

IMPACT REPORT

2021



Center for Avian Conservation in the Pacific Islands



Image 1: Amanda Burr extracting a rufous fantail, *Rhipidura rufifrons*, from a mistnet.

Background Summary

The accidental introduction of the brown tree snake to the island of Guam after World War II was devastating for bird populations there. The birds had no natural defenses against this foreign predator and soon were in critical need of conservation efforts to save them. Island species are particularly susceptible to threats of introduced species because they have evolved in an isolated and specialized environment. Only two species of Guam's forest birds, the Guam kingfisher and the Guam rail, survive today and only in the care of zoos.

Conservation of these unique and beautiful species spurred the establishment of the Saint Louis Zoo WildCare Institute Center for Avian Conservation in the Pacific Islands.

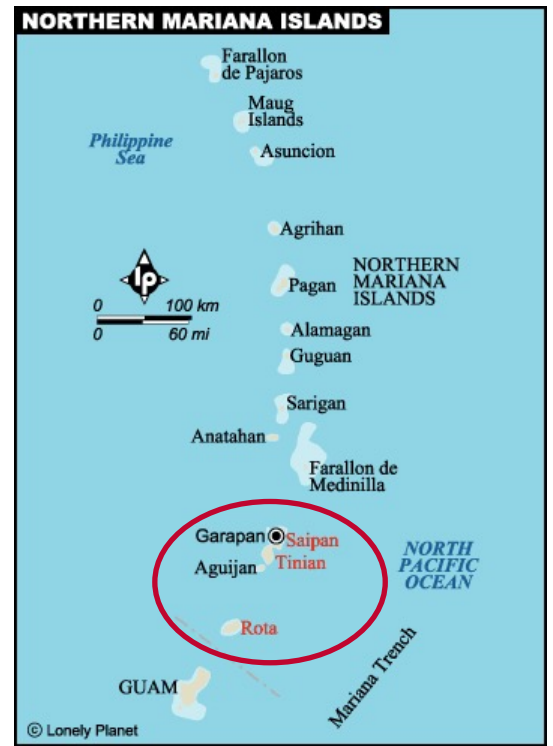
The efforts by the Saint Louis Zoo to save Pacific Island avian species began in 1994 when the Zoo joined forces with other organizations to collaborate

on a project called the Mariana Avifauna Conservation program (MAC). One of our main partners, Pacific Bird Conservation (PBC), leads the MAC program.

In 2004, The Saint Louis Zoo was invited to collaborate with PBC, the U.S. Fish & Wildlife Service and the regional Department of Aquatic and Wildlife Resources to develop captive rearing protocols and assurance populations. This creates a two-pronged approach to conservation of these species, in-situ and ex-situ. Assurance populations are created on islands previously uninhabited by these species through yearly bird translocations. This helps create more resilience of endemic Mariana bird species against the spread of the brown tree snake in the island chain and helps protect them from the unfortunate fate of the Guam species. Other challenges these species face include habitat loss and degradation, invasive species, and sensitivity to more frequent and devastating typhoons due to climate change. Since the program started, AZA zoos have managed programs for six Mariana bird species, four of which have been bred at the Saint Louis Zoo.



Image 2: MAC translocation team returning empty bird boxes to the boat after releasing the birds on Alamagan in 2019.



Images 3 and 4. Location of Mariana Islands in the Pacific Ocean and detail of the CNMI

Focal Regions and Species

Translocation fieldwork in the Commonwealth of the Northern Mariana Islands (CNMI) focuses on two target species each year. The birds are collected by mist netting on the island of Saipan or Tinian and taken by boat to be released on the island selected for the yearly translocation. Designated islands are not inhabited by large human developments and are deemed by the Division of Fish and Wildlife (DFW) to be suitable for the species based on a habitat assessment. Two translocations of the same species typically happen in subsequent years to boost numbers as recommended by DFW in collaboration with PBC, the Saint Louis Zoo, and other partners. Growth in this Center aims to continue expanding our existing translocation and breeding work with at-risk species, but also to develop a strong education and awareness component of bird conservation in the local communities in the CNMI.

Challenges Faced:

Covid-19 Challenges Overcome

A primary Center objective is to support translocations through the MAC project. In 2020 and 2021, no translocation fieldwork or community education was able to occur onsite the CNMI because of restrictions on travel due to the COVID-19 pandemic. Instead, the team here at the Saint Louis Zoo focused on maintaining communications with conservation partners and virtual learning. Maintaining local relationships is important and will make the transition back to onsite work smoother.

Education liaison, Keri Lammering, remained in contact with local educators in the CNMI with plans to continue outreach in 2022. Keri Lammering and Amanda Bender participated in the Terrestrial Marianas Conservation Conference & Workshop in June of 2021 to stay informed of current work in CNMI pertaining to bird conservation. Amanda Bender also gave a WildCare Happy Hour presentation in 2021 to share with staff and the local community the exciting work of this Center.



Image 5: Adult Guam kingfisher.



Image 6: Guam kingfisher chick in a weighing cup.

Center Impact Fy [2021]

Primary Center objectives that we were able to demonstrate measurable impact toward in 2021 were:

1. Use captive management techniques to support wild populations
 - a. Participate in SSP recommended breeding for the Guam kingfisher
 - b. Support research in captive management setting to aid in recovery planning of the Guam kingfisher.
2. Develop programs that support conservation objectives

1.a. In 2021, the Saint Louis Zoo successfully bred our program-recommended Guam kingfisher, *Todiramphus cinnamominus*, pair and they reared two offspring. These hatches are exciting because the Guam kingfisher is extinct in the wild and only survives in the care of zoos. Moreover, these two chicks are female which helps to balance a male-dominated population. While reintroductions of this species are not yet possible in the wild, only continued work with them can provide this hopeful opportunity in the future.

