SOUTHERN Wings

Project Proposals 2018-2019

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Protection of Wintering and Stop-Over sites in Guatemala

Partners: Fundacion para el EcoDesarollo y La Conservacion (FUNDAECO), American Bird Conservancy (ABC)

States that have participated to date: Missouri, Tennessee, Arkansas, Iowa, Texas

Overview: The coastal Caribbean region of Guatemala lies between Belize and Honduras in the province of Izabal. This region includes a number of unique and isolated massifs rising from sea level up to 1,200 meters, low-land rainforest, large mangrove and natural beach systems and a Ramsar Wetland. The region is bathed in moisture-laden Caribbean trade winds and supports a unique transitional ecosystem from the shoreline to wet rainforests and pine-oak forests on south-facing rain-shadow slopes. The unique combination of topographical and climatic conditions creates important stop over and wintering habitat for at least 153 species of neotropical migrants. ABC considers the región a high priority BirdScape called the Conservation Coast. ABC began implementing its BirdScape Initiative to scale up habitat protection and management in key landscapes for migratory birds.

FUNDAECO, ABC's Guatemalan partner, is ensuring the conservation of these sites by purchasing and managing core habitat in areas identified for national protection by the Guatemalan government, who themselves lack the funds to purchase or manage land. Together with FUNDAECO and other partners ABC is looking to support bird friendly agroforestry programs that improve habitat conditions for migratory birds and replace cattle pastures.

Threats: Cattle ranching, African oil palm, logging, and slash-and-burn and industrial agriculture in the area continue to threaten forest resources.

Birds: At least 153 neotropical migrants have been identified in the Izabal region of Guatemala, which includes Wood Thrush, Kentucky Warbler, Worm-eating Warbler, Hooded Warbler, Black-throated Green Warbler and Painted Bunting. ABC-funded research identified the region's caribbean mountain tops as important spring stopover sites for the Cerulean Warbler—a priority Watchlist bird. Other Watchlist species in the area include Golden-winged Warbler, Canada Warbler and Olive-sided Flycatchers. The coastline of Punta de Manabique has been used by Buff-breasted Sandpiper, Sanderling, Stilt Sandpiper, Western Sandpiper, Red Knot and Wilson's Plover during the winter migration. Other migrants in the region include Swainson's Hawk, Blue-winged Warbler, Tennessee Warbler, Magnolia Warbler, Louisiana Waterthrush, Baltimore Oriole, and Indigo Bunting.

Overall project goal: Secure the protection of core migratory bird habitat through land acquisition, management and monitoring in the Izabal Region of Guatemala. Improve and scale up the management of lands in buffer zones of protected areas in ways that are beneficial for birds.

Previous Southern Wings Successes: In 2012, during Phase I of the project, FUNDAECO acquired two properties to create the 5,682-acre Sierra Caral Amphibian Conservation Reserve in the Sierra Caral

Mountains of eastern Guatemala. On May 13, 2014, the Guatemala Government established Sierra Caral as a National Protected Area. Sierra Caral was the first protected area designated by congress in Guatemala in nine years. In Phase II of this project (2013) Southern Wings contributed to the purchase of 1,668 acres to create Punta Manabique, protecting key mangroves and reducing access to some of the most critical habitats on the Manabique peninsula that jut out into the Bay of Honduras. Southern Wings has also provided some of the funding for the management of these properties including park guard salary support. Phase III of the project expanded the Cerro San Gil Reserve through the purchase of the Finca Alejandra property (3,202 acres). Southern Wings provided funding for this acquisition. FUNDAECO has successfully taken over management of this property for conservation, and have patrols, community engagement, camera traps, and agroforestry activities underway. In Phase IV Southern Wings supported the acquisition of the 1,672-acre Tapon Creek Nature Reserve, which was completed September 2015. The Reserve provides for the conservation and protection of a vital habitat within the Río Sarstún Multiple Use Protected Area, complementing ongoing efforts in the Laguna Grande Nature Reserve. This Reserve supports the preservation and sustainable management of an important part of the single largest remnant of lowland tropical rainforest in Caribbean Guatemala. The establishment of this important reserve allows for increased surveillance and improved control of illegal activities in the area to ensure the conservation of habitat for migratory birds. Phase V included the purchase of a property called Finca Ana Perdoma, which will serve to create a core conservation area in the Sierra Santa Cruz Protected Area. This 556-acre property of humid tropical forest is a critical spring stopover site for Cerulean Warbler, and is located in the center of one of the most important Golden-winged Warbler focal areas in Guatemala. Also important to note is that ownership of this property will allow FUNDAECO to block access to an illegally built road, which has encouraged illegal logging, illegal hunting and agricultural expansion into pristine forests. Patrolling of this road has led to the confiscation of illegally harvested wood. Experience from other places shows that such patrolling activities are effective in deterring illegal harvesting. FUNDAECO's long-term plan is to buy an adjacent private property that abuts a government owned parcel of land to create a 3,350-acre contiguous block of pristine protected forest.

Now in Phase VI, we are expanding from formal protected areas to acquire lands for demonstrating agroforestry production. These smaller reserves called BioCenters are properties that will act as training grounds for communities to learn about production methods for products that can be produced in a way that is more environmentally sound. These areas will have test pilot production areas where adjustments to production management can be studied, providing living classrooms to experiment in, improve methods and educate local producers. Additionally, the products resulting will be sold on local or international markets, and the return from these sales will go into sustaining the BioCenters and also supporting the sustainability of the reserves that ABC, FUNDAECO, Southern Wings and others have helped to create. Southern Wings funding has helped to make payments on the Guaytan BioCenter and to begin its management of agroforestry systems including black pepper, cardamom, cinnamon, xate, cacao and rubber. With matching funds ABC supported a GIS study that helped to identify privately owned lands appropriate for scaling up agroforestry production. Fifteen properties representing about 1000 ha (2,400 acres) have been identified as having the potential for

agroforestry expansion. The next step will be engaging the landowners.

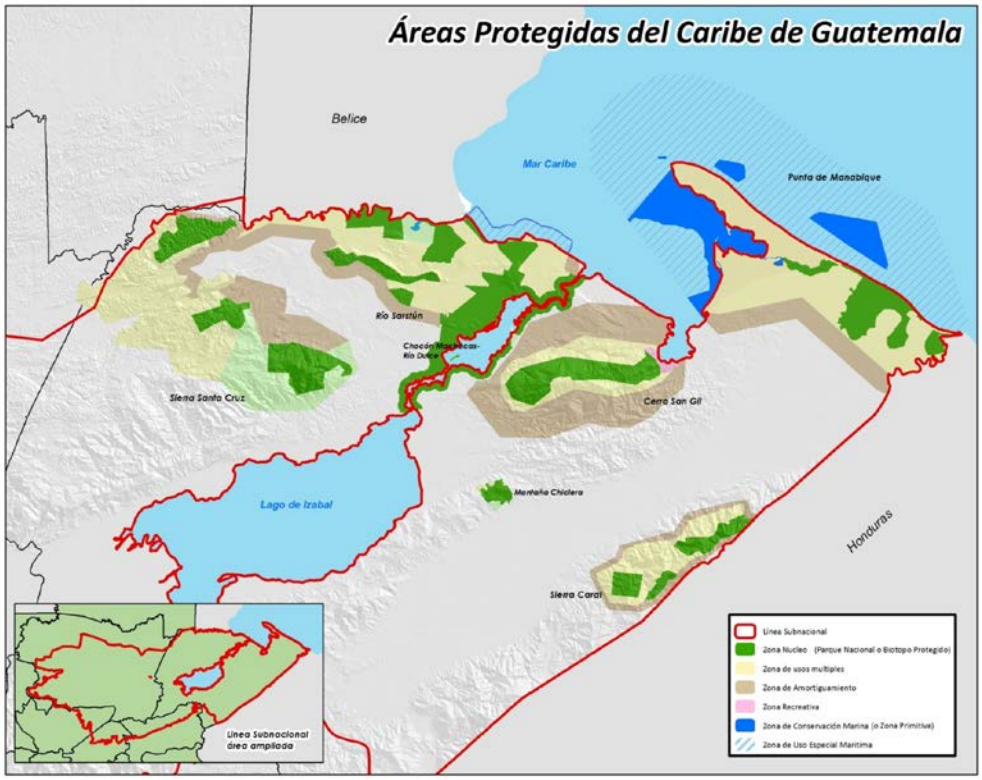
In total ABC and FUNDAECO has secured over 8,300 acres of land for conservation through the creation of multiple new reserves and the expansion of one reserve. This work has helped to secure the protection of the core areas of the most important remaining wildlife habitat in Caribbean Guatemala.

New Activities: To advance Phase VI, funding is needed to complete payments on the Guaytan BioCenter. In addition to Guaytan, FUNDAECO maintains five other BioCenters and there is a need for native plant material to put these lands into agroforestry production. Secondly, now that 15 properties have been identified that have potential for agroforestry we need to meet with these landowners and encourage their participation in the program. Our hope is to develop cooperative management agreements with these landowners to shift production to agroforestry products that are more friendly to birds. To expand our network of bird friendly producers we need an outreach coordinator and need to establish training programs for landowners.

Monitoring of reserves is also necessary, both for bird surveys and patrols to prevent incursions. In the Conservation Coast BirdScape ABC would like to expand the monitoring program to include MOTUS towers to add to this hemispheric, coordinated monitoring program. FUNDAECO's reserves are prime locations for these towers and they have an established and trained avian monitoring team that is available to set up and monitor tower use. Similarly, reserve protection through guard support is needed. Also, a drone would provide a great tool to help locate incursions in difficult to access areas as well as provide photographs of areas over time to monitor the restoration in degraded areas.

Budget (matching funds: Guard salaries, market studies, monitoring staff/equipment, REDD+ funding and travel, acquisition match.) Total Request is $213,000. Contact Deb Hahn for more detailed budget information.

Figure 1. Major regional protected areas with Sierra Santa Cruz



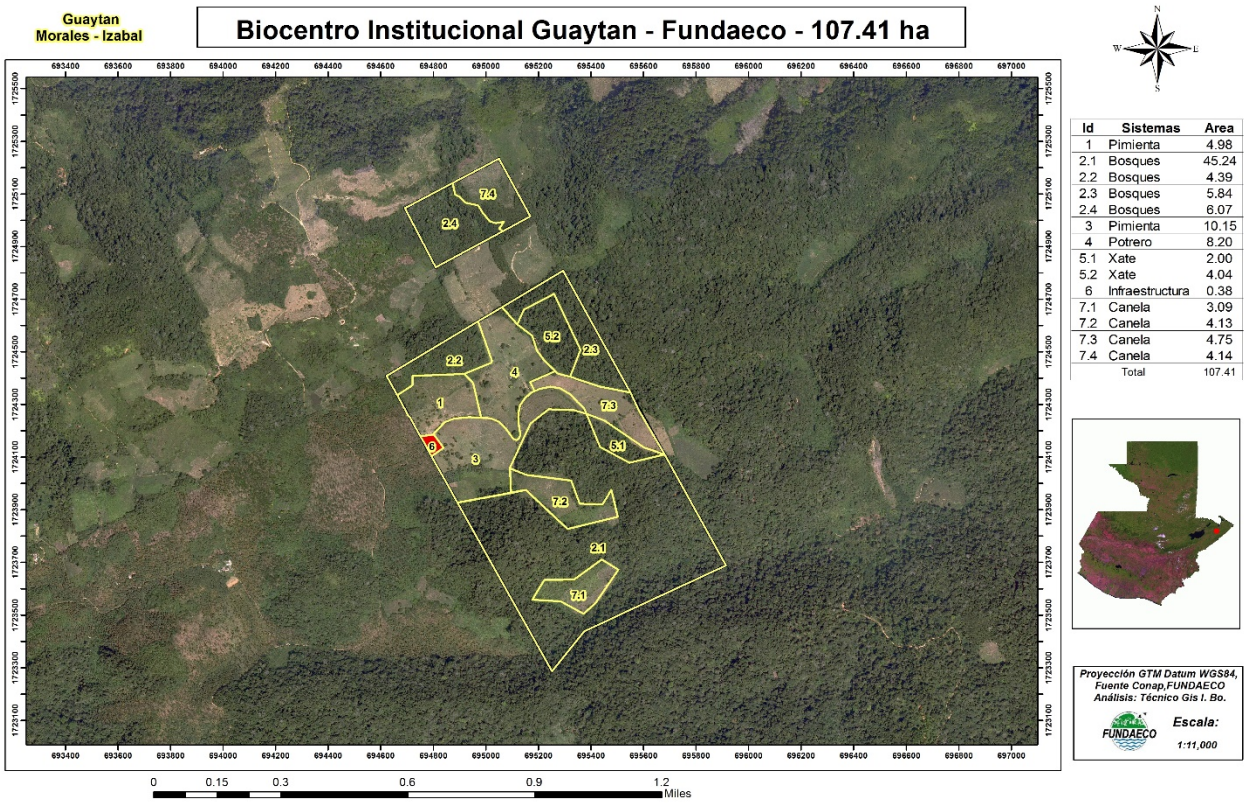


Figure 2. Map of Guaytan Property and distribution of agroforestry production

Protection of Migratory Bird Habitat of Desert Grasslands in the El Tokio Grassland Priority Conservation Area (in the Saltillo BirdScape)

Partners: Pronatura Noreste A.C., Universidad Autonomo de Nuevo Leon, National Forestry Commission (CONAFOR), American Bird Conservancy (ABC)

States that have participated to date: Oklahoma, South Dakota, Nebraska, Iowa, Texas, Kansas

Overview: The desert grasslands, located south of the town of Saltillo in northern Mexico, are fairly high elevation (6,000 to 7,000 feet) grasslands and are important to numerous wintering migratory birds as well as threatened resident bird species and a threatened mammal, the Mexican prairie dog. ProNatura Noreste's (PNE) Chihuahuan Desert Grasslands program goals are to ensure the protection and management of 2,400,000 acres of grassland habitat. ABC is working in partnership with PNE for the improved protection, management, and restoration of grasslands within the El Tokio Grassland Priority Conservation Area (GPCA). Within this GPCA the goal is to ensure habitat sufficient to support 30% of the global Long-billed Curlew population, 12% of the Mountain Plover global population and increase the population of the globally endangered Worthen's Sparrow by 30 individuals by 2020. In 2017, ABC's Migratory Bird Program launched our BirdScape Initiative. The Saltillo BirdScape includes the region of El Tokio.

