CONSERVATION & RESEARCH UPDATES FROM THE NATIONAL AVIARY

flightpaths

FALL 2023 - SPRING 2024

National Aviary Staff Present Findings at International Conference for Andean Condor Conservation

by Kurt Hundgen, Senior Director of Animal Care and Conservation Programs

In the wild, little is known about the early days of an Andean Condor chick. Condors nest in caves high up on cliffs in the Andes Mountains, which is virtually inaccessible to researchers. Hatchings of these birds in human care are incredibly important, not only to boost population size, but to offer insight into rarely observed breeding and chick-rearing behaviors.

We were thrilled when Marijo hatched last summer in the nest cave in Condor Court, a naturalistic habitat at the National Aviary. For a successful hatching, we needed to evaluate the complex social dynamics of Andean Condor pairs. In the wild, both parents incubate and care for the chick, alternating nest duties so each can forage. In human care, Andean Condors have all of their food nearby, which eliminates the need to leave the nest. Condors also have an extended rearing period of a year or longer.

Marijo and Illimani, the only two Andean Condors to hatch in a North American zoo in 2022.

We carefully evaluated the dynamics between Marijo's parents and determined that, given Lianni's past success raising chicks at the National Aviary, a single parent rearing would provide the optimal conditions for the egg to hatch and the chick to thrive. This approach has been successful with California Condors when the pair's social dynamic proved challenging to navigate.

In a single parent rearing situation, the other parent remains close. Mates can still see and hear one another, which is important for their pair bond. Lianni incubated the egg and cared for her chick with support from our staff. A streaming camera allowed us to see inside the nest and gain valuable insight into the chick's early days. We shared our findings last fall at the *IV Congreso Internacional de Cóndor Andino* (the 4th International Congress on the Andean Condor) held in Quito, Ecuador.

Our colleagues throughout South America who work with Andean Condors were eager to learn about the growth milestones we documented in Marijo and about Lianni's behavior: how often and how much she fed her chick and her own feeding behaviors. Understanding these nuances can enhance the care of condors and support successful hatchings for the species in the wild and in zoos.

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Male Andean Condor in flight; taken by Kurt Hundgen.

National Aviary Staff Present Findings at International Conference for Andean Condor Conservation *Continued*

The conference was an incredible opportunity to exchange ideas and discuss challenges facing Andean Condors. New research is giving us a clearer picture of the genetics of different populations in South America. Telemetry studies are unraveling mysteries about condors' home ranges, which are larger than we thought, and will help to prioritize land conservation and develop in situ education programs on the important role condors play in the ecosystem.

While in Ecuador, I could not miss a chance to visit our partner zoo, Bioparque Amaru, in Cuenca. The National Aviary has worked closely with Amaru to share best practices and even staff—National Aviary staff have visited Amaru to practice avian medicine and assist in the development of Amaru's wildlife hospital and Andean Condor breeding program. Amaru's staff have learned about zoo operations at the Aviary. This partnership is beneficial for both of our zoos but, most importantly, it is beneficial for Andean Condors. Through our partnership, we have gained more insight into Andean Condor behavior, worked to set up successful breeding pairs in various Ecuadorian zoological facilities, and supported each other as we care for these magnificent birds.

The information we shared has already been put to use at a zoo in Ecuador, where a single adult male Andean Condor recently reared a chick. This exchange of new approaches for caring for condors is helping these majestic birds thrive and boost their population. ■

NATIONAL AVIARY
PITTSBURGH, PA

The National Aviary inspires respect for nature through an appreciation of birds.

Editor
Steven Latta, Ph.D.
Director, Conservation and Field Research
steven.latta@aviary.org

Managing Editor
Robert Mulvihill, M.Sc.
Ornithologist
robert.mulvihill@aviary.org

700 Arch Street
Pittsburgh, PA 15212-5201
412-323-7235

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Your donations support the National Aviary's work to save birds and protect their habitats.

Conservation programs at the National Aviary take many forms. While we often highlight field research efforts—many of which seek to identify factors affecting the decline of threatened species—or research that develops new approaches to manage species of concern, the National Aviary also pursues a wide variety of other conservation initiatives.

