

The Mariana Crow Landowner Incentive Plan



Photo courtesy of: Sarah Faegre, University of Washington Rota Avian Behavioral Ecology Program

U. S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office, Honolulu, Hawaii



June 2012

The Mariana Crow Landowner Incentive Plan Working Partners

This Landowner Incentive Plan is a joint endeavor between the U.S. Fish and Wildlife Service (Service), The Mariana Islands Nature Alliance (MINA), The University of Washington's, Rota Avian Behavioral Ecology Program (RABEP), the Commonwealth of the Northern Mariana Islands Department of Fish and Wildlife (CNMI DFW), and the mayor of Rota. Below is a list of individuals from each agency and their responsibilities as related to this effort:

Service

- Jodi Charrier, Fish and Wildlife Biologist, Honolulu, Hawaii –Primary point of contact for The Mariana Crow Landowner Incentive Plan.
- Megan Laut, Vertebrate Recovery Coordinator, Honolulu, Hawaii – Responsible for allocating funding. Assisted with defining details of the plan.
- Julia Boland, Fish and Wildlife Biologist, Rota, CNMI – Responsible for all plan duties required on Rota, including: providing applications, explaining the program to applicants, verifying eligibility and property information, approving applications, and verifying contract fulfillment.

MINA

- Sam Sablan, Executive Director
MINA will manage and distribute funds to individual landowners and assist with planning and implementation logistics.

RABEP

- Dr. Renee Ha, Principal Investigator
 - Dr. James C. Ha, Co-Principal Investigator
 - Phil Hannon, Field Supervisor
 - Sarah Faegre, Graduate Student
- RABEP continues to play a key role in monitoring crows and conducting feral cat control. Coordination and sharing of data with the Service is an important element of the implementation of the incentive plan.

CNMI DFW

- Arnold Palacios, Director
DFW manages the program for threatened and endangered species within the CNMI. The DFW office on Rota will be a contact point for participants to learn more about the program and pick up applications. DFW can also assist with verifying landowner records.

The Mayor of Rota

- Melchor A. Mendiola
Grant approval and permission for the plan.

Background and Rationale

This plan outlines a United States Fish and Wildlife Service (Service) Landowner Incentive Program designed to support the recovery of the critically endangered Mariana Crow (*Corvus kubaryi*) on Rota in the Commonwealth of the Northern Mariana Islands (CNMI). The Mariana crow was federally listed as endangered under the Endangered Species Act (ESA) (16 U.S.C. § 1531 *et seq.*) on August 27, 1984 (Service 1984) and is classified as critically endangered by the International Union for Conservation of Nature (IUCN 2011). Approximately 376 acres (152 hectares) were designated as critical habitat for the Mariana crow on Guam and 6,033 acres (2,552 hectares) were designated on Rota in 2004 (Service 2004).

The Mariana crow is known historically only from the islands of Rota and Guam (Baker 1951). Mariana crows were once considered abundant and widely distributed throughout Guam (Baker 1951). However, the population was extirpated by the introduction of the brown treesnake (*Boiga irregularis*) (Wiles *et al.*, 2003). By the mid-1960s, Mariana crows had disappeared from the southern region of Guam, and by the mid-1970s, they were absent from central Guam (Jenkins 1983). By 1981, the population was restricted to northern Guam and consisted of less than 400 individuals (Engbring and Ramsey 1984). Ten years later, in 1991, fewer than 50 individuals were found on Guam (Wiles *et al.* 1995). The single remaining male from this group hasn't been detected since August 16, 2011 (SWCA 2011) and the species is presently considered effectively extirpated from Guam (BirdLife International 2011).

In 1976, Mariana crows were also considered relatively common and widely distributed on Rota (Pratt *et al.* 1979). The first island-wide survey for crows on Rota was conducted in 1982, and resulted in a population estimate of 1,318 individuals (Engbring *et al.* 1986). Subsequent surveys in 1995 and 1998 indicated the population had declined to 592 individuals and 234 breeding adults, respectively (Fancy 1999, Plentovich *et al.* 2005). In the past decade, the crow population has severely declined on Rota. The current population is estimated to be 40-50 breeding pairs and 24 non-breeding individuals (Hannon 2011, *pers. com.*), down from 60 pairs in 2008 (Berry *et al.* 2008). The Mariana crow is declining at a rate of about 8 percent per year, resulting in a loss of 15 pairs since the 2007-08 breeding season (Faegre and Ha 2011, unpublished data). Ha *et al.* (2010) averaged data from 1990 to 2010 to estimate that the Mariana crow will be extinct on Rota in 75 years. However, based on more current data, the Mariana crow may be extinct in 20 years (Ha 2011, *pers. com.*).