Within this area, PNE and ABC have supported conservation efforts on more than 150,000 acres of habitat through the creation of private reserves, ejido (community-based) reserves and conservation agreements that restrict cattle ranching and agriculture practices; and through the installation of erosion control measures and ranching best management practices. The ejidos involved include: La Hediondilla, Matehuapil, Tanque Nuevo, Puerto Mexico, El Cercado, La India, Los Arrieros, and San Jose de los Alamitos amongst others. PNE and ABC also directly manage two properties, Cuatro Gorriones y Loma del Gorrion, which are now being restored. Each of these properties has unique needs and present different opportunities for conservation for migratory grassland birds. Furthermore, additional ejidos in key areas of both Nuevo Leon and San Luis Potosi states are being targeted for future work. This includes ejido Las Esperanzas.

Funding is needed to expand conservation actions to new properties in the region and to conduct habitat improvement activities on properties with whom PNE already has conservation agreements. Specific activities include creation of management plans and grazing recommendations, installation of erosion control systems to help restore grasslands, restoration and creation of water sources, and installation of fencing for livestock control.

Threats: Overgrazing by both cattle and goats on these naturally arid lands has exacerbated drought conditions resulting in poor grassland conditions and loss of the vegetative cover upon which the native and migrant bird species depend. There has also been more rapid conversion of the land to agriculture across the Chihuahuan Desert Grasslands. In El Tokio, potato production is a product that threatens the

conversion of grasslands to agriculture. The expansion of the city of Saltillo (population of approximately 700,000) is also beginning to drive land use change away from grassland habitat, threatening grassland bird populations.

Birds: More than 250 bird species are found in El Tokio. Here, high concentrations of grassland wintering birds occur, including significant numbers of Long-billed Curlews (LBCU) (up to 2,000 individuals have been seen in a single flock). This region is also one of the most important wintering areas for Mountain Plovers and Sprague's Pipit. Other Species of Conservation Concern include: Loggerhead Shrike, Lark Bunting, Brewer's and Baird's Sparrow and Ferruginous Hawk. Also wintering in the area are Grasshopper, Lark, and Vesper sparrows. Passage migrants include the Upland Sandpiper and Swainson's Hawk. The endemic Worthen's Sparrow is IUCN Endangered and considered and Alliance for Zero Extinction (AZE) species, only being found in this region.

Project goals: The goals for this project include grassland restoration through improved grassland management and erosion control on over 370,000 acres. An 80 Km corridor that would connect approximately 15 ejidos and ensure that each has at least a portion of their ejido dedicated to conservation via ejido reserves has been proposed to combat poor land use practices. With ABC's BirdScape approach we are looking to scale up implementation of sustainable land use management for grassland birds throughout the 2.5 million-acre region. The program also has a goal of evaluating conservation actions on bird populations including migratory birds as well as Worthen's Sparrow.

Previous Southern Wings Successes: PNE has conducted restoration on nearly a dozen properties in El Tokio. This includes the protection and management of two PNE owned reserves: Loma del Gorrion and Cuatro Gorriones. With Southern Wings funding erosion control devices have been installed, reforestation with local junipers has occurred, and prescribed fires have been conducted leading to extremely successful restoration of habitat. Southern Wings has also been key in maintaining a guard for these two properties which has been crucial to patrolling and performing repairs to the fences that keep goats out from neighboring properties.

With Southern Wings funding, PNE has also worked with the following ejidos; La Hediondilla, Tanque Nuevo, Matehuapil, San Jose de los Alamitos, Puerto Mexico, and Las Carboneras. ABC has provided match funding for working in other ejidos like La India. PNE works to develop conservation agreements on these properties and implement management activities that help protect and restore portions of these ejidos. A key success at La Hediondilla was the protection of a pond where thousands of Long-billed Curlews congregate each year. A water management plan which manages the use of water from this pond was implemented, and the pond itself was fenced off for protection. Goat management recommendations for the San Jose de los Alamitos ejido were developed and a 1 ha pond was dredged here as well. Monitoring has been conducted across multiple ejidos to better understand the distribution of migratory birds and their presence and abundance on different properties.Worthen's Sparrows were monitored in 2017. This monitoring found 33 Worthen's Sparrow nests and 256 individuals were observed, however, only 8 nests were successful. Some In 2016, the monitoring program did not focus on Worthen's Sparrow but only 62 individuals were observed. Overall results from migratory bird monitoring in 2016-2017 recorded a total of 2,418 individuals. Across seven properties surveyed, Horned Lark was the

most abundant species (1,469), while other important species were found in the following numbers; Sprague's Pipit (28), Mountain Plover (17), Long-billed Curlew (33), and Savannah Sparrow (62).

New Project Activities:

Management is urgently needed at additional ejidos including Las Esperanzas. Now that San Luis Potosi has become safe for conservation work, there is a need to establish ejido reserves, or conservation agreements with private landowners signed to protect against expected urban sprawl. This area has a particularly high presence of Mountain Plover and Worthen's Sparrow.

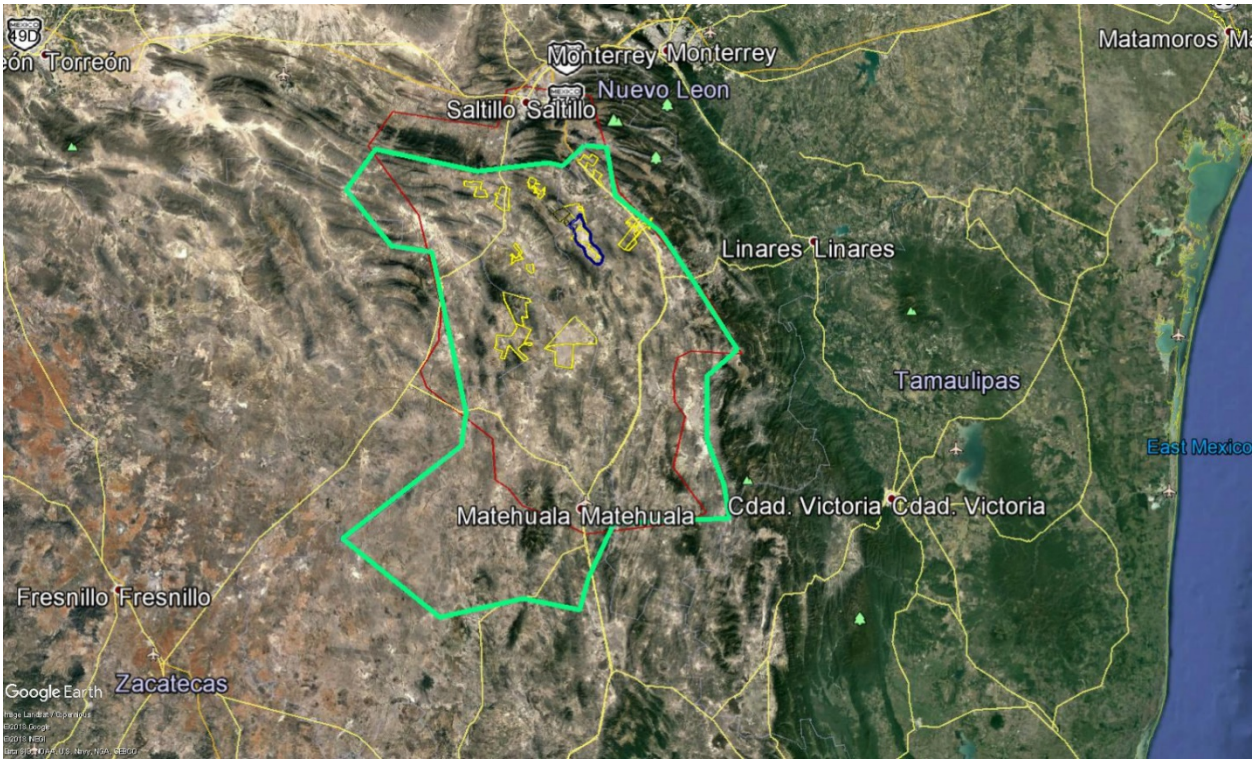
Now that the La India has been designated a state protected area, the reserve needs a management plan. Additionally, we will continue to develop the campaign to acquire the reserve over the next 5 years.

There continues to be monitoring needs. However, capacity to conduct monitoring across all of the properties where conservation is underway is posing a great challenge. More trained monitoring personnel are needed.

Finally, CONANP (Natural Protected Area agency) does not currently have the capacity or infrastructure to properly manage the Llano de Soledad Protected Area which is made up of multiple ejido reserves with whom PNE has conservation agreements. Thus, there is a need to ensure regular, onsite supervision of these areas to deter land speculation. As such we seek support for a Protected Area Administrator.

Budget: Total Request is $76,250. Contact Deb Hahn for more detailed budget information.

Matching Funds – American Bird Conservancy and Pronatura Noreste have secured multiple grants for work in the Chihuahuan Grasslands work including funding from NMBCA, the Rio Grande Joint Venture, and CONAFOR. Other organizations like the University of Nuevo Leon are providing in-kind investment in to this project including providing support for monitoring. Ejidos are contributing in-kind match for installation of infrastructure.



Map – Saltillo BirdScape including location of BirdScape Boundary (green), El Tokio GPCA (red) and location of properties PNE is involved with (yellow), and Llano de Soledad Protected Area (blue)

A Sustainable Grazing Network to Protect and Restore Grasslands on Private and Communal Lands in Mexico's Chihuahuan Desert

Partners:

States that have participated to date: Arizona, Colorado, Montana, New Mexico

States with strong biological connections: Seven to 28 species of greatest conservation need in each WAFWA state have a biological connection to the species in the Chihuahuan Desert.

Overview: Grassland birds that overwinter in the Chihuahuan Desert are declining twice as fast as other North American grassland birds, having lost 70% of their global populations since 1970. The Chihuahuan Desert, more than two-thirds of which lies in Mexico, is a continentally-important wintering area for grassland birds. It supports 90% of migratory species breeding in the western Great Plains, including 27 species recognized as high priorities for conservation, such as Baird's Sparrow and Chestnut-collared Longspur, which winter nowhere else. These birds are sentinels for unsustainable practices that are degrading grasslands and aquifers across the continent, especially in Mexico. Conservation and restoration of winter habitat in northern Mexico is needed to stabilize and recover grassland bird populations and prevent the need for additional listings under the Endangered Species Act. Our collaborative, non-regulatory approach to conserving grassland birds addresses the root cause of habitat loss in northern Mexico – desertification due to unsustainable grazing practices. Using scientific guidance from our peer-reviewed research, we collaborate with landowners to foster planned grazing and grassland restoration to protect and improve habitat for grassland birds while at the same time making each ranch more productive, resilient and resistant to land use change. Less farming conserves aquifers that are being depleted, jeopardizing pastoral economies, rural communities, a shared cultural heritage and way of life spanning generations and nations.

Birds: The Valles Centrales and Janos regions support a diverse community of grassland birds. Species found here include Chestnut-collared Longspur, Vesper Sparrow, Brewer's Sparrow, Savannah Sparrow, Horned Lark, Grasshopper Sparrow, Lark Bunting, Chipping Sparrow, Mourning Dove, Clay-colored Sparrow, Baird's Sparrow, Eastern Meadowlark, Scaled Quail, Cassin's Sparrow, Sprague's Pipit, Loggerhead Shrike, Say's Phoebe, Short-eared Owl, Northern Harrier, Chihuahuan Raven, Western Meadowlark, Red-tailed Hawk, American Kestrel, Mountain Bluebird, Burrowing Owl, Long-billed curlew, Aplomado Falcon, White-tailed Kite, Ferruginous Hawk, Prairie Falcon and Golden Eagle.

Threats: Intensive cropland agriculture is rapidly expanding in Janos and the Valles Centrales, threatening to eliminate remaining native valley-bottom grasslands by 2025. Between 2006 and 2011, croplands in Valles Centrales expanded by 34%, destroying 170,000 acres of grasslands and displacing 355,000 grassland birds, including 133,000 wintering Chestnut-collared Longspurs. Land use change has continued since then, and croplands now occupy more than 63% of former low-slope grasslands in the Valles Centrales. Long-term unsustainable grazing along with increased aridity/drought have reduced rangeland productivity and increased financial strain on ranchers, driving many to sell their land for farming. This phenomenon is also happening in Janos and across the desert grasslands of northern Mexico.

Success to Date: Bird Conservancy of the Rockies and its partners have conducted coordinated bird monitoring across the region since 2007 and have forged working relationships with many landowners that have provided opportunities for collaborative conservation of grassland birds. Together, we are creating a Sustainable Grazing Network focused on engaging ranchers in grasslands conservation and management, working collaboratively to support their transition to more efficient and sustainable production practices, and enhancing habitat for birds. Since 2013, we have enrolled 15 ranches representing 250,000 acres into this Network and have identified another 300,000 acres of ranchlands with a high potential for enrollment. With each landowner we develop an integrated wildlifeand grazing management plan and provide technical and cost-share assistance for implementing the plan. To date we have improved over 50,000 acres of grasslands through these actions, and we are monitoring the response of birds and vegetation to assess progress and inform our next steps. This collaborative, win-win and science-based approach now has significant proof-of-concept and is ready to be scaled up.

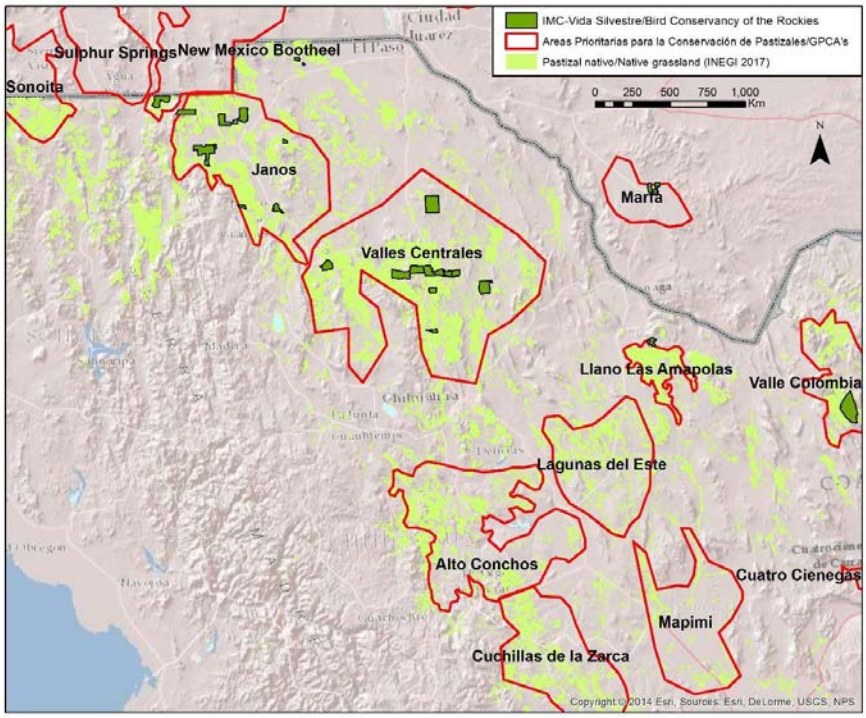
Goals:

1. Enroll an additional 50,000 acres in the Chihuahuan Desert into the Sustainable Grazing Network (SGN) in 2018, and at least 500,000 acres by 2020.
2. Restore, enhance or improve at least an additional 30,000 acres of desert grasslands in 2018, and at least 150,000 acres by 2020.
3. Increase abundance and survival of priority grassland bird species wintering on SGN lands, including Sprague's Pipit, Baird's Sparrow and Chestnut-collared Longspur, among others.
4. Increase the Aplomado Falcon population to 10 breeding pairs, and improve habitat for endangered Pronghorn and other resident grassland species.