In this issue of *FlightPaths* we highlight the role of National Aviary programs in breeding threatened bird species and in reintroduction efforts to restore bird populations in appropriate native habitats around the world. One of these species, the Red Siskin, was feared extinct in the wild until a small population was discovered in Guyana. The species has been prized in the illegal, cage bird trade for its deep orange plumage resulting in a large decline in numbers. Now through a collaboration among five zoos and the Red Siskin Conservation Center in Venezuela, the promise of breeding in human care is offering a brighter future for this species. To date, ten siskins have hatched in the National Aviary's breeding center.

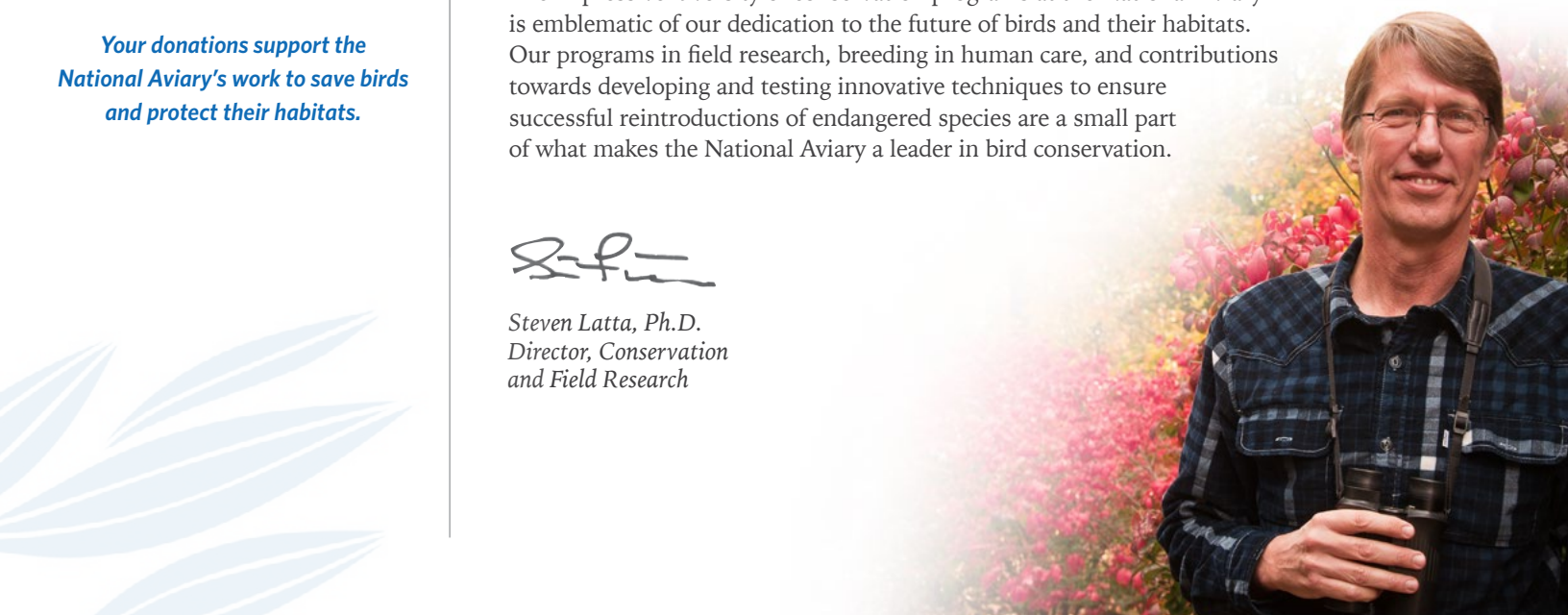
Closer to home, the Eastern Loggerhead Shrike population has been negatively impacted by changes in land use and the prevalence of pesticides. In a collaboration among Canadian and U.S. institutions, the National Aviary joined a conservation breeding effort to help boost the population of shrikes in Ontario, Canada. Shrikes now have been set up in behind-the-scenes habitats at the National Aviary where native vegetation and landscape elements promote natural breeding behaviors.