1.b. The Saint Louis Zoo participated in a research study designed by Amanda Trask at Zoological Society of London. Guam kingfishers are currently the focus of conservation translocation planning to re-establish wild populations. A first step in this is to release small numbers of kingfisher from the ex-situ (zoo-based) population to “learning sites”. These learning sites will serve as opportunities to practice and refine our translocation methods before we attempt releases to larger establishment sites. Birds released to learning sites will be fitted with radio-transmitters, in order to closely monitor post-release movements and behavior. However, radio-transmitters have not been used on Guam kingfishers before and therefore suitability of different attachment methods are not known. The Saint Louis Zoo and other institutions participating in the Guam kingfisher SSP completed two rounds of radio-transmitter attachment trials for this study. Our results

will help determine which attachment style is most appropriate, will be instructive to design improvements, and will aid in safety assurances for future releases of the species.

2. In 2019, this Center seized the unique opportunity to coordinate with the Invertebrate Department and their Partula Snail Program to jumpstart invertebrate conservation efforts in the very same ecosystems. There are three species in the Partula and Samoana genera native to the Marianas Islands and of conservation interest. The humped tree snail (*Partula gibba*), fragile tree snail (*Samoana fragilis*), and Langford's tree snail (*Partula langfordi*) face threats similar to the endemic birds of the island and are all critically endangered.

In 2021, the Saint Louis Zoo Invertebrate Department was excited to host Dr. G. Curt Fielder from the University of Guam. Dr. Fielder toured some mainland Partula rearing facilities to investigate captive rearing possibilities on the island. The Invertebrate team was also in communication with government partners based in the CNMI and Guam to explore the possibility of bringing humped tree snails (*Partula gibba*) from Guam and Saipan to the Saint Louis Zoo. This import would serve two purposes: to have an assurance population off-island in the event of unforeseen catastrophic events, and to begin captive rearing as part of the recovery effort for this species. In 2022, the Invertebrate Department plans to apply for a USFWS recovery permit/CNMI equivalent to facilitate these efforts.

Stories of Impact in Fy [2021]

John Bender was awarded the Whitney R. Harris and Saint Louis Zoo Fellowship in Animal Conservation. John is pursuing a Ph.D. in biology through the University of Missouri St. Louis under advisor Dr. Patty Parker. John has also recently taken on the position of Conservation Biologist with our partner organization, Pacific Bird Conservation (PBC). In this role, he will be the primary coordinator of PBC fieldwork such as the Mariana Avifauna Conservation Program (MAC). Budget and travel restrictions due to the pandemic have kept the Saint Louis Zoo team from participating in MAC translocation fieldwork in the Mariana Islands for



Image 7: Guam kingfisher fitted with a radio transmitter harness.

the past two years. For MAC 2022, John has compiled an impressive roster of enthusiastic participants who are eager to resume this work in the spring.

John traveled to the CNMI in 2021 to reach out to contacts on Saipan at DFW and lay the groundwork for his Ph.D. project. With the Assistant Director of DFW, John discussed bioinventory surveys for future island translocations. These included Mariana swiftlet and reed warbler surveys on Saipan, as well as other projects pertinent to his Ph.D. work. While on-island, he was also able to visit the MAC project mist netting sites and provide general field condition assessments for upcoming fieldwork.



Image 8: John Bender extracting a rufous fantail, *Rhipidura rufifrons*, from a mistnet.

Plans for the Future

We are excited to resume this important translocation work. In 2022, we will mistnet and move Mariana fruit doves (*Ptilinopus roseicapilla*) and rufous fantails (*Rhipidura rufifrons*) from Saipan to the island of Guguan. Our dedication to the conservation of Avian species in the Pacific Islands will be even more important in the following years as we get the field work, education, and partners coordinating together again following the COVID-19 pandemic.

New projects will be brought into the PBC scope by their new Conservation Biologist, John Bender. These could include future projects that could broaden the conservation work of this Center within the next five years. There are many avian conservation projects in the south Pacific region that could benefit from our support and expertise in translocations and mist-netting.

Through existing partners like PBC, or through other conservation organizations such as Island Conservation, Ecology of Bird Loss, and World Parrot Trust, our collective conservation influence could grow together within and beyond the CNMI. We will follow a strategic approach to determine what project might align best with Center goals, existing skills and networks, and opportunities for high conservation impact.

Saint Louis Zoo Education staff will also be back onsite in 2022. Under Education liaison Keri Lammering, they will work to expand their reach and further build relationships with community and school and library systems in the Mariana Islands. Additional education staff helped solidify the goal of extending outreach to Tinian and Rota, allowing for consistency in PBC programming across the CNMI. Students from both islands will visit the MAC field team in 2022. Building experiences for students in the field was shown previously by our Conservation and Audience Research and Evaluation (CARE) team data to increase exposure to science-related careers and projects. We are supporting these grass roots education objectives so that students and community heads can become advocates and leaders in the conservation objectives we are currently facilitating. We are trying to start at the community and school-system level to create a base of buy-in for conservation efforts because they can help make decisions that can positively impact sustainability of their endemic species within their native range of the CNMI.

Partnerships with community-based organizations present in the CNMI, such as with the Micronesia Islands Nature Alliance, may also allow for further community support of the Center's mission. For conservation work in the CNMI to be impactful and persistent, we must gain strong community buy-in. From our experiences in the field in the CNMI as well as from survey data from the CARE team, there is a large information gap in general from community members and the school systems in the awareness of threats that their native birds face, and how very special they are as endemic species. We hope to facilitate a better understanding and sense of caretaking of these species to conserve them overall.