Current Capacity and Needs: Keeping ranchers on the land by helping them improve their management, profitability and carrying capacity for birds and other wildlife is the most immediate and cost-effective way to slow and begin to reverse the decline in grassland birds. Bird Conservancy collaborates closely with IMC-Vida Silvestre, A.C., a Chihuahua-based non-profit with expertise in landowner outreach, grazing management and grassland birds. Thanks to support from our many partners, we currently support three full-time private lands biologists at IMC-Vida Silvestre who operate all aspects of the SGN from outreach and landowner relations, to development and implementation of management plans, to bird monitoring and evaluation. Funding is needed to help acquire infrastructure necessary to implement grazing plans and improve grass conditions (i.e., fencing, water lines and storage, etc.), as well as pay for diesel and machinery rental for shrub removal ($230/acre) and sub-soil aeration ($130/acre). Funding is also needed to construct water storage tank escape ladders ($60/each) and Aplomado Falcon nest platforms ($300/each), and support training and outreach events. Support from Southern Wings can help make a real difference in how quickly we expand the SGN and how many acres we can improve.

Matching Funds: This project leverages significant additional investment from Mexican landowners, CONANP, the Carlos Slim Foundation-WWF, Bobolink Foundation, Dixon Water Foundation, Canadian Wildlife Service, Neotropical Migratory Bird Conservation Act (USFWS), Bureau of Land Management, the U.S. Forest Service International Program, U.S. states including Montana, Colorado, New Mexico and Arizona, and the City of Fort Collins, Colorado. Every dollar invested leverages at least one additional dollar from other sources.

Figure 1: The Sustainable Grazing Network (SGN) in 2018



Protecting stopover and wintering habitat for key priority species of shorebirds and waterbirds at Laguna Madre, Mexico

Partner: Pronatura Noreste, National Commission of Protected Areas (CONANP), National Fish and Wildlife Foundation, Rio Grande Joint Venture

States that have participated to date: Texas

Overview: Laguna Madre, in northeastern Mexico in the state of Tamaulipas, is just south of the border with Texas. The lagoon is formed by a barrier island, enclosing a lagoon more than 100 miles long and as much as 15 miles wide, although it is on average much narrower. The lagoon is often hyper-saline, with some bays at times reaching salinity levels that are 150% of sea water. There are many bays, inlets and sand islands. Large numbers of shorebirds and ducks winter in the lagoon and on its shores and the barrier island. These include hundreds of thousands of Redheads, more than two-thirds of the total population. The lagoon and its islands also serve as important breeding, stopover and wintering areas for priority bird species including Piping Plover, American Oystercatcher, Red Knot, Long-billed Curlew, Reddish Egret, Snowy and Wilson's plovers, Gull-billed Tern, and Black Skimmer. Conservation action at Laguna Madre has been identified as a priority in the Rio Grande Joint Venture implementation plan, and supports priorities identified in the *United States Shorebird Conservation Plan* (Brown et al, 2001) and *The North American Waterbird Conservation Plan, Version 1* (Kushlan et al, 2002).

Pronatura Noreste (PNE) has maintained a presence in the region conducting different types of projects for the last eighteen years. Working closely with the National Commission of Protected Areas (CONANP), they continue to work on projects involving habitat restoration, biological monitoring, community engagement and land protection. American Bird Conservancy (ABC) and PNE have been engaged in protection of habitat through the creation of conservation agreements on private lands, fencing and restoring wetland and riparian areas, mangrove restoration, feral species removal from islands, and focal species monitoring. PNE has regional watershed projects to restore streams and fresh water ponds from the Texas border to Laguna San Andres south of Laguna Madre. PNE is also interested in developing best management practices for ranching in Tamaulipas, a different ecosystem from the Chihuahuan desert grasslands where they also work on ranching practices.

Threats: Climate change and drought conditions significantly impact Laguna Madre and its wetlands by reducing available habitat. This is exacerbated by overuse and poor management of water resources for agriculture and ranching activities. The lack of freshwater entering the lagoon and fresh water ponds around the lagoon are critical threats to the hydrology of the lagoon and its bird habitat. The loss of mangroves has led to increased erosion of barrier islands and is decreasing available resting and roosting habitat for migratory water birds.

Birds: The focal species identified for Laguna Madre by PNE and local government authorities include: Piping Plover, Reddish Egret, Red Knot, Long-billed Curlew, Redhead and American Oystercatcher. Secondary focal species include: Wilson's Plover, Snowy Plover, Sanderling, Least Tern, Black Skimmer, Western Sandpiper, and Semipalmated Sandpiper. Terrestrial birds of importance include Swainson's Hawk, Peregrine Falcon, Bell's Vireo, Painted Bunting, and MacGillivary's Warbler.

Project goals – A multi-faceted project is proposed to identify, restore and protect key wintering, stopover and breeding areas for focal species through habitat restoration and protection of the 240,000 ha Laguna Madre. This includes the restoration of fresh water wetlands, reforestation of mangroves to stabilize islands and provide habitat, support for community monitoring and island clean-up programs, fencing of key areas to prevent predators from disturbing bird areas, and improved canalization of fresh water from the Arroyo el Tigre to support year round inflow of fresh water to wetlands and water sources on the edge of the Lagoon.

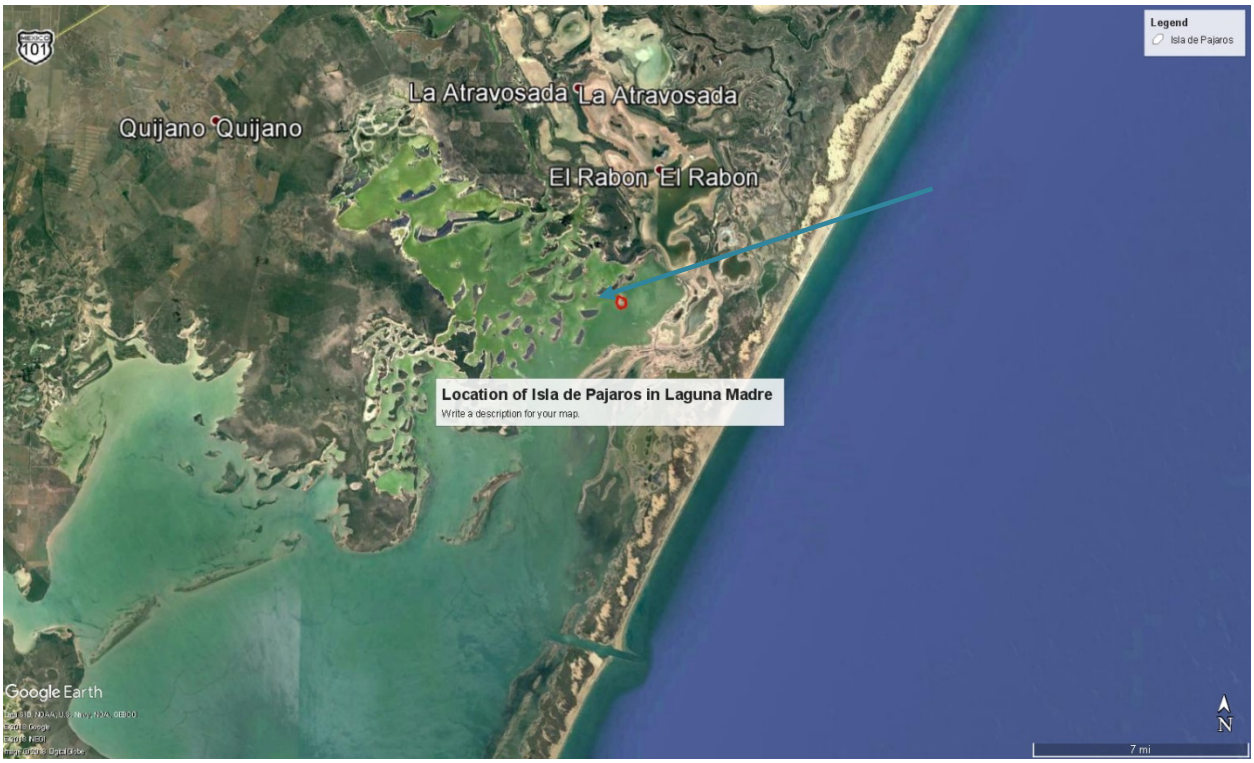
Previous Southern Wings Successes: In 2013 and 2017, Southern Wings invested in the Laguna Madre project, funding mangrove reforestation that resulted in the planting of nearly 21,000 mangrove saplings over 75.6 acres. Prior to this funding, with funding from NFWF, ABC and PNE created two new conservation agreements on private lands totaling over 10,000 acres, began a program to control feral animals on islands, improved fencing to reduce cattle and other livestock from entering sensitive areas of Laguna Madre, conducted focal species monitoring, began mangrove restoration, and protected key nesting and wintering sites. The effort to remove feral dogs and cats from the islands, and educate local communities and fisherman about the problem, has led to these species being almost completely eliminated from islands.

New Project Activities: Soil erosionon many islands within Laguna Madre continues at an accelerated rate due to wave action. One of the islands that has been significantly impacted is the Isla de Pajaros, or Bird Island, which is one of the most important sites for colonial waterbirds in Laguna Madre. As a protection measure PNE and CONANP are proposing the establishment of 500 containment barriers 600 meters in length on the south of Bird Island. These concrete barriers help diminish the force of wave action which will reduce erosion and have been proven effective in Florida. They will also plant mangroves to further assist with island restoration and erosion control.

Budget: Total Request is $40,000. Contact Deb Hahn for more detailed budget information.

Matching Funds: CONANP will provide support for labor costs and management. Funding from PNE through their Reddish Egret work continues.

Maps: Location of Isla de Pajaros in Laguna Madre



Migratory Bird Wintering Grounds Conservation in Nicaragua

Partners: El Jaguar Private Wildlife Refuge, American Bird Conservancy, the Red de las Reservas Silvestres Privadas de Nicaragua (RSP), Indiana University of Pennsylvania (IUP), Audubon North Carolina, North Carolina Museum of Natural Sciences, El Centro de Entendimiento con la Naturaleza (CEN), Cornell Lab of Ornithology, MARENA, URACCAN, SELVA, Wildlife Conservation Society

States that have participated to date: Pennsylvania, Missouri

Overview: The cloud forests of northern Nicaragua are fragmented by agriculture, including sun-coffee production, potatoes, cabbage and other annual crops. Coffee can be grown as a full-sun crop, or as a shade crop that can serve as useful habitat for many species of Neotropical migrants. Adding shade to coffee plantations and using native species reforestation to create habitat corridors and protect water sources can help improve habitat quality for migratory birds. These highlands are important wintering areas for species like the Golden-winged Warbler (GWWA) and stopover areas for many species like Bay-breasted Warbler and Canada Warbler among other migratory birds. Almost all of the GWWA Focal Areas identified for Nicaragua are in this region. ABC and a host of partners are working in these focal areas to protect existing forest and create increased connectivity in this region through native species reforestation and agroforestry projects.

Threats: Land use conversion from primary forest to agriculture, including sun coffee and potatoes, is reducing habitat available for migratory bird species, and reduces the number of individuals that the area can support due to decreased food and cover. Logging and cattle production further threaten wildlife habitat.

Birds: More than 25 neotropical migrants winter in the area, including the following species that are present on the El Jaguar Reserve and its buffer zones: Olive-sided Flycatcher, Golden-winged Warbler, Golden-cheeked Warbler, Dickcissel, Summer Tanager, Yellow-breasted Chat, Wilson's Warbler, Hooded Warbler, MacGillivray's Warbler, Mourning Warbler, Kentucky Warbler, Louisiana Waterthrush, Northern Waterthrush, Ovenbird, Worm-eating Warbler, Black-and-white Warbler, Black-throated Green Warbler, Chestnut-sided Warbler, Cedar Waxwing, Wood Thrush, Blue-headed Vireo, Alder Flycatcher, Acadian Flycatcher, Yellow-bellied Flycatcher, Eastern Wood-Pewee, Yellow-throated Vireo, Northern Parula, Ruby-throated Hummingbird, and Broad-winged Hawk. More than 15 other species also use this area as a stop-over on their annual migratory cycle including Canada Warbler. Most of these birds are Species of Greatest Conservation Need for state agencies, USFWS Birds of Conservation Concern, and/or on a watch list for Partners in Flight (PIF), National Audubon and others.

Overall Project goals: The primary long-term goal of this project is to secure wintering habitat for the GWWA and Wood Thrush in Nicaragua. Secondary goals include maintaining important stopover sites for migratory species like Bay-breasted Warbler, Canada Warbler, and Blackburnian Warbler.

The first phases of this project focused on advancing the creation of a conservation corridor between El Jaguar Private Reserve and the Reserva Natural Volcán de Yalí, which was later expanded to include the

entire El Jaguar – Yalí GWWA Focal Area. We are now expanding this successful program to additional GWWA focal areas identified in the GWWA Wintering Grounds Conservation Plan. Focal Areas of interest including Peñas Blancas, Datanli-El Diablo, Kilambe, and Saslaya National Park. As identified in the GWWA Wintering Grounds Conservation Plan, the conservation goals for these focal areas are to establish protections for 10% of forest cover in each focal area; restore 10% of existing pasture in each focal area; and convert 10% of all sun coffee to shade coffee in each focal area. Additionally, there is a goal to reduce the current deforestation rate by 50% over the next 5 years in these focal areas. These activities will also help advance the implementation of the PIF V Latin American Highlands Conservation Plan.