Some of these breeding and reintroduction efforts also involve innovative techniques or the testing of methodologies to insure a successful reintroduction. For example, in Ecuador we shared with colleagues from across South America techniques that we employed at the National Aviary that resulted in the successful hatching of an Andean Condor chick.

In South Africa and Namibia we are celebrating the success of artificial nesting burrows for African Penguins that have boosted the reproductive success of this Endangered species. Various designs of these artificial burrows were tested several years ago here in Penguin Point at the National Aviary. Today they promise to make an important contribution in turning around the alarming decline in penguin numbers.

Finally, due to our success in breeding the Extinct in the Wild Guam Kingfisher and our field experience in the use of radio telemetry devices, the National Aviary was chosen to be one of four institutions to participate in a critically important pilot study to select the best way to attach a telemetry device on kingfishers. Telemetry is an important method for monitoring a bird's behavior and survival, but it also must not impede movement or foraging; selection of the best attachment method is critical and an important step forward in preparing for the reintroduction of the species back into the wild.

The impressive diversity of conservation programs at the National Aviary is emblematic of our dedication to the future of birds and their habitats. Our programs in field research, breeding in human care, and contributions towards developing and testing innovative techniques to ensure successful reintroductions of endangered species are a small part of what makes the National Aviary a leader in bird conservation.



Steven Latta, Ph.D.
Director, Conservation and Field Research

The Discovery of the Tanager x Grosbeak Hybrid!

by Robert Mulvihill, Ornithologist

The power of community science is something I know well. I depended on hundreds of thousands of geospatially referenced observations submitted over five years by more than 3,000 volunteers in order to complete the 3rd Pennsylvania Breeding Bird Atlas. I relied on the observational skills of backyard birdwatchers to log observations of birds that I color-banded for the Smithsonian's Neighborhood Nestwatch project in Pittsburgh. Reports of unusual looking or out of season hummingbirds have sent me all over western Pennsylvania to document an emerging novel migration system for Rufous Hummingbirds in the eastern U.S.

Then there are the out-of-the-blue leads that I frequently get because I happen to be the ornithologist at the internationally renowned National Aviary. For example, in June 2020, an astute Massachusetts birdwatcher observed a curious nesting arrangement in her front yard between a Gray Catbird and an American Robin. Many months later, following my suggestions, Deb Murray confirmed and extensively documented a case of successful shared nesting between the two species, and together we published a paper about it in *Northeastern Naturalist*.

A one-of-a-kind find: a Tanager X Grosbeak Hybrid at McConnells Mill State Park.

Similarly, when my long-time birding friend, Steve Gosser, messaged me on June 6, 2020 about an unusual bird he had seen at McConnells Mill State Park, I immediately saw another community science opportunity. Steve is one of our region's best birders and bird photographers, so something that made him scratch his head was bound to be significant. In truth, Steve deduced the situation correctly when he asked in his very first message, "…have you ever heard of a hybrid bird between a Scarlet Tanager and a Rose-breasted Grosbeak?"

Steve had followed the raspy song of a tanager and was surprised by what he saw: a bird with a whitish under belly, reddish throat all the way to the bill (which looked a good deal like a tanager's), a black head, and solid black wings. It flew in when he played a Scarlet Tanager's song from his phone. He attached this photo (above).

I immediately replied. While I was unaware of such a hybrid, both species are in the same avian family, Cardinalidae. Steve hadn't gotten recordings of its song, which he described as sounding exactly like that of a Scarlet Tanager, so he set out to relocate the bird for further documentation. I encouraged him to get as many photos as possible and to keep a sharp eye out to determine if it was socially interacting with any other birds.

I knew by then that if it was the hybrid Steve suggested, it would be a unique observation worthy of follow-up documentation and publication in a peer-reviewed scientific journal. I offered to meet Steve at the site and invited the National Aviary's Dr. Steven Latta to join us to take genetic samples for later analysis if we could catch the bird.

We met early the following morning and located the bird by its tanager-like song near where Steve had originally seen it. I quickly set up a mist net on the narrow berm of the road and switched on a recording of a Scarlet Tanager song. The target bird flew in immediately, flying a few feet over my net from one side of the road to the other.