Severity of threats differs between Guam and Rota. Brown treesnake predation is believed to be the overriding factor in the decline of Mariana crow on Guam (Service 2005). Habitat degradation due to grazing by feral ungulates and range expansion of invasive plants are also factors (Service 2005). On Rota, predation by cats is of particular concern and has recently been the primary cause of pronounced population decline. From 2009 to 2011, nine cat predation events were documented (Faegre 2011, *pers. com.*). Other factors such as human persecution, habitat degradation from typhoons, illegal logging, wildfire, competition with introduced species such as the black drongo, and reproductive problems associated with small populations may also adversely impact the species and its habitat.

Nesting occurs in closed canopy forests in native tree species that are on average 17 centimeters (6.7 inches) in diameter at breast height and 7.8 meters high (25.6 feet), and away

from human habitation [i.e., greater than 300 meters (984 feet) from the nearest building] (Ha et al. 2011). All nest trees recorded on Rota are native (Service 2005). Breeding likely occurs all year on Rota, while peak nesting activity generally occurs between August and February (Service 2005).

Purpose and Need

The Service has determined that immediate action must be taken to attempt to prevent the extinction of the Mariana crow. The goal of this plan is to change human perceptions of the Mariana crow and protect valuable habitat through a Landowner Incentive Plan. The Landowner Incentive Plan will compensate participants on Rota with a monetary award in exchange for protecting occupied crow habitat and allowing access for population monitoring and feral cat control on their land.

We are concerned there is a negative perception of the Mariana crow by the local residents of Rota. There is an impression that the crow provides no economic benefit and hinders the ability for development (due to restrictions imposed by critical habitat and the ESA). At the October 2010 and 2011 San Francisco de Borja Fiesta, biologists from the University of Washington Rota Avian Behavioral Ecology Program (UW RABEP) ran a two-day booth focusing on native wildlife on Rota, specifically the Mariana crow. Visitors to the booth were asked to fill out a short survey about their perceptions of the Aka and of the feral cat population on the island. While the majority of people were very friendly, biologists were also told by some individuals that they were not welcome on the island and that the crows were not edible and therefore essentially worthless. The main focus of the 2011 survey was the feral cat population on Rota. Findings from the survey revealed that an overwhelming majority of people disliked feral cats and were very supportive of a cat trapping program.

The incentive must be a significant enough monetary amount to encourage changes in behavior and attitudes toward the Mariana crow. The Service is therefore proposing an initial sign-up payment of \$50, and a follow-up payment of \$450, be given to qualifying participants who comply with all conditions of the plan. We believe this will be a strong incentive on an island experiencing a severe economic depression. According to the United States Government Accountability Office, Rota has a population of 2, 527, down 23% from 2000. The median household income in 2004 was \$22,270, and the per capita income was \$8,592 (GAO 2008).

Launching the Landowner Incentive Plan

Service personnel will present the Landowner Incentive Plan to the appropriate CNMI government officials before implementation (e.g. Department of Land and Natural Resources on Saipan, Secretary Arnold Palacios, the Mayor of Rota, Melchor A. Mendiola, and the Rota Resident Director of Division of Fish and Wildlife). The Landowner Incentive Plan will be launched at a local fiesta or town meeting, celebrating the Mariana crow on Rota in September 2012. Residents will be invited to the fiesta through flyers posted on shop windows, television advertisement, and word of mouth. The CNMI Division of Fish and Wildlife (DFW) currently has a list of landowners/homesteaders and phone numbers that can be used for proactive outreach. We can also contact those property owners/homesteaders that have applied for permits

with CNMI DFW and were either denied or given conditional permits because the crow was using their property. Our research suggests that no more than 100 people will attend the fiesta/town meeting (Berry 2010, pers. com.).

We will offer food, beverages and educational materials to attendees, and provide information about the program. Service personnel, local officials, and UW biologists will present the Landowner Incentive Plan details, including how to accurately identify a Mariana crow, what qualifies as occupied crow habitat, what causes disturbance, and what access for feral cat control and population monitoring means. Results from the survey, regarding general perception of crows and cat control on Rota, conducted at the October 2010 and 2011 fiestas, will also be shared with local residents, assuring them their voices are being heard. Residents will be invited to ask questions and offer suggestions. The fiesta will be filmed and highlights will be shown on the local television station. If funding allows, supplies will be provided for a crow-themed art contest at local schools. Winners of the contest (divided by age group) will have their art featured on next year's posters or other promotional materials, giving the children a sense of pride and ownership.