Previous Southern Wings Successes: Reserva El Jaguar, with support from Southern Wings since 2010, has increased habitat restoration efforts at El Jaguar Reserve and within the El Jaguar – Volcán de Yalí Corridor. Since 2014 over 100,000 seedlings of native trees, nitrogen fixing trees, and fruit trees have been produced and planted on over 140 properties. Monitoring of migrants at El Jaguar and other locations in the corridor show migrants like GWWA, Wood Thrush, Canada Warbler, Chestnut-sided Warbler and dozens of others continue to use the area in good numbers for winter or migration habitat.

In 2015 and 2016, in the El Jaguar – Yali GWWA Focal Area, we identified six landowners who were interested in conservation and enrolled their properties into the National Private Reserve Network. Reserves in this network are recognized by the Ministry of Environment as national reserves and part of the National Protected Area System. In total these new reserves have protected nearly 350ha (855 acres) of forest.

Also as part of our work in 2015 and 2016, we held workshops on the GWWA Wintering Grounds Conservation Plan and conservation opportunities. These workshops facilitated the creation of new partnerships with additional conservation entities in Nicaragua to help implement the GWWA Winter Plan and expand conservation action for GWWA in Nicaragua. In particular, the Red de Reservas Silvestre Privadas (RSP) has been identified as a partner in Nicaragua that can expand conservation efforts to multiple GWWA Focal Areas. Furthermore, the El Centro de Entendimiento con la Naturaleza (CEN) was identified as a local partner within the Peñas Blancas Focal Area. Here workshops for coffee growers have been conducted and producers who are interested in planting trees have been identified. In 2017, the tree nursery at the CEN was expanded and the production of plants for reforestation and shade coffee efforts, and planting efforts are underway on 12 farms in the Peñas Blancas Focal Area.

In 2017, ABC and partners expanded our work to a third focal area, Saslaya National Park. Here improved protection of the national park is needed through better surveillance techniques and patrols that have more targeted goals and are coordinated with the relevant agencies that govern law enforcement in national parks. To that end ABC partnered with Wildlife Conservation Society (WCS) to implement their SMART™ program protocol in Saslaya. This program, which is used throughout Latin America where WCS works, organizes and conducts special operations with park guards and local community leaders. In late 2017, WCS organized and conducted a special operation as part of a SMART training program with the Ministry of Environment, University of the Autonomous Caribbean Region (URACCAN) and community members, as well as to train for additional operations in 2018 and 2019.

New Project Activities: New funding was provided by Missouri for the establishment of a MOTUS Tower at the El Jaguar Reserve. This tower will be set up in the next quarter with the assistance of SELVA, a conservation organization based out of Colombia. We hope to replicate this process in the Saslaya Focal area. An avian monitoring program has been set up for Peñas Blancas and we would like to conduct a second year of monitoring. Similarly, we would like to continue with the MoSI monitoring at the two sites on the El Jaguar reserve.

We will complete our reforestation plans for both El Jaguar and Peñas Blancas in the first half of 2018. We will continue to identify additional landowners to work with and expand reforestation efforts in Peñas Blancas with the Red de Reservas Privadas. We have a goal of creating at least two private reserves that could be added to the reserve network in the next year.

Also in Peñas Blancas, there is a desire to continue education and training including providing access to information about what is required by farmers to become "Bird Friendly" coffee and cacao producers. This includes understanding requirements for different certifications so that farmers can analyze the costs and benefits and decide if it would be a good option for them. A study of the marketplace for cacao and coffee is needed to determine how to increase the value of products produced and understand local commodity chains. The Red-RSP would like to venture into apiculture and meliponiculture (i.e., honey production) with native bees as an economical bird-friendly alternative for the farmers. Nicaragua exports about 90% of the honey the country produces and is an industry that can provide an important source of income for families.

In Saslaya, ABC has begun to work with additional organizations based out of Siuna and with cacao producing communities in the buffer zone of Saslaya National Park. We will be communicating with multiple communities to identify which have interest in receiving technical assistance to improve their cacao production. We will then support URACCAN and IPDAE (a national development institute) to develop cacao production field schools in the communities. An evaluation will be done of current conditions, including varietals and processing procedures to determine how to increase volume and quality and the bottom line for these producers. If we can keep cacao economically viable it can create a green boundary around Saslaya National Park and prevent illegal encroachment. A model farm will be created to showcase production techniques that can increase cacao productivity and quality. We also hope to expand cacao production to reduce the need for annual slash and burn crops or cattle. To facilitate this work around Saslaya National Park, we will contract a project coordinator and team of local

Budget: Total Request is $110,000. Contact Deb Hahn for more detailed budget information.
(Matching Funds – Matching funds are from ABC, the Neotropical Migratory Bird Conservation Act of the U.S. Fish and Wildlife Service, Indiana University of Pennsylvania, Audubon North Carolina, North Carolina Museum of Natural Sciences, private donors, as well as in-kind investment from local partners and landowners.**:**

Figure 1. Nicaragua Golden-winged Warbler Focal Areas: El Jaguar – Cerros de Yali Focal Area #NI06; Peñas Blancas #NI03; Datanlí-El Diablo #NI05, Saslay #NI04, Kilambe #NI02, **–** El Jaguar is within Focal Area NI06. ABC is working in to Focal Area NI03, NI04 and NI06.

Image 1. Saslaya National Park in background, while recently burned lands for annual crops in the buffer zone of the park are seen in the foreground. Rothman. 2017

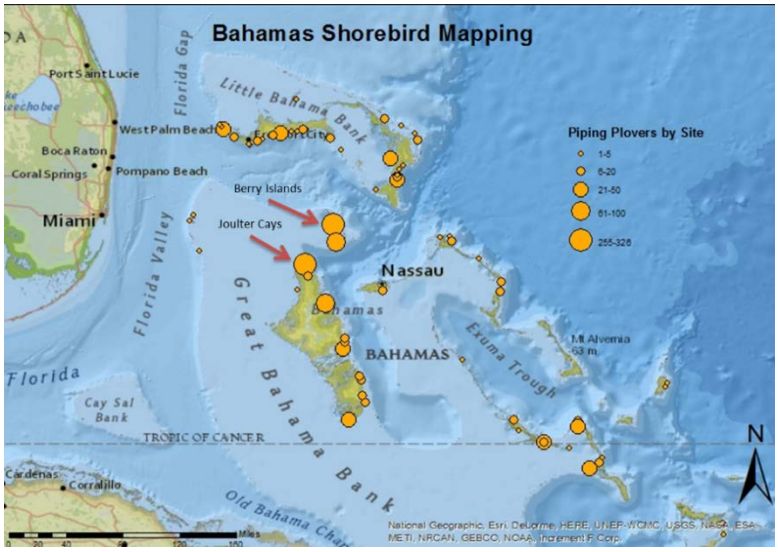
Conserving Critical Piping Plover and other Shorebirds Wintering Sites in the Bahamas

Partners: Bahamas National Trust, National Audubon Society, USFWS – NMBCA, Foundations, Private Donors

States that have participated to date: NEAFWA, Virgina, North Carolina

States with strong biological connections: CT, DE, MD, ME, MA, NH, NY, NC, RI, VT, and VA

Overview: More than thirty-three species of shorebirds that breed along the Atlantic coast of the United States, Canada and the Artic complete a perilous migratory journey each fall to reach remote islands of the Bahamas where they spend up to ten months each year. These include around half of the Atlantic population of the endangered Piping Plover. **Audubon, in partnership with The Bahamas National Trust, is working to protect critical coastal habitats that wintering plovers and other declining shorebird species depend on.**



Shorebirds worldwide are in precipitous decline. The Piping Plover, with an estimated global population of only 8,024 individuals, is the most endangered shorebird breeding in the United States and Canada. Concern about the species has triggered widespread, intensive conservation action throughout its breeding range, but protecting its wintering grounds —where it can spend up to ten months of the year—has received little attention until recently.

The importance of The Bahamas for wintering Piping Plovers and other declining shorebirds was first understood in 2006, when Audubon scientists discovered high numbers of the Atlantic breeding population spending the winter months in remote parts of the archipelago. **Now, Audubon, The Bahamas National Trust (BNT) and other partners are taking ambitious steps to conserve and protect the vital Bahamas laces necessary for the survival of these wintering shorebirds.** By protecting these habitats, we are helping many vulnerable species, including the Red Knot and the Semipalmated Sandpiper—and supporting important fish nurseries, coral reefs and eel grass beds necessary for sustainable fisheries and traditional economic opportunities for local communities.

Audubon's Strategy in The Bahamas

At the core of Audubon's International Alliances Program (IAP) strategy is working in close collaboration with local partners and communities in countries that provide the most significant opportunities to help bird species at greatest risk. In the Bahamas, we work closely with the **Bahamas National Trust** to conserve the Piping Plover and other important shorebirds. As both a conservation partner and a member of the BNT Council, we're helping to strengthen the organization's governance, operational, and scientific capacity.

Our goals are listed below. Each is an essential step toward durable, seamless protection for Piping Plovers and other shorebirds along the Atlantic Flyway, from their summer nesting sites on the beaches of the U.S. and Canada to their wintering grounds in the Caribbean and South America.

1. **Long term protection of Bahamas wintering habitats** that support at least 20% of the Atlantic breeding population of Piping Plover, 32 other important shorebird species and local marine and terrestrial wildlife.
2. **An integrated and well-managed system of sites that support migratory shorebird conservation** at the scale necessary to maintain and increase survival of priority shorebird species.
3. **Communities actively engaged in conserving** important migratory and endemic bird species on all major islands of the Bahamas.
4. **Local conservation capacity is improved** when Audubon shares our science, policy and organizational expertise with BNT and other organizations.

From Discovery to Protection

2006: Audubon discovers over 400 Piping Plovers wintering on several islands.

2010: 57 plovers are banded on three islands in The Bahamas.

2011: 41 banded plovers are found along the Atlantic coast, from North Carolina to Nova Scotia.

2011: 1,066 Piping Plovers are found on 14 Bahamas islands by 31 researchers from 10 organizations

2012: Audubon focuses efforts and discovers 708 birds or 20% of the Atlantic Piping Plovers wintering on just 3 islands Andros, the Joulter Cays and The Barry Islands.

2013: Audubon and BNT submit a proposal to the Bahamanian government for establishment of a 92,000 acre National Park on the Joulter Cays.

Success since 2012:

Habitat Protection

- ✓ Identified one of the most crucial habitats for Piping Plover on the Joulter Cay, and successfully worked with the Bahamian Government to establish a 113,000-acre national park at the site that will also protect a and important bonefish sport fishery and rich coral reefs.
- ✓ Laid groundwork for proposals to create additional new national parks on East Grand Bahama and Abaco Island covering 95,000 acres.

- ✓ Launched a pilot project to remove invasive Casuarina Pine from shorelines and convert it to charcoal for local consumption.

Science and Research

- ✓ Coordinated the International Plover Census for the Bahamas
- ✓ Linked east coast scientist's from Audubon and elsewhere with BNT scientists to develop a comprehensive survey of shorebird populations and to establish long-term monitoring on islands, cays and other sites across The Bahamas.
- ✓ Implemented a new online GIS resource to support Piping Plover research efforts across The Bahamas.
- ✓ Launched a pilot Citizen Science program, training volunteers in identification and basic monitoring techniques.
- ✓ Sponsored BNT's annual Bahamas Natural History Conference, which attracts scientists from across the Bahamas and students and faculty from the College of the Bahamas. Audubon/BNT led shorebird-focused sessions.
- ✓ Launched a connectivity, detectability and survivorship study that has clearly linked wintering sites in the Bahamas to breeding sites along the coasts of North Carolina, Virginia, New Jersey, Connecticut and New York.

Education and Community Engagement

- ✓ Taught students at all nine schools on Andros Island about the island's birds and ecosystem. (The effort is modeled after Audubon's successful "For The Birds Program" based in New York and Long Island.)
- ✓ Produced a Public Service Announcement promoting National Park designation of the Joulter Cays that reached thousands in the Bahamas, through social media and television.
- ✓ Hosted a three-day shorebird identification and monitoring workshop on Andros Island attended by eight students from the College of the Bahamas.

Sustainable Economic Development

- ✓ Launched a bird-focused ecotourism program as a tool for economic development that supports biodiversity conservation. By demonstrating the economic value and benefits birds and birdwatching can offer local communities, we will enlist their support for protection of local birds and resources.

Current Project Activities:

Specifically we are focused on the following next steps.

- ✓ **Improve BNT's organizational capacity** to manage the National Park System throughout the Bahamas, as mandated through legislation.

- ✓ **Finalize the science and advocate for establishment of a new 12,000 to 30,000 acre of National Park** at the Northern Berry Islands Important Bird and Biodiversity Area.
- ✓ **Develop a management plans** that engages the public in the planning and future protection of critical shorebird areas.
- ✓ **Restore habitats** with removal of invasive plants and mammals

In addition to the above priority conservation actions Audubon and BNT will target other funding to support:

- ✓ **Growing constituencies** that support conservation actions through:
  - ✓ **Expand education and engagement programs** with schools and communities to create conservation advocates in the Bahamas.
  - ✓ **Developing a Citizen Science network** to support habitat management and monitoring of conservation actions.
  - ✓ **Deliver economic opportunities for communities** through bird-based tourism and related enterprises that give value to the ecosystem and support bird conservation.
- ✓ **Continue applied research** to fill knowledge gaps for shorebird conservation that can be applied to inform management decisions and engage audiences.

Budget (For a more detailed budget contact Deb Hahn):
A $50,000 a year investment for three years would allow us to **i**mprove management and enhanced habitat that supports 20 – 25% of the Atlantic breeding population of Piping Plover.

A $40,000 a year investment for three years would allow us to improve management and enhanced habitat that supports 10 – 15% of the Atlantic breeding population of Piping Plover for the Joulter Cays.

A $20,000 a year investment for three years would allow us to enhance efforts to support 10% of the Atlantic population of Piping plover through Improved local capacity and development of a management plan.

Other funds identified for Shorebird Conservation Project – all components: $163,000 from USFWS-NMBCA (2 years), $154,000 secured from the Multi-Laterial Investment Fund within the Inter-American Development Bank to support the development of Bird-Based Tourism as an economic development tool (3 years), **Science:** Southern Wings - Virginia Department of Game and Inland Fisheries $5,000, NC Wildlife Resources Commission $4,500, and NFWF $8,000. Additional match will be acquired from foundations, private donors, Audubon, and in-kind contributions from The Bahamas National Trust and other conservation partners.