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The Discovery of the Tanager x Grosbeak Hybrid! *Continued*

I carefully placed the caller underneath the net, stepped back several feet, and watched as the bird flew directly into the net on its second pass, landing gently in the fine mesh!

We found a safe place to examine the bird, band it, take measurements, collect a blood sample for genetic analysis, and photo-document its plumage in closer detail before I handed the bird over to its discoverer, Steve Gosser, to be released back into its territory. We all agreed, pending results of the genetic analysis, that Steve's first impression of it being a hybrid Rose-breasted Grosbeak X Scarlet Tanager was very likely correct.

Accordingly, we unofficially named the bird in honor of him: *Scarlet Gosserbeak*.

Subsequent DNA analysis by Dr. David Toews and his lab at Pennsylvania State University confirmed that it was indeed a hybrid between a male Scarlet Tanager and a female Rose-breasted Grosbeak. We had our scientific paper detailing the discovery published in the June 2022 issue of *Ecology and Evolution*, and for several months after its publication, it created quite a stir in the birding community! Steve Gosser was spot on when he commented to me early on, "I had a feeling this was a special bird." ■

Steve Gosser holding a Tanager x Grosbeak Hybrid.

Hatchings in Expert Care Boost Eastern Loggerhead Shrike Population in Canada

by Briana Crane, Senior Aviculturist

Looking at an Eastern Loggerhead Shrike, you might not expect it to deserve the nickname of "butcherbird," but this small passerine is notorious for its hunting tactics. An adept hunter, the shrike can catch large insects, small vertebrates like shrews and mice, and even other songbirds. Characteristically, it skewers its meals on thorns or barbed wire to consume later.

Although they are fierce predators, Loggerhead Shrikes are no less susceptible to the effects of human activity than other birds, and their numbers are in steep decline in the northeastern United States and Canada. In fact, in some states and provinces, the Loggerhead Shrike is designated as a threatened or endangered species. Habitat loss, changing land usage, and use of pesticides is likely to be behind their population losses. In areas where suitable habitat remains, conservation breeding may be the best strategy for helping the species rebound. Recently, the National Aviary joined an effort in collaboration with Wildlife Preservation Canada, to help boost the population of Eastern Loggerhead Shrikes in Ontario, Canada, where only about 24 breeding pairs remain.

Because the goal of this collaborative effort is to reintroduce Eastern Loggerhead Shrikes to Ontario, we created an environment where the adult Eastern Loggerhead Shrikes pair we welcomed in 2022 could thrive and engage in their natural breeding behaviors. The pair reside in a quiet habitat behind the scenes where their interactions with humans are minimal, and their opportunities to court, nest, and feed naturally are plentiful (yes, this means plenty of thorny surfaces for skewering food). We are excited to share that due to this intense preparation, the pair has successfully bred several chicks while in our expert care. Within the next year, this offspring will be introduced to the naturally short grasslands their subspecies typically use for breeding grounds throughout Ontario.

Recently-hatched Eastern Loggerhead Shrike chicks at the National Aviary.

They'll first undergo health exams and blood tests provided by our excellent care team and vet staff, ensuring they will thrive in the wild and hopefully contribute to the increase of their population there.

Conservation programs like this offer hope for Loggerhead Shrikes and other species in the conservation-challenged grassland bird community. ■

One Step Closer to Guam Kingfisher Reintroduction

by Kurt Hundgen, Senior Director of Animal Collections and Conservation Programs

Guam Kingfishers have not lived in the wild for almost 40 years, since the late 1980s when biologists rescued the last of them to protect them from extinction. The invasive Brown Tree Snake was quickly decimating most of Guam's birdlife and, in a last ditch effort to save the species, biologists brought all the remaining Guam Kingfishers and Guam Rails into expert care.

In the decades since that incredible rescue, the Association of Zoos and Aquariums' Species Survival Plan®, a collaborative breeding program, has helped grow both birds' small populations while maintaining their genetic diversity. The Guam Rail has returned to the wild on the small islands of Cocos and Rota near Guam, where the released birds are doing well. The Guam Rail is only the second bird species to make the giant leap from Extinct in the Wild to Critically Endangered on the IUCN's Red List; the first was the iconic California Condor. More than 40 Guam Rails hatched at the National Aviary are part of this historic reintroduction program. Now, the Guam Kingfisher is poised to become the third bird species to earn that distinction.