Details of the Landowner Incentive Plan

During the 2011-2012 nesting season, UW biologists recorded GPS data for 35 nests created by 28 pairs of crows. When we overlay nest locations with GPS data for individual sightings from August 2010 through October 2011, we have a general knowledge of habitat currently being used for breeding and foraging. The current Mariana crow population on Rota is estimated to be 40-50 breeding pairs and 24 non-breeding individuals (Hannon 2011, pers. com.). Many of the birds may be living on or very near homestead land that is privately owned or leased from the CNMI government. We estimate we have funding for up to 60 payments of \$500 each for the 2012-2013 breeding season.

Potential participants will be encouraged to notify biologists (Service or CNMI DFW) if Mariana crows are actively using their land. Participants will be able to sign up during the fiesta/town meeting. We will also leave forms with Service and CNMI DFW biologists so landowners/homesteaders can apply after the event. There will be no cut-off date as long as funds are available. The crows must be actively using the land (breeding or foraging) for the landowner/homesteader to be eligible. Verification and eligibility will be determined by a Service biologist. A Service biologist will also cross check to verify property records match the information that the landowner/homesteader provides (title search, correct owner, lease, parcel number, etc.). Once applicant is deemed eligible, a Service biologist will share information with MINA who will then release funds to individual landowners.

Once the application has been approved by a Service biologist, we will explain the contract to the applicant and discuss the requirements of the agreement including: how to protect habitat, how to avoid disturbing the crows, and what is expected regarding access for monitoring and feral cat control. Proactive actions by the applicant such as cat control and invasive species removal will also be encouraged. By signing the contract the participant is agreeing to the following conditions:

- Participants agree no vegetation will be removed from forested areas, including dead trees.
- Participants will allow biologists to access to their property in order to monitor crow locations, behavior, and health. Landowner will be contacted via phone or email to schedule.
- Participants will allow staff from the feral cat control program access to their property for trapping and eradication efforts.
- Participants will take all measures to ensure no crows are disturbed by human harassment.
- A final compliance check will be completed before final check is mailed.

Once the applicant is deemed eligible, the participant will be awarded an initial payment of \$50 in the form of a check. Each check will be accompanied by a congratulatory award letter from the Service. The Mariana Islands Nature Alliance (MINA) will be a fiscal partner for the Service and assume responsibility for fund dispersal. Checks can be pouched via Freedom Air from Saipan to Rota. By late May most of the young Mariana crow should have fledged from their nests. At this point (or when nesting is complete, whichever is later), every landowner/homesteader who signed and fulfilled a contract will receive a final payment of \$450 along with a certificate of success (again, pouched from MINA). If necessary, a Service biologist will make sight visits to ensure all conditions of the contract were followed. The payments will not be dependent on nest success since at least half of Mariana crow nests are known to fail for natural reasons (Berry 2010, pers. com.).

The Service is currently providing funding to UW for a small-scale feral cat control program around select Mariana crow territories and nests. This program will receive additional funding from the Service in Fiscal Year 2012 to increase feral cat control efforts on Rota. The Landowner Incentive Plan will work cooperatively with this program such that staff will be allowed access to private property to conduct cat trapping and eradication. There will be steady communication between the programs, making sure UW is accurately informed of which properties will be accessible, therefore allowing them to prioritize control areas.

Success of the Landowner Incentive Plan will be measured in terms of social parameters due to the difficulty of obtaining measurable scientifically significant outcomes of population trends over a short period of time. All applicants will be asked to complete a survey about general perceptions of the Mariana crow and feral cat control; even if it is determined they are not eligible to participate. Eligible applicants will be surveyed when they sign the contract and again at the end of May (or when nesting is complete, whichever is later) to determine changes in behavior and attitude, and the likelihood of future participation. Survey data will be used to adaptively manage the plan so that it can be more successful in the future. The Landowner Incentive Plan will be re-implemented at the beginning of each nesting season in August or September, based on available funding, and according to the level of landowner participation and the status of the Mariana crow.

Acknowledgements

Many people outside of the Working Partners deserve thanks for assistance in the process of composing this plan. Lora Reeve and Mele Coleman, Law Interns, Service, Honolulu, Hawaii did much of the background investigation and preliminary planning in 2010. Fred Amidon, Service, Honolulu, Hawaii, conducted preliminary planning and coordination for the perceptions survey. Earl Campbell, Service, Honolulu, Hawaii, provided guidance and facilitated agency cooperation. Patrice Ashfield, Section 7 Coordinator, Service, Honolulu, Hawaii, provided guidance and plan review. Rachel Rounds, Service, Honolulu, Hawaii, assisted during the development and review process.