Conserving Thick-billed Parrots and Neotropical Migrants in old-growth forests of the Sierra Madre Occidental, Mexico – Phase II

Partners: Pronatura Noroeste, Organización Vida Silvestre A.C (OVIS), Ejidos (local communities), Comisión Nacional de Áreas Naturales Protegidas (CONANP), Comisión Nacional Forestal (CONAFOR), Fondo Mexicano Forestal (FMF), Arizona Game and Fish Department (AGFD), Unidad Forestal Galván, San Diego Zoo Global (SDZG), U.S. Fish and Wildlife Service (Neotropical Migratory Bird Conservation Act).

State(s) Participating: Arizona

Overview: Mexico's new national forest management policy, which now takes into account the management of biodiversity, presents an opportunity to work at reducing significant threats (e.g., destructive fires, over-harvesting of timber) to maintain or restore populations of birds in remaining forests of the Sierra Madre Occidental. This project focuses specifically on establishing and maintaining a network of forests under conservation schemes and integrating best management into forest management plans. The project area encompasses the high elevation forests found in the mountainous regions of Chihuahua (1,000,000 ha) where threats are severe and eminent. Continued loss of old-growth forests will inevitably lead to loss and/or significant population declines of species associated with these old-growth forests. One of the most dramatic examples is the almost complete loss of remnant old-growth forests in northern Durango and Cerro Mohinora in southern Chihuahua and with it the loss of locally-nesting populations of thick-billed parrots (an endemic species) and Neotropical migrant populations dependent on old-growth forests.

The project will implement strategies outlined in the Partners in Flight Conservation Business Plan for the Sierra Madre Pine-Oak and Cloud-Forests / Western Mixed Coniferous Forests. Furthermore, the project addresses threats identified in several species recovery plans of Mexico or the U.S., including for the Mexican Spotted Owl, Golden Eagle and Thick-billed Parrot.

Threats: The birds of the Sierra Madre Occidental are seriously threatened from the loss and degradation of habitat as a result of poor forest management policies over more than a hundred years, as well as from fire suppression and a higher incidence of catastrophic fires. Large scale timber harvest has been practiced for many decades without considering the need to also manage for biodiversity. These main threats to forests have caused the Imperial Woodpecker to be considered extinct and for two other species endemic to the Sierra Madre to be critically endangered (Sierra Madre Sparrow [*Xenospiza baileyi*] and the Thick-billed Parrot [*Rhynchopsitta pachyrhyncha*]. Forest exploitation has eliminated old-growth forests (it's estimated that less than 1% remains of their original distribution) affecting whole groups of birds that depend on mature forests to provide cavities for nesting and shelter, such as trogons, woodpeckers, and owls.

Timber harvesting for the past 70 years has been implemented through Forest Management Units (where a certified forest manager manages each unit). These units cover vast territories where various timber harvesting treatments are applied, sometimes including destructive clear-cutting and high-intensity timbering. However, under the new national forest management policy, two forest unit

managers (Forestal Galvan and Grupo Pima) have embraced the new national strategy and are implementing sustainable forest production and productivity and explicitly integrating biodiversity conservation objectives and indicators.

Birds: The rugged Sierra Madre Occidental harbors a system of canyons dominated by temperate forests in the higher areas and jungles in the lower areas. As a result, the footprint of the project can be felt over an extensive area of critical habitat for more than 300 bird species, 45% of which are Neotropical.

At least 19 species in the region are considered species of common concern (USFWS 2008) and more than 30 species are listed as high priority by Partners in Flight, including Band-tailed Pigeon, Bell's Vireo, Calliope Hummingbird, Elegant Trogon, Flammulated Owl, Grace's Warbler, Hermit Warbler, Loggerhead Shrike, Lucy's Warbler, Purple Martin, Rufous Hummingbird, Short-eared Owl, and Yellow-billed Cuckoo. Other species of note include Dusky Flycatcher, Hammond's Flycatcher, and Painted Bunting, among many others.

Overall Activities and Strategies: The project focuses on protecting habitat and implementing better forest management practices that benefit Neotropical migratory birds in more than 30 ejidos (communal landholdings) in the Sierra Tarahumara (500,000 ha). Also, in partnership with AGFD, the project will implement conservation actions and monitoring of breeding populations of Thick billed Parrots (TBPA) in the protected natural areas of Tutuaca, Papigochi, Campo Verde, Mesa de Guacamayas and Madera (see map 2). The goal for 2022 is to integrate habitat needs of Neotropical Migratory Birds (NMBs) into forest management plans developed under the new national forest management policy. The new policy incorporates biodiversity management to preserve wildlife populations and habitats in the Sierra Madre Occidental.

Southern Wings Successes in 2017:

Species Monitoring

- ✓ We have conducted point count transects at 8 sites (Tutuaca, El Vergel, Campo Verde, Papigochic, Madera, Mohinora, Sierra Tarahumara and Mesa de las Guacamayas): during these counts we detected 98 species, with 59% of them considered migratory and 41% resident. A total of 8% of the species are considered USFWS Species of Concern, including Black Swift, Elegant Trogon, Grace´s Warbler, Hermit Warbler, Peregrine Falcon, Red-faced Warbler, Rufous Hummingbird and Black Vulture.
- ✓ Population counts indicated a minimum of 785 individual TBPAs. We documented 117 TBPA pairs exhibiting nesting behavior. And we directly monitored 28 TBPA nests across the different protected areas of Janos, Campo Verde, Madera, Tutuaca, and Papigochic.
- ✓ We deployed two prototype satellite transmitters to better assess long distance movement patterns of individual TBPAs. The data has been downloaded and is being analyzed.
- ✓ In Madera we installed a Song Meter SM3 from Wildlife Acoustics which records bird songs/calls. At the end of the breeding season data was downloaded and is in the process of being analyzed in an effort to get a more complete list of species using the area.

- ✓ 13 camera traps (3 donated by San Diego Zoo Global and 10 from CONANP) were installed in Madera, to better track and identify predation of TBPA nests. Photo files have been downloaded and shared with San Diego Zoo Global for analysis.

Habitat Management

- ✓ Organized three workshops to train community members to assist in monitoring of key nesting areas for TBPAs.
- ✓ Identified several communal landowners that are interested/willing to incorporate habitat conservation practices into their forestry management plans. And worked with them to integrate a list of best management practices (BMPs) into their Forestry Management Plans. On average, each landowner will apply about 7 practices.

Specific Activities planned for 2018: Arizona will support implementation of the following conservation actions in 2018;

Habitat Management

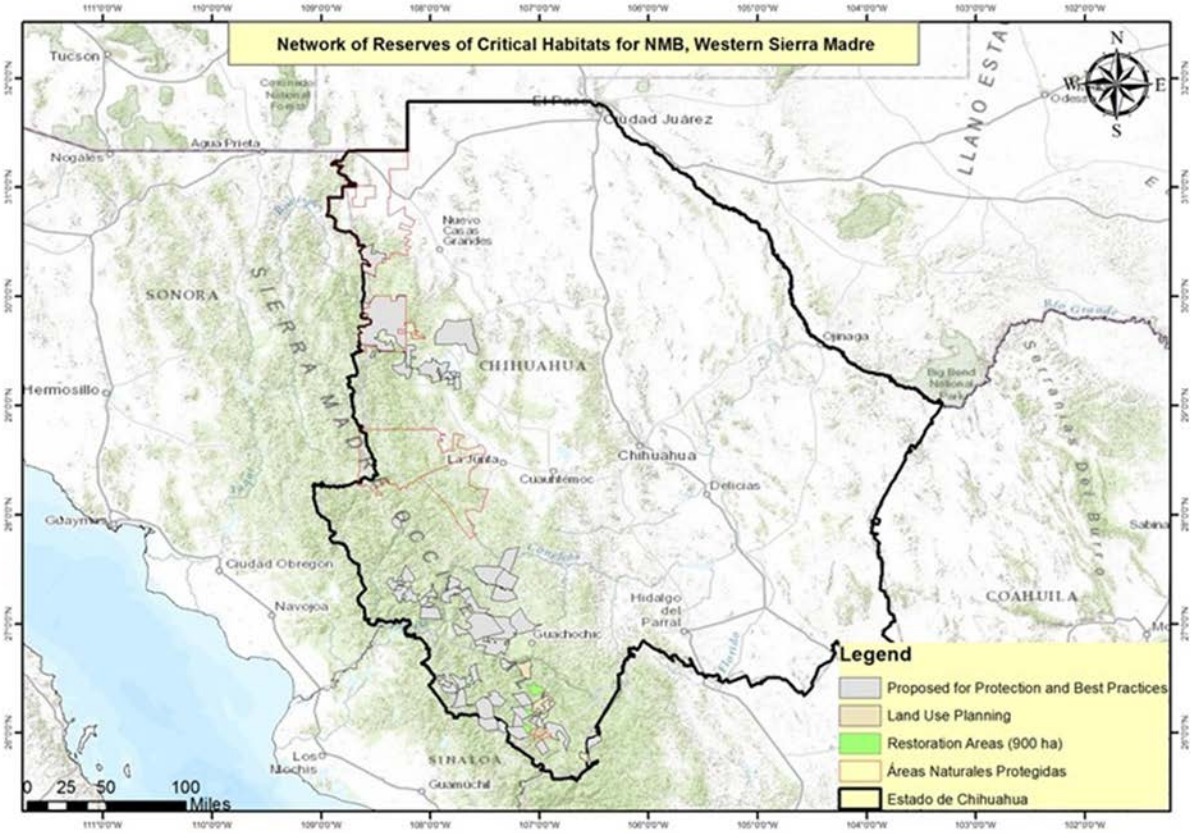
- ✓ Edit and finalize content for the habitat guide "Forestry Manual of Best Management Practices to Benefit Thick-billed Parrots and NMBs" and distribute guides to forest management practitioners.
- ✓ Conduct two training workshops (on application of the habitat guide) for forest managers, national parks staff, and other decision makers of government agencies with direct responsibilities in forest and biodiversity management.
- ✓ Analyze satellite data from two prototype transmitters deployed on parrots.
- ✓ Protection of important habitats for NMBs through a mix of legal mechanisms including Forest Segregation, establishment of Ejidal Reserves (as declared by Ejidal Legislation) and legal Conservation Agreements (60,000 ha) in Sierra Tarahumara (Southern Chihuahua).
- ✓ Restoration of 900 ha of degraded habitats through reforestation and erosion control works to benefit populations of NMBs in Ejidos Navogame y Tuaripa.
- ✓ Integrate BMPs for biodiversity (e.g., NMBs) in forest units that manage more than 500,000 ha of forests in Sierra Tarahumara.

Species Monitoring

- ✓ Monitoring of NMB populations through a network of community members in Tutuaca, Madera y Papigochi (protected areas of forest habitat).
- ✓ Investigate the migration routes and wintering sites for five breeding populations of Thick-billed Parrot and develop and implement a conservation plan for these sites (in partnership with AGFD).
- ✓ Monitor and manage known/accessible breeding populations of Thick-billed Parrots (in partnership with AGFD).

Budget: For FY 2018 Arizona will provide **$USD 10,000** for the completion of some of the projects activities: Total budget needs are higher. More details can be provided upon request.

Budget	AGFD	NMBCA	OVIS	CONANP	TOTAL
Total	**10,000**	**101,500**	**20,200**	**12,800**	**146,500**



Map 1. Location of project activities: 1) Protecting critical habitat for Neotropical Migratory Birds through a mix of legal mechanisms like Forest Segregation, Ejidal Reserves defined by Mexican laws (60,000 ha), (2) Implementation of forestry best management practices for biodiversity (at a landscape, site and species level) in more than 500,000 ha of forests. (3) Restoration of 900 ha of degraded habitat (26.5º N y 106.90º).

Golden Eagle Conservation in Mexico

Partners: Pronatura Noroeste A.C (PNO), Arizona Game and Fish Department (AGFD), Comisión Nacional de Áreas Naturales Protegidas (CONANP), BirdLife-CEMEX, US Fish and Wildlife Service.

Overview: Golden eagles (GOEA) are a globally distributed species with a range including North America, Europe, Asia and North Africa. Within North America, this species occurs from Alaska and Canada to central Mexico, with nesting locations associated with rugged terrain. Golden Eagles are a SGCN species for AGFD, as well as species of conservation concern for the USFWS. Increased conservation actions and a better understanding of species population status in Mexico will significantly contribute to the overall management and conservation of the species.

CONANP has developed a Program of Action for the Conservation of the Species (PACE), Mexico's version of a recovery plan, which provides a framework and establishes objectives for the conservation of Golden Eagles. This Recovery Plan was revised in 2015.

Guided by the PACE, collaborators in Mexico have implemented a monitoring program and engaged in other conservation actions to conserve habitat and protect the species. To date 145 nests and 81 reproductive pairs of Golden Eagles have been identified across seven states in Mexico (Baja California, Chihuahua, Coahuila, Durango, Zacatecas, Aguascalientes and San Luis Potosí). However, there are significant gaps in information regarding foraging areas and juvenile dispersal sites, among other aspects of the species' life history.

Birds: Golden Eagle.

Threats: Habitat loss, illegal shooting, electrocutions, human disturbance at nesting sites, illegal pet trade, and poisoning

General Project Goals: Train biologists to deploy satellite tracking technology, identify occupied territories and areas for conservation, determine causes of mortality, enhance habitat conservation in communal land holdings and private ranches, and conduct environmental education and capacity building.

Southern Wings Successes (2017):

GOEA Monitoring-

- We analyzed movement and potential habitat use for a GOEA tagged with satellite transmitters (Map 1).
- In Sonora- we documented four nesting territories (Sierra la Mariquita, Cerro Prieto, Sierra Los Chupaderos and Sierra la Madera). We also observed juveniles in Cerro Obscuro and Cerro Las Águilas. In Rancho El Durazno a nest structure was observed, possibly occupied. We also monitored a known breeding territory first discovered in 2016 in Ejido La Norteña, where we observed a couple of adults (Map 2).

- In the Sierra La Madera area (near Magdalena de Kino, Sonora) we conducted breeding bird surveys in June and recorded 33 species.

Habitat Conservation-

- Pronatura Noroeste, the State of Sonora and private ranchers with established Wildlife Management Units (UMAs) worked to identify degraded areas and restoration opportunities- resulting in the drafting of a technical document identifying potential restoration areas (200 ha, Map 3).
- We developed a Site Conservation Plan through a workshop with local partners and landowners. The exercise identified Conservation Targets, main threats, and conservation strategies.
- We held a workshop attended by 31 environmental educators from 10 different institutions, to provide information on GOEA biology, conservation importance, main threats, and outreach/environmental educational tools. The objective was to train environmental educators in the curriculum "Educational Activities Guide for Golden Eagle Conservation".
- We developed an outreach/education campaign focused on main threats to GOEA and its habitat, and to empower communities and landowners as "Proud Guardians of Golden Eagles".

