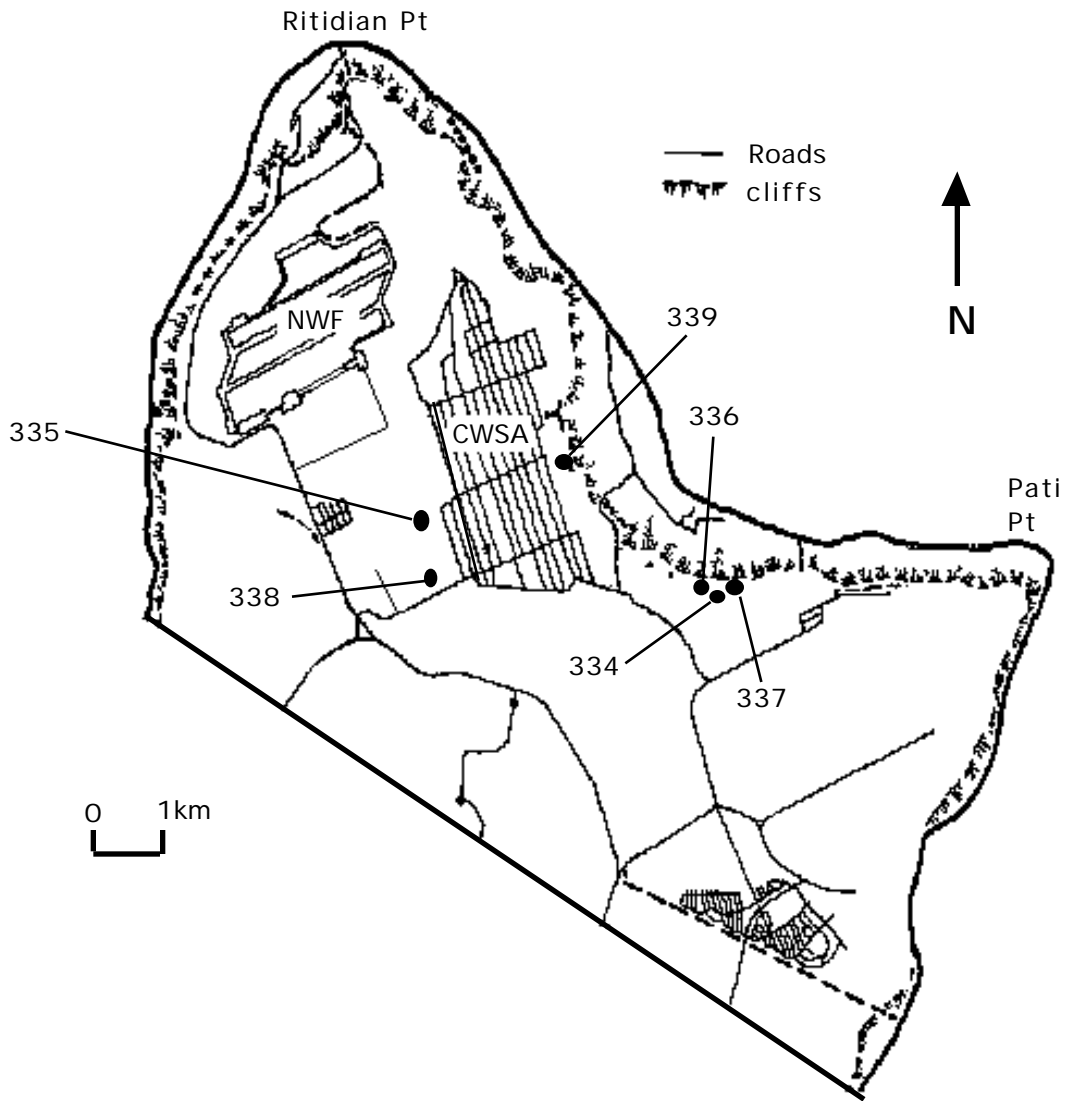


Figure 3. Locations of nests produced during the 1998-1999 Mariana crow breeding season. The Pipeline (Pengua and a male), Faia/Ahgao, and the Mag 8 OL pairs were the only pairs that constructed nests during the season. The Pipeline pair was the only pair that laid eggs.