The National Aviary is one of only four institutions participating in an important pilot study to help ready some of the population for release into the wild. The kingfishers are being outfitted with "backpack" telemetry devices that will help field researchers to monitor the birds' movements and survival after they are released. Additionally, the tracking information will provide insights into how the kingfishers use the available habitat—information that will help guide conservation and land management practices.

The telemetry devices are designed to be small, unobtrusive, and built to last in the wild. To make the release of these trackable birds successful, it is crucial to deploy harnesses that will be sturdy, yet comfortable and lightweight. The National Aviary and our colleagues have been testing different harness models on birds in our care in order to narrow down which is best suited for use with the kingfishers when the time comes for their reintroduction. In a zoo setting, our staff can outfit the kingfishers with the different harness models and monitor their behavior during short trial runs. To be effective, the harnesses have to feel invisible to the birds and allow them to fly, perch, hunt, and preen normally.

The results of this pilot telemetry study bring us one step closer to the day when Guam Kingfishers, like Guam Rails, also thrive in the wild again after a nearly 40-year absence. When that happens, kingfishers hatched at the National Aviary in Pittsburgh will play an important part in achieving that milestone. ■

Two Guam Kingfisher chicks at 6 and 20 days old, respectively.

A Red Siskin in the National Aviary's Grasslands habitat.

Bringing Back the Red Siskin

by Briana Crane, Senior Aviculturist

Today, the Red Siskin is an iconic species more often seen on money and in artwork than in the wild throughout the northern countries of South America, but decades ago their vibrant electric orange-red plumage was an eye-catching yet common sight in forests throughout the region. The species is revered for its coloring and was captured for the illegal cage bird trade and frequently bred with domestic canaries to produce "red factor" canaries. The loss of habitat in the forested foothills near mountains in South America has compounded the problem, pushing Red Siskins to the brink.

The exact population of wild Red Siskins is unknown but is estimated to be somewhere in the low thousands. In 2000, a very small population was located in Guyana, but the species is still struggling and is now listed as an Endangered species by the IUCN.

The National Aviary is one of only five facilities housing Red Siskins, and we have had incredible success encouraging the natural breeding behaviors of the birds. To date, more than 10 have hatched in our breeding center.

Caring for these birds offers us an incredible opportunity to observe their behaviors, document their growth and development, and establish protocols for husbandry that promote their successful breeding. As we work with other partners to refine our husbandry practices, we are taking note of how the chicks develop, compiling images and growth charts that help researchers on the ground in Venezuela quickly age the chicks they find in nests in the wild.

Importantly, the work the National Aviary is doing to help develop protocols and techniques for Red Siskin breeding has led to successes in the heart of Red Siskin territory: in 2022, the Red Siskin Conservation Center in Venezuela welcomed its first hatchlings!

Having Red Siskins in human care serves a number of purposes: these birds, many of which live in our Grasslands habitat, serve as important ambassadors for their species. National Aviary guests can admire them up close and learn how their actions, such as buying certified bird-friendly coffee and chocolate products, can preserve vital habitat for Red Siskins. The population in human care is also a type of insurance against extinction, preserving the species' genetic diversity and contributing the health of the whole population. ■

Field Guide to the Birds of the Dominican Republic and Haiti

by Steven Latta, Ph.D. Director, Conservation and Field Research

Dr Steven Latta's comprehensive field guide, available for purchase in the National Aviary's gift shop.

The availability of comprehensive, high-quality field guides to the birds of a region or a country have been repeatedly shown to have immense value in generating public interest in birds, developing a national conservation ethic, and promoting the protection of birds and their habitats.