Specific Activities planned for 2018- Pronatura Noroeste and partners will implement the following activities.

GOEA Monitoring-

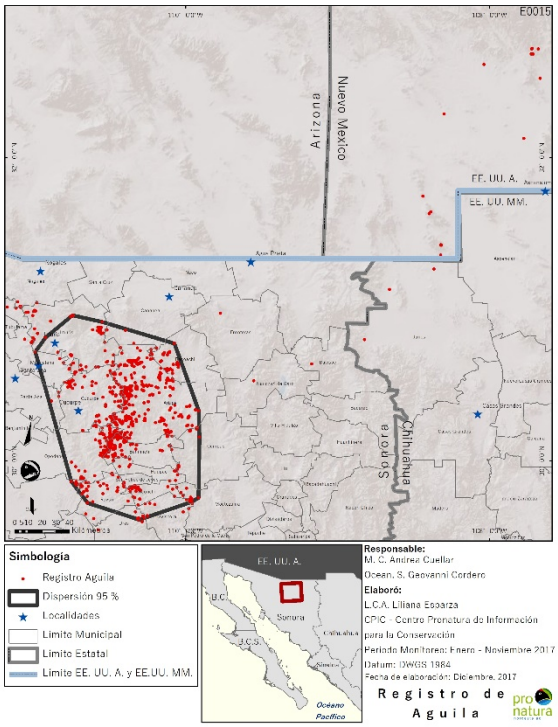
- Track and evaluate data from GOEA(s) tagged with satellite transmitters to better understand movement and habitat use patterns.
- Establish and train community brigades to monitor Golden Eagle territories.
- Document breeding territories and monitor breeding pairs in poorly known or historical breeding areas (e.g., states of Sonora and/or Chihuahua), evaluate reproductive success, and collect prey items and feathers, as feasible.
- Investigate causes of any direct mortality reports. Work with partners to assist in the retrieval of any satellite transmitters from downed GOEAS that may have been tagged in the United States.
- Work with partners to develop and adopt a GOEA monitoring protocol to survey for the species in the State of Sonora. Train collaborators in the adopted protocol.

Habitat Conservation-

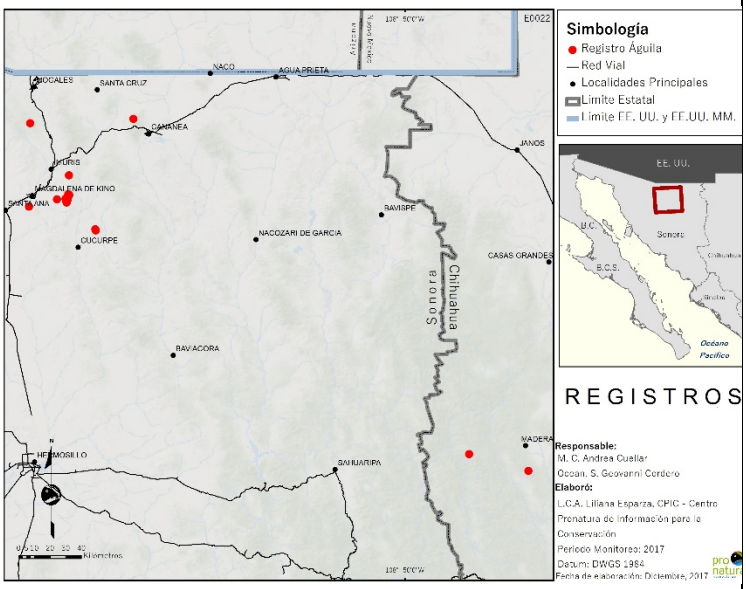
- Implement training to local partners on available practices for enhancing or restoring degraded habitat patches.
- Work with partners to elaborate appropriate strategies for deploying more sustainable grazing practices to benefit working lands and reduce threats to birds and other wildlife.
- Work with partners to develop a strategy to reduce the threat of Buffelgrass encroachment and explore ways to control or minimize established patches of Buffelgrass in a micro-watershed.

Budget: (More detailed budget needs can be provided upon request.)

Arizona	BirdLife-CEMEX	PNO	TOTAL
6,840.00	4,200.00	18,000.00	29,040



Map 1. Dispersion analysis (at 95%) of tracked GOEA in Sonora



Map 2. GOEA records in Sonora and Chihuahua

Status of Western Yellow-billed Cuckoos in Sonora, Mexico

Partners: Universidad Estatal de Sonora, Arizona Game and Fish Department (AGFD), Southern Sierra Research Station (SSR), Reserva Monte Mojino- REMM (Nature and Culture International & Naturaleza y Cultura Sierra Madre, A.C.)

State(s) Participating: Arizona

Overview: The Western Yellow-billed Cuckoo (*Coccyzus americanus*) was listed as Threatened in 2014 under the Endangered Species Act. Cuckoos (YBCU) have declined in the western United States within the last 100 years due to widespread habitat loss of riparian habitat. However, an integral assessment of the conservation status of Yellow-billed Cuckoos must consider the totality of the species' range, including northern Mexico. Population status of the Yellow-billed Cuckoo in northern Mexico is difficult to assess given the lack of long-term monitoring programs. Loss and degradation of riparian habitat due to disturbance of fluvial regimes habitat are prevalent in northern Mexico (Scott et al. 2009). There is a particular need to better understand cuckoo populations in the state of Sonora, whose conservation and management could contribute to the recovery of cuckoo populations in Arizona. The Yellow-billed Cuckoo is a common summer resident in Sonora, and was observed with higher frequency than in adjacent Arizona by Russell and Monson (1998). Yellow-billed Cuckoos occupy a broader range of habitats in Sonora including willow-cottonwood riparian woodland, older mesquite woodland, tropical deciduous forest, and tropical thorn scrub habitats (Russell and Monson 1998, Flesh 2009) and desert arroyos. Information from previous cuckoo survey efforts (Haro Rodriguez 2005; Valencia et al. 2003; Flesch 2008) serves as a baseline for inferring population trends in riparian habitats in Sonora. In this regard, this project will attempt to document changes in abundance and presence of Yellow-billed Cuckoos in Sonora to contribute to a better assessment of the species' conservation status. Because Yellow-billed Cuckoos occupy a large variety of habitats in Sonora, the contribution of non-riparian habitat to the dynamics of regional population may be highly relevant to the species status. Therefore, this project will also attempt to evaluate the cuckoo occupancy of non-riparian habitats.

Threats: Loss and degradation of riparian habitat.

Birds: Western Yellow-billed Cuckoo.

Previous Southern Wings Success (2017):

- We surveyed for YBCU in Sonora across 13 transects in three habitat types: 5 in riparian habitat, 4 in desert arroyos, and 4 in upland habitat (Figure 1). We surveyed each transect twice (Table 1). The first surveys occurred from 29 June to 25 July (first period), and the second surveys, from 26 July to 16 August 2016 (second period).

- We had 105 and 84 cuckoo detections in the first and second period, respectively. Access

permits, remoteness of survey sites, rains, and distances between sites did not allow to survey all the 15 sites as planned.

- We compared yellow-billed cuckoo counts between years, 1st and 2nd surveys, and habitats using a log-Poisson regression. We found that the count of cuckoos per transect differed by year, surveys and habitats.

Specific Activities planned for 2018: Universidad Estatal de Sonora will implement the following actions.

- ✓ Continue and expand surveys at known and suspected Yellow-billed Cuckoo locations where they have been reported, to document changes in presence and abundance.
- ✓ Characterize Yellow-billed Cuckoo habitat through photographic documentation and rapid vegetation assessments.

    - Survey 5 of the sites in riparian habitat (R) previously monitored in 2015, 2016 and 2017 as a reference to compare data between years (Figures 1, 2, and 3)
    - Survey 2 sites in desert habitats (D) and 2 sites in upland habitat (U).
    - Survey 4 sites in subtropical areas of southern Sonora (south of Ciudad Obregón), in the municipalities of Alamos, Cajeme, Navojoa, and Quiriego. Exact locations (coordinates) to be determined, based on safety and access considerations.

- ✓ Collect rapid vegetation assessments (including photo documentation). Evaluate feasibility of adopting a more standardized vegetation sampling protocol to be developed by Arizona partners in 2018.
- ✓ Analyze data and make appropriate comparisons across sites and years.
- ✓ Discuss with partners research priorities for YBCU in Sonora to expand project's objectives in next years.

Budget: Arizona will contribute $ 9,300.00 for the completion of the projects activities proposed above. Universidad de Sonora is contributing $3000.00. Additional funds are needed. More information can be provided upon request.

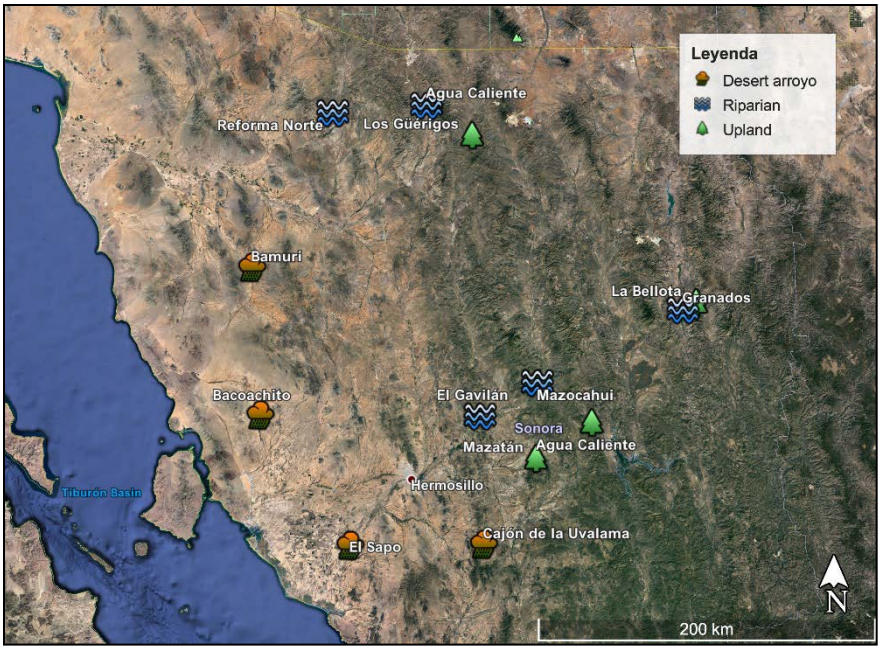


Fig. 1. Location of 13 YBCU survey sites in Sonora, Mexico, surveyed twice during 2017.

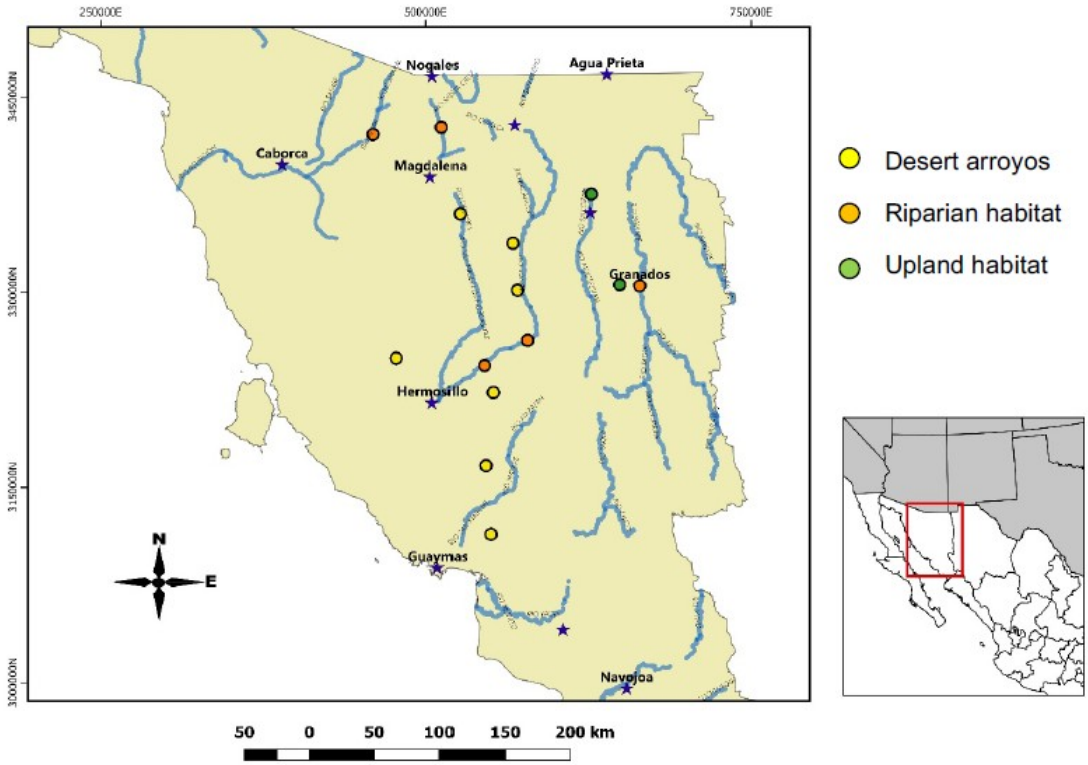


Figure 1. Location of YBCU survey sites in Sonora,

Protecting Key Wintering Sites for the Endangered Red Knot in NE Brazil

In Country Partner: Aquasis

States that have participated to date: New project

Overview: Since the early 1980s the Red Knot population of the Americas has declined by more than 75%, mainly due to the impacts of coastal development. Red Knots undergo one of the longest migrations, with some populations covering 20,000 miles annually between high-arctic breeding grounds and the southern tip of Patagonia. These long journeys are energetically demanding and require feeding upon arrival at stopover sites.

In Brazil, the Ilha Grande estuary part of the Delta do Parnaíba Protected Area (DPPA) has been identified Aquasis as one of the most important areas for Red Knot and other Nearctic migrant shorebirds in the entire semi-arid coastal region of Brazil, which spans the eastern half of Maranhão state to the NE tip of South America in the state of Rio Grande do Norte. The DPPA is a very large and important federally protected area in northeast Brazil and was officially established in August 1996. Aquasis has a long history of working near Ilha Grande, beginning in 2006 with the coordination of an environmental assessment project, including the publication of a diagnostic survey of coastal avifauna, particularly migratory shorebirds, occurring in the estuary.