References

- Baker, R.H. 1951. The avifauna of Micronesia, its origin, evolution and distribution. University of Kansas Publications 3:1-359.
- Berry, L. 2008. Communication regarding data summarizing Mariana reproductive success. University of Washington, Seattle, Washington.
- _____. 2010. Communication regarding potential attendance of town meeting.
- BirdLife International. 2011. Species factsheet: *Corvus kubaryi*.
<http://www.birdlife.org/datazone/speciesfactsheet.php?id=5766> (accessed 11 April 2011).
- Engbring, J. and F.L. Ramsey. 1984. Distribution and abundance of the forest birds of Guam: results of a 1981 survey. U.S. Fish and Wildlife Service, FWSIOBS-84120. 54 pp.
- _____, F.L. Ramsey, and V.J. Wildman. 1986. Micronesian forest bird survey, 1982: Saipan, Tinian, Agiguan, and Rota. U.S. Fish and Wildlife Service, Honolulu, Hawaii. 143 pp.
- Fancy, S.G., M.R. Lusk, and D.J. Grout. 1999. Status of the Mariana crow population on Rota, Mariana Islands. *Micronesica* 32(1):3-10.
- Faegre, S. 2011. Personal communication. University of Washington. Seattle, Washington.
- _____. and R.R. Ha. 2011. Unpublished data.
- Ha, R.R. and J.C. Ha. 2010. The aga or Mariana crow's probable history, current status, and recommendations for recovery action: a synthesis. Rota Avian Behavioral Ecology Program, University of Washington, Seattle, Washington. Unpublished report to CNMI Division of Fish and Wildlife and U.S. Fish and Wildlife Service. 94 pp.
- _____, J. Morton, J.C. Ha, L. Berry, and S. Plentovich. 2011. Nest site selection and consequences for reproductive success of the endangered Mariana crow (*Corvus Kubaryi*). *The Wilson Journal of Ornithology* 123(2):236-242.

- Ha, J.C. 2011. Personal communication regarding Mariana crow extinction rates. University of Washington. Seattle, Washington
- Hannon, P. 2011. Personal communication. University of Washington. Seattle, Washington.
- IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 01 June 2012.
- Jenkins, J.M. 1983. The native forest birds of Guam. Ornithological Monographs 31. 61 pp.
- Plentovich, S., et al. 2005. Population trends of Mariana Crow *Corvus kubaryi* on Rota, Commonwealth of the Northern Mariana Islands. *Bird Conservation International* 15:211-224.
- Pratt, H.D., P.L. Bruner, and D.G. Berrett. 1979. America's unknown avifauna: the birds of the Mariana Islands. *American Birds* 33(3):227-235.
- SWCA, (SWCA Environmental Consultants). 2011. Six-Month survey work report: Noise study and Demographic Survey of Mariana Fruit Bats and Mariana Crows, Andersen Air Force Base, Guam.
- United States Government Accountability Office (GAO). 2008. Commonwealth of the Northern Mariana Islands: Managing Potential Economic Impact of Applying U.S. Immigration Law Requires Coordinated Federal Decisions and Additional Data. Report to Congressional Committees. GAO-08-791, 1-126 pp.
- U.S. Fish and Wildlife Service (Service). 1984. Endangered and threatened wildlife and plants; Determination of endangered species status for seven birds and two bats of Guam and the Northern Mariana Islands. *Federal Register* 49:33881-33885.
- _____. 2004. Endangered and threatened wildlife and plants; designation of critical habitat for the Mariana fruit bat and Guam Micronesian kingfisher on Guam and the Mariana crow on Guam and in the Commonwealth of the Northern Mariana Islands; final rule. *Federal Register* 69(208):62,944-62,990.
- _____. 2005. Draft revised recovery plan for the aga or Mariana crow, *Corvus kubaryi*. U.S. Fish and Wildlife Service. Portland, Oregon. 147 pp.
- Wiles, G.J., C.F. Aguon, G.W. Davis, and D.J. Grout. 1995. The status and distribution of endangered animals and plants in northern Guam. *Micronesica* 28:31-49.
- _____, J. Bart, R.E. Beck, Jr., and C.F. Aguon. 2003. Impacts of the brown tree snake: patterns of decline and species persistence in Guam's avifauna. *Conservation Biology* 17(5):1350-1360.