I have authored a number of books on the birds of the island of Hispaniola, and recently published the new ***Field Guide to the Birds of the Dominican Republic and Haiti***. Collaborating with two co-authors from the Vermont Center for Ecostudies, this field guide from Princeton University Press is a broadly updated and reformatted version of our 2006 book, *Birds of the Dominican Republic and Haiti*. Species descriptions now appear facing their illustration along with descriptions of key field marks, similar species, voice, habitats, status, and local names used in both the Dominican Republic and Haiti.

Based on years of research, monitoring, and conservation, and with input from a wide network of Dominican and Haitian birdwatchers, photographers, and conservation biologists, the book provides a complete guide for identifying more than 320 species. New illustrations by the renowned artist Dana Gardner and occurrence maps by Kent McFarland contribute to a practical book that is also beautiful.

The guide underscores the importance of promoting the conservation of migratory and resident birds and building support for environmental measures. Myself and my colleagues are fundraising to support translating the new field guide into Spanish, so that the joys and benefits of birdwatching can be better shared across the region. ■

Publication Calls for More Diversity and Equity in Neotropical Ornithology

by Steven Latta, Ph.D. Director, Conservation and Field Research

In February 2023, I joined more than 120 ornithologists and conservationists based in Latin America and the Caribbean in publishing a major article addressing the need for more diversity and equity in the ornithological community working in the Neotropics. Titled "**Neotropical ornithology: Reckoning with historical assumptions, removing systemic barriers, and reimagining the future.**" This article makes the case for addressing unjust, systemic barriers affecting colleagues from the region. These barriers are also detrimental to advances in ornithological scholarship and bird conservation generally.

Because of my decades of work in Latin America and the Caribbean, I was invited to co-author this landmark paper, which appeared in the journal *Ornithological Applications* published by the American Ornithological Society (AOS). The lead author on the paper, Dr. Leticia Soares, is a Research Associate of the National Aviary and frequently collaborates with me.

In announcing its publication, the AOS wrote that, "The paper begins by reviewing the strengths and opportunities in Neotropical ornithology today and delineating some of the problems that arise from evaluating Neotropical ornithology through a northern lens. To enable significant advances in this field, we argue that systemic barriers holding back ornithologists based in the Neotropics must be identified and addressed. We describe tangible actions that can be taken to create new models of engagement, and we invite colleagues globally to join these efforts to promote meaningful participation by regional ornithologists and other interested parties during all stages of Neotropical research."

The AOS went on to state, "The AOS is proud to publish these articles and grateful to the authors for bringing these illuminating recommendations to us to share in our journals. We are committed to improving our support for ornithologists across different geographies, backgrounds, and identities, and these recommendations help inform what actions will yield meaningful change in support of Latin American ornithologists." ■

Our Wetlands renovation further increased our sustainability and energy-efficiency measures.

The National Aviary is Getting Greener

by Jenny Walsh, Manager of Behavioral Husbandry and Training

As a conservation organization, we want to "walk the walk" when it comes to sustainability. That is why the National Aviary's Green Team is engaged in projects large and small to "green" our own practices and to encourage our guests to do the same.

Last fall, we celebrated the reopening of the Wetlands—our largest and second-oldest habitat—following a major renovation. More than 20,000 square-feet of bird-friendly glass was installed by Vitro Architectural Glass, replacing the habitat's original glass from 1969. The glass uses an etched pattern that protects birds inside the habitat and in the surrounding park from window strikes. This specialized glass also maximizes UV transmittance, which is excellent for the well-being of the birds and the health of the natural plant life inside the habitat.

The Wetlands update also included new energy efficient mechanical and water filtration systems and fans. This renovation demonstrates that sustainability can enhance the guest experience: visitors to the Wetlands have commented on how bright and beautiful the habitat looks with the new glass. Most important of all, the birds are thriving too!

In 2023, we utilized a new technological tool to help our guests learn about the impact of food waste: the AI-powered *TrashBot!* The TrashBot is a CleanRobotics innovation that sorts the recycling waste stream to divert recyclable materials from landfills. This partnership was supported by a generous grant from the Posner Foundation and was part of our **Food Waste Reduction Challenge**.