From 2013-2015, Aquasis supported intensive monitoring project of coastal birds in the Ilha Grande estuary, resulting in a complete profile of seasonal abundance for shorebirds and other waders in the estuary. This baseline of information allows us to identify some knowledge gaps, research needs, and specific actions to take strategic conservation action in this region.

Threats: Coastal areas in northeast Brazil have been highly impacted by rapid development over the past several decades. Habitats that are most important to shorebirds and other coastal species, particularly mangroves, intertidal salt flats, and lagoons, have been devastated by shrimp farming, bivalve harvesting, and salt harvesting operations. In the DPPA, these activities are allowed by the government, which is resulting in habitat loss in this protected area.

Birds: The target species include 19 species of migrants (i.e., endangered Red Knot, Black-bellied Plover, American Golden Plover, Semipalmated Plover, Greater Yellowlegs, Lesser Yellowlegs, Solitary Sandpiper, Willet, Spotted Sandpiper, Whimbrel, Bar-tailed Godwit, Ruddy Turnstone, Sanderling, Semi-palmated Sandpiper, Least Sandpiper, White-rumped Sandpiper, Pectoral Sandpiper, Stitled Sandpiper, and Short-billed Dowitcher).

Project goals: The project has three goals. The first goal is to address the management issues occurring at the DPPA by evaluating shorebird habitat loss to shrimp farming over the past 35 years in the Ilha Grande estuary area and assessing the impact of bivalve harvesting activity on important shorebird foraging locations. These activities are expected to result in a Shorebird Threat Report and Shorebird Conservation Action Plan. The recommendations in the documents can be presented to the environmental management council for the protected area to promote better consideration of shorebirds in the management plan.

The second goal is to evaluate the threat of hunting at the DPPA and determine if the Brazilian Environmental Ministry should be taking action to enforce hunting regulations here. The third goal is to nominate parts of the DPPA as a WHSRN site. Together the goals will contribute much needed data to entities working on shorebird conservation and to coalitions such as the Atlantic Flyway Shorebird Initiative.

Southern Wings Successes to Date: New project.

Project Actions:

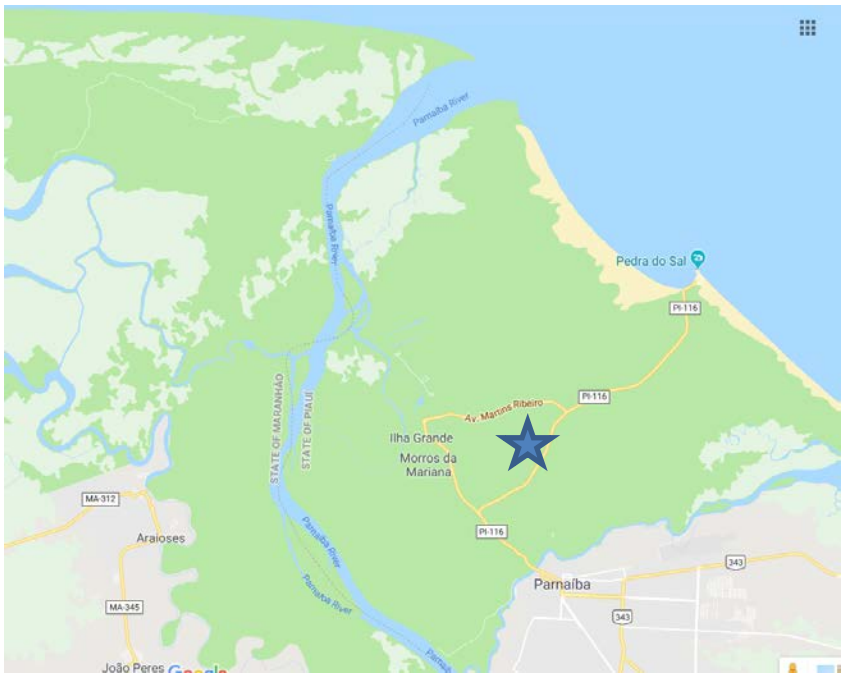
The primary actions are:

1. Map the principle shorebird foraging areas, sample invertebrate resources, and assess the impacts of bivalve collecting activity in these points.
2. Conduct a formal assessment of shorebird hunting activity (past and present) to help assess the issue.
3. Advocate for designating portions of the Ilha Grande estuary under stress as WHSRN sites.
4. Support the representation and participation of Aquasis in the official environmental management council for the DPPA, to regularly present our findings and conservation concerns.
5. Build capacity in the N/NE semi-arid coastal region of Brazil to institute regular shorebird banding campaigns and begin to implement Motus Wildlife Tracking System at important sites. This will be done through banding training courses, maintaining a Motus network, and engaging interested university students.
6. Consolidate data and other relevant information about the project site to Draft and approve a Shorebird Threat Report and Conservation Action Plan for the DPPA.
7. Present the Threat Report and Conservation Action Plan to the DPPA environmental management council for formal approval and initiate the incorporation of this information into the overall management plan for the APA.

Budget: Total Request is $45,200. Contact Deb Hahn for more detailed budget information.

Matching Funds: Potential matching from National Fish and Wildlife Foundation

Maps:


Parnaíba River
Pedra do Sal
PI-116
Av. Marcos Ribeiro
Ilha Grande
Morros da Mariana
STATE OF MARANHÃO
STATE OF PIAUÍ
MA-312
Araioses
MA-345
João Peres
343
Parnaíba

Caracas
Panama
Venezuela
Bogotá
Colombia
Cali
Guyana
Suriname
French Guiana
STATE OF RORAIMA
STATE OF AMAPÁ
Quito
Ecuador
STATE OF AMAZONAS
STATE OF PARÁ
STATE OF MARANHÃO
STATE OF CEARÁ
STATE OF PARAÍBA
STATE OF PIAUÍ
STATE OF ACRE
Brazil
STATE OF ALAGOAS
Lima District
STATE OF RONDÔNIA
STATE OF TOCANTINS
STATE OF MATO GROSSO
STATE OF BAHIA
Salvador
STATE OF GOIÁS
Bolivia
STATE OF MINAS GERAIS
STATE OF MATO GROSSO DO SUL
STATE OF RIO DE JANEIRO
STATE OF SÃO PAULO
Paraguay
São Paulo
Asuncion
STATE OF PARANÁ
Chile
STATE OF SANTA CATARINA

Wood Thrush Conservation in Central America

Partners: American Bird Conservancy (ABC), Instituto Nacional de Conservacion y Desarrollo Forestal, Áreas Protegidas y Vida Silvestre (ICF); La Asociación de Investigación para el Desarrollo Ecológico y Socio Económico (ASIDE), Mesoamerican Development Institute (MDI); US Forest Service; UMASS - Lowell; COMISUYL Coffee Cooperative; Universidad Nacional de Agricultura de Honduras (UNA);

States that have participated to date: Missouri, Indiana

Overview: Migratory birds of the Americas are in trouble. More than 140 American migratory bird species are declining, restricted to small ranges, or facing population-level threats. From habitat loss and less than ideal habitat management and protection hemisphere-wide, to poor policies for migratory birds, these species face grave threats throughout their annual migration cycles. In the face of these threats, ABC's Migratory Bird Program is focusing on creating and implementing strategies and projects to effectively reduce these threats at landscape scale.

Our program focuses on migratory species with the greatest conservation need including, Wood Thrush, Golden-winged Warbler (GWWA) and Golden-cheeked Warbler (GCWA) among others. ABC has already been active in implementing conservation actions in Mexico, Guatemala, and Nicaragua that benefit these species. In 2016 we expanded our project portfolio to include projects in Honduras.

Our work is now focused on three areas within Honduras. The Agalta Valley and nearby Sierra de Agalta together in the Agalta BirdScape, the Yoro Corridor in the Yoro BirdScape that connects four national protected areas (Pico Pijol, Maria Auxiliadora Central and Montaña de Yoro National Parks and Texiguat National Wildlife Refuge) and the La Muralla National Park which is Golden-winged Warbler Focal Area and key site for GCWA but falls between the two BirdScapes.

Threats: While each of these areas presents unique circumstances, they are alike in that non-compatible land uses threaten the existence of Wood Thrush habitat. In the Valley of Agalta, ranching activities threaten habitat while in the Sierra de Agalta and Yoro Corridor agricultural production is the main threat. In the Yoro Corridor, rapidly expanding sun coffee production is destroying existing habitat. In La Muralla, lack of enforcement of environmental policy and pine beetles have had a significant impact on the forest and led to expansive forest fires.

Birds: Our species of principal interest are Wood Thrush, GWWA and GCWA. Other migratory bird species of interest that are found in these regions include Magnolia Warbler, Blue-winged Warbler, Kentucky Warbler, Worm-eating Warbler, Louisiana Waterthrush, Eastern Wood-Pewee, Yellow-throated Vireo and White-eyed Vireo. The endemic and endangered Honduran Emerald is present within a portion of the project areas targeted in this project.

Overall Project goals: Our project goal is to reduce the rate of forest habitat loss in multiple locations in Honduras to sustain the current populations of priority migrants. In the long-term our goal is to

reverse the annual rate of decline of these species through coordinated full-life cycle conservation efforts linking breeding and wintering ground efforts.

Southern Wings Successes to Date: In the Agalta Valley, we established a native plant nursery in San Esteban to raise and distribute woody plant seedlings to local ranchers and the El Ciruelo Wildlife Refuge to help restore dry forest. A total of 4,900 have been planted. We also conducted an analysis of water, cattle rotation, and forage production to develop best management practices for three ranches totaling 9.2 ha (23 acres), and we provided technical assistance in the implementation of these plans. This included creating 10 ha (24.7 acres) forage banks for cattle and fencing materials and plants that could serve as cattle feed were provided to ranchers to reduce the impact of the cattle on remaining forests.

We also conducted a Best Practices exchange with Pronatura NE from Mexico, who has an established grasslands management in Chihuahua. Many ranchers attended this workshop, and expressed interest in visiting progressive and ecologically-friendly ranches in Mexico. We were able to facilitate the travel of a small group of Hondurans to Chihuahua to further communication and educational exchange. This has helped showcase rotational grazing practices.

In the Yoro Biological Corridor, we have 20 identified coffee producers who have indicated a willingness to implement Integrated Open Canopy (IOC) production, and have similarly identified forest patches totaling approximately 200 ha (490 acres) on farms with high conservation value. We have mapped seven targeted IOC farms and determined their carbon value. An initial purchase of coffee from the region including carbon offset payments was completed by a coffee company in Ireland called Bewley's.

New Activities:

Yoro BirdScape: Sun coffee production within this 2,300 square mile corridor has expanded rapidly due to global market demand. It is critical that action is taken to reduce the impact of expanding coffee production on remaining wildlife habitat. While all forms of agroforestry are beneficial to some degree for biodiversity, neotropical migrants will only benefit from shade coffee plantations if there are also intact forest fragments nearby. It is therefore our goal to not only convert sun coffee to shade, but to also focus on protecting surrounding forest remnants.

Since 2016, ABC has been collaborating with a group of partners, including the Mesoamerican Development Institute (MDI), to expand implementation of IOC coffee production. This is being done in partnership with a local fair trade coffee cooperative in the Yoro region called the Cooperativa Mixta Sub-Yoro, or COMISUYL Coffee Cooperative. The initial goal is to ensure the protection of 200 ha (approximately 500 acres) of forest habitat. IOC coffee production importantly incorporates (forest) carbon offset calculations and employs non-fire wood drying techniques that both provide additional value and benefits to the landowner and reduces the carbon footprint of cutting forest wood to facilitate coffee bean drying. A robust industrial model of coffee processing using clean technology and landscape-scale forest-friendly production is being developed to supply a growing number of

companies seeking to purchase and market coffee and carbon offsets in harmony with national parks and watersheds.

Initial production and sales have occurred and next steps include developing the model further by expanding our efforts to new coffee producers/landowners, refining the carbon calculation, cultivating new relationships with potential carbon offset buyers, and setting up a sustainable drying facility. Specific activities include:

- Map 40 additional farms to increase the carbon offering to a scale that will interest a wider body of potential buyers;
- Refine the carbon measurements of IOC forest areas to advance the carbon program offerings toward certified and validated carbon units—increasing the marketability of the offsets;
- Measure carbon in the soils of certified-organic coffee farms to obtain baseline data for the IOC carbon protocol. Based on input from coffee farmers, the carbon in the soils for the area of organic coffee cultivation will provide additional and much needed incentives to adopt organic farming methods. Our project partner is finding that the demand for organic coffee through the Café Solar® program is outpacing the limited supply in the Yoro region.
- Complete planning (site selection, construction drawings) for a new "off-grid processing" facility that is powered by sustainable energy. This facility will demonstrate sustainable methods of drying coffee, and will also add value to the coffee being produced from the IOC plots because the farmers will be selling a more finished product. This will help advance the socioeconomic goals of this project, which is improving the livelihoods of the farmers and incentivizing their participation in the project.
- Map forest area of community members interested in conserving forest in the buffer zone of Pico Pijol National Park—this carbon stock will be included in the annual carbon offset offering. Last season, recapturing GWWA with geolocators did not allow sufficient time to identify and map forest area of some members of the community who desire to conserve forest on their property with the incentive revenue from carbon offsets.
- Continue discussions with the previous purchasers of carbon units (Bewley's Coffee) and other potential buyers who have expressed interest in the project to prepare a long-term market for carbon offsets generated from the Yoro Biological Corridor and contribute to the planning for the creation of NERC^{2}arbon, a carbon validation/verification body of UMass and UNAH to be certified by the American National Standards Institute (ANSI).
- Expand monitoring operations for WoodThrush and GWWA in COMISUYL Cooperative farms participation in this project.

Agalta BirdScape: The Agalta Valley of Honduras is one of the few remaining strongholds for the endangered Honduran Emerald. While the only endemic bird in Honduras to use dry forest habitat, ABC surveys in 2014 and 2015 identified the Wood Thrush as one of the most abundant migratory bird species in the area. Here ABC initiated a program in partnership with Honduras non-profit ASIDE to support protection of remaining forest fragments that occur on private lands. ABC is also working with landowners to improve cattle management and silvapasture capacity to increase economic outputs without the need for expanding grazing activities. ABC has helped secure one municipal site as a "core" reserve, called El Ciruelo, and is eager to help provide incentives to landowners to protect the key

forest fragments that buffer this core area. Our goal for this project is to ensure the protection of the 3,000+ acres of forest that remain across approximately 18 properties. Additionally, we have a goal of improving habitat on the newly created 147-acre El Ciruelo Reserve through reforestation.