Our goals with the *Food Waste Reduction Challenge* were to highlight how food waste is a major source of greenhouse gases, a disruptor of ecosystems and a pollutant of waterways, as well as how composting and the reduction of food waste at home could benefit the environment. We began onsite composting through a Commercial Composting Bin with company Ag Recycle! Additionally we launched a pledge encouraging visitors, staff, and volunteers to reduce food waste onsite and at home. Our overall aim was to reduce food waste onsite by at least 20 percent, which we surpassed!

The Green Team's work is ongoing and will never be finished, but every action we take—from swapping in energy efficient lightbulbs to curbing our reliance on single-use items—has had an impact on the environment around us. Taking such actions, both large and small, is important for protecting birds and their habitats everywhere, not just at the National Aviary. ■

Planning for the Future of the Rota White-eye

by Brianna Crane, Senior Aviculturist

The Rota White-eye is a small olive-green vocal bird that is found only on one single island in the Northern Marianas Islands. This species, also known as the Nosa Luta in the native Chamoru language, can be found only in the high elevation (above 150m) forest in the Sabana Region on the island of Rota. An area covering about five square miles is home to the entire population totaling about 2,000 individuals.

Due to the small easily threatened population, the Nosa Luta is classified as Critically Endangered by the IUCN. A natural disaster such as the regularly occurring typhoons or the introduction of an invasive species could quickly drive this species to extinction. This is a very real concern considering the island of Guam—which is a mere 55 miles away—has lost a staggering number of species to the introduced Brown Tree Snake.

In February and March of 2023, I traveled to the Northern Marianas Islands, specifically to the island of Rota, to work with the Mariana Avifauna Conservation (also known as MAC) Program to help protect this species. This project focuses on a multifactor approach to conservation; they work to translocate birds to snake-free islands while encouraging a thriving population of many species in human care.

The Nosa Luta has only been brought into human care once, several decades ago. The main focus of this trip was to develop protocols for the high quality of care of the Nosa Luta to be used in possible future translocation projects. Moving birds to safety to avoid the threat of extinction from natural disasters and invasive species is a critical strategy, but the process is not simple. Every move is strategic and well-planned. Understanding how to effectively care for birds before and during translocation is key.

Each morning our team departed at 5:30 am for the 40-minute drive up the Sabana to get to the where the Nosa can be found. After setting up mist nets just before sunrise, it was then a waiting game for the birds to fly into the nets' path. Mist nets are soft nylon nets that are stretched across openings in the forest, they have saggy pockets that allow the bird to be carefully slowed down and caught without injury.

Once the Nosa Luta were caught, they were given full health exams, were banded with unique color combinations that help researchers keep track of individual birds, and were transported to the animal care room. There, each bird had its own enclosure where we were able to take daily weights and carefully monitor their food consumption to ensure that they were all doing well in our care. After several days, provided they were eating and maintaining their body weight, the birds were then released back to the Sabana. While the birds in this instance were not translocated to another island, they provided invaluable insight into the protocols necessary to keep Rota White-eyes healthy during their brief time in human care for future translocation efforts. After returning to Pittsburgh, I heard from one of the Department of Fish and Wildlife officers that lives on Rota that they saw several of our banded birds in the weeks after their release, showing that the procedures that we developed are able to support the birds through the process and beyond.

As an outsider, it is extremely important to respect the land and the island's indigenous population who have cared for it. While we come equipped with the training to help save species, the communities we visit have deep connections and knowledge that can help foster a spirit of conservation and yield solutions. Most land on Rota is privately owned, and connections within the community enabled us to work in our study area. Our field site was privately owned land and it was only through the kindness of the owners that we were able to do this work. The owner and his family were able to join us for the release of the birds that we had caught, and they were very grateful to be part of this important work.

Brianna Crane holding a Rota White-eye in the Northern Mariana Islands.

Part of the MAC Program's work is to empower locals to learn more about the birdlife around them and develop their interests and skills to benefit their birds. During the MAC project we hosted several field trips for local high school students, many of whom did not know that the Nosa Luta existed. Additionally, one weekend, local students interned at the field site and were able to gain hands-on experience and some are now getting involved in other conservation projects.

Projects like the MAC Program are crucial, not only for the direct hands on conservation of a species but for the education and empowerment of the people most invested in these animals and the lands they are found on. ■