ASIDE and its principal collaborators, including local municipalities, plan to build on their success in minimizing cattle ranching impacts to the dry forest and riparian habitats that are utilized by migratory birds like the Wood Thrush and resident endemics like the Honduran Emerald Hummingbird. Specifically, new work includes:

- Outreach, training and technical assistance to 18 ranchers who have dry tropical forest on their properties.
- Hiring a park guard to patrol the El Ciruelo Wildlife Refuge
- Follow-up workshop to facilitate additional exchange between cattle ranchers in Honduras and Chihuahua, Mexico.
- Continue fencing sensitive forest areas and streams (at least 5 km).
- Produce an additional 10,000 trees of the madreado species (*Gliricidia sepium*) for land restoration on ranches.

Upslope from the Agalta Valley, the Sierra de Agalta National Park and environs has been identified as a GWWA Focal Area by the Alianza Alas Doradas. Additionally, data from the Cornell Lab of Ornithology via eBird and data from Skutchburry shows that Sierra de Agalta National Park is an area of importance for migrating and wintering Wood Thrush. Here we have identified 9 coffee growing communities around the national park whom could be influenced to produce shade coffee. Starting in 2013, a fungal epidemic of *Hemileia vastatrix*, better known as "roya" hit Central America hard reducing productivity in many areas including in Sierra de Agalta of Honduras. The result of this has been the conversion of shade coffee plantations to corn or other short-cycle crops and thus the elimination of migratory bird habitat. To address these issues this project has the objective of working with the landowners within these 9 communities to improve or re-establish at least 400 acres of shade coffee production to restore bird habitat. Our plan is to remove old non-productive coffee bushes, replace them with roya resistant coffee bushes and plant native trees for shade within the plantations. In return for the improved management of these acres of coffee production, communities will agree to provide protections to areas of intact forest that is within the Sierra de Agalta National Park and park buffer zones.

Additionally, due to the extreme lack of resources by national government, there are few park guards in these areas; some of which are important sources of water for these communities as well. Community members will be trained in the SMART protocol established by Wildlife Conservation Society (WCS) to provide additional protections for these acres by conducting patrols, reporting infractions to local authorities and the UNA who has co-management authority for the park. Specifically, with funding we would like to:

- Contract a Technical Coordinator to oversee reforestation and coffee best practices, plus a Community Coordinator and local Project Leader for execution of this project.

- Establish cooperative conservation agreements with local communities and coffee and agroforestry cooperatives to facilitate restoration of 200 hectares for shade coffee production and improve the protection of 2000 hectares of Sierra de Agalta National Park.
- Develop and maintain a nursery and facilitate the planting of 10,000 native hardwood species and at least 30,000 rust-resistant coffee plants for planting in the 200 hectares.
- Purchase and install a minimum of 7,000 meters of fencing materials for reforestation protection and cattle management at reforested areas and to keep cattle out of adjoining watershed areas.
- Hold workshops for training in bird friendly coffee production targeted to nine (9) cooperatives and 60 persons.
- Provide training (using SMART® type protocol) in protected area control and GPS use to 27 persons selected from three (3) cooperatives.
- Conduct migratory bird monitoring annually in forested and reforested areas of properties where conservation actions are occurring in the Sierra de Agalta.

La Muralla: This is a new site that ABC is adding to its Honduran portfolio. This is a GWWA and GCWA Focal Area, and a park co-managed by an ABC partner, ASIDE. The focus of conservation work here is on the restoration of pine forests that have been destroyed by pine beetles then ravaged by fires. The areas are now susceptible to illegal incursions and the park is poorly protected. We are seeking funding to:

- Support park guards and conduct patrol operations
- Maintain and protect 400 ha (988 acres) of pine reforestation
- Repair trails and signs for park that were damaged from weather events in 2017
- Increase the visitation from 716 in 2017 to 1000 visitors in 2018

Budget: Total Request is $246,305. Contact Deb Hahn for more detailed budget information.

Matching funds: NMBCA grant that will provide at least $45,000 specifically for the Sierra de Agalta region. Partner MDI will contribute $2 M in matching funds that corresponds to the off-grid processing facility. These funds are for the actual construction and manufacture of MDI's patented hybrid solar/biofuel technology.

The two polygons on the map indicate the location of Yoro Biological Corridor (left), La Muralla (center) and the Agalta valley and mountains (right) in Honduras and the focal areas of this project.

Neotropical Flyway Project: 2018/2019 Season

Partners: SELVA: Investigación para la Conservación en el Neotropico, Colombia; Cornell Lab of Ornithology; Environment and Climate Change Canada; Bird Studies Canada; Parques Naturales Nacionales de Colombia; ADOPTA: Panama Rainforest, Panama; Canopy Family, Panama, Costa Rica Bird Observatories; Cerulean Warbler Conservation-CR; Las Brisas Nature Reserve; Reserva El Jaguar, Nicaragua.

States that have participated to date: None so far.

States with a biological connection: All states in eastern U.S. have a significant biological connection through migratory species that use northern Colombia and Central America for critical stopovers; see attached list of species highlighted in this project, with specific ties to key states.

Overview: Close to 300 species of landbirds, whose combined populations represent billions of birds, migrate between the Neotropics and North America. For many species, migration is by far the greatest source of mortality during their annual cycle, such that even successive delayed arrivals or degradation at a single major stopover site can lead to significant declines, threatening the viability of populations across the Western Hemisphere.

To successfully migrate between their breeding and wintering grounds, Nearctic-Neotropical migrants typically depend on a series of (stopover) sites along the length of their migratory route, which provide critical resources such as the fuel for migratory flights, safe roosting sites, and refuges where birds can make emergency stops. Outside of North America, the funnel-shaped geography of Central America and the biogeography of northern Colombia, act as bottlenecks, concentrating millions of migratory landbirds into a tiny area (relative to their breeding grounds), magnifying the importance of Neotropical stopover sites. Further, birds migrating through this region face major barriers in the form of both the Caribbean Sea and the Gulf of Mexico, and it is likely that vital stopover regions exist where birds attain sufficient fuel to cross these barriers safely. Recent work on thrushes, vireos, and warblers on stopover in northern Colombia has shown that the energy reserves acquired there, may enable birds to not only cross the Caribbean sea but also cover up to 40% of their total migration distance – highlighting an urgent need to identify major Neotropical stopover regions and assess the needs of birds within them.

To address this urgent need, the ***Neotropical Flyways Project*** (NFP) has been operating since 2016 with the goals of (1) rapidly discover and map new stopovers sites; (2) determine habitat quality and stopover behavior at these sites; (3) develop conservation strategies at key stopover sites; and (4) train and build capacity among in-country biologists and managers to protect sites and continue long-term monitoring.

Threats: Research to date indicates that the majority of birds stopping over in northern South and Central America rely on native forests, especially pre-montane forests on Caribbean-facing slopes as well as lowland tropical wet and dry forests. These tropical forests are under severe threat from

expanding agriculture, agro-forestry, and development. Although some agro-forestry systems, such as shade coffee, provide habitat for overwintering migrants, preliminary results from this study indicate that these habitats may not support adequate fueling conditions for a number of species on migration. The almost complete lack of knowledge of migratory stopovers in this region constitutes a threat in itself, hampering full life-cycle bird conservation.

AT A GLANCE

- Over **one billion migratory landbirds** migrate between the Neotropics and N. America.
- Despite this massive movement of birds, the routes and strategies that migratory landbirds adopt in the Neotropics are almost completely unknown.
- The Caribbean Sea represents a significant **ecological barrier** in the migration of many species and the stopover sites either side likely influence the success of migration.
- Only by identifying **stopover sites and habitats** where birds lay down the energy reserves for migration, can we identify the needs of migratory birds at all stages of their life cycle.
- The **Neotropical Flyways Project** will identify critical stopover regions and habitats across five Central American countries and the Caribbean coast of Colombia.
- **Intensive observations** will be used to identify previously **unknown** stopover sites.
- Constant effort **mist-netting stations,** combined with cutting-edge **radio-tracking** technology, will determine how birds use stopover regions and to what degree a region contributes to the migration of each species.
- Professional biologists from each of six countries will receive thorough training in research techniques for studying migratory birds, ensuring a high level of data quality and contributing significantly to **regional capacity for avian research**.
- The combined results will be used to develop a **conservation business plan** for the stopover sites along the western Caribbean flyway.

Birds: More than 50 species of landbirds regularly migrate through northern Colombia and Central America on their way to and from South American wintering grounds, and many more both winter and use Central America for stopovers. These are primarily species from eastern and boreal forests of the U.S. and Canada, including species of high conservation concern, such as Canada Warbler, Cerulean Warbler, and Golden-winged Warbler, as well as common species central to ecosystem function, such as Red-eyed Vireo, Scarlet Tanager, and Swainson's Thrush.

What states the project connects with due to the biology of the birds: All eastern states have connections to this project due to the migration routes of many species. See Table 1 for specific species connected to representative states. A few important western migrants, such as Western Wood-Pewee, Olive-sided Flycatcher, and Yellow-billed Cuckoo are also included in this project and may be of interest to western states.

TABLE 1. Species targeted by the NFP, and their SGCN List status in selected states. All of these species migrate to South American wintering grounds and use sites within northern Colombia for stopover or as migration corridors. PIF continental status: XX = Red Watch List, XX = Yellow Watch List, XX = Common Bird in Steep Decline (2016 PIF Landbird Plan).

PIF	Species	NY	MO	LA	NC	GA	VA	TN	KY
XX	Golden-winged Warbler	X			X	X	X	X	X
XX	Common Nighthawk	X	X		X				
XX	Black-billed Cuckoo	X	X		X				
XX	Olive-sided Flycatcher	X						X	
	Tennessee Warbler	X							
	Bay-breasted Warbler	X							
XX	Cerulean Warbler	X	X		X	X	X	X	X
	Dickcissel	X	X	X	X			X	X
	Louisiana Waterthrush	X	X	X			X	X	X
XX	Canada Warbler	X			X		X		X
	Scarlet Tanager	X	X				X		
XX	Prothonotary Warbler	X	X	X			X	X	X
XX	Yellow-billed Cuckoo		X	X	X		X	X	
XX	Chimney Swift		X		X		X		
	Eastern Wood-Pewee		X		X		X	X	
	Rose-breasted Grosbeak		X		X		X		X
	Mississippi Kite		X		X			X	X
	Eastern Kingbird		X		X		X		
	Black-and-white Warbler		X				X		
	Yellow Warbler		X				X		
	Yellow-throated Vireo		X				X	X	
XX	Bank Swallow		X				X		X
	Acadian Flycatcher		X					X	
	Blackburnian Warbler								X

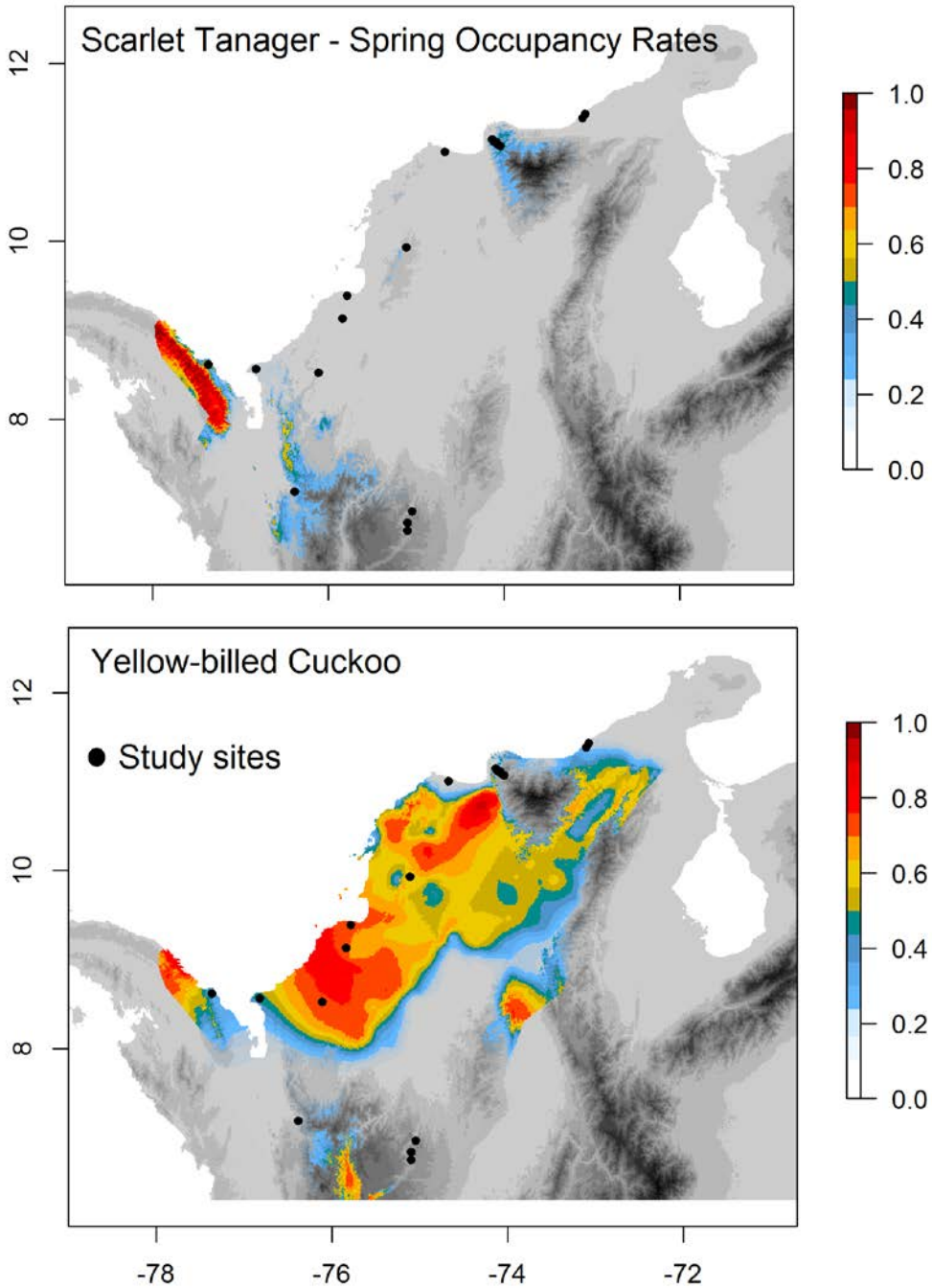
Project goal: The NFP has been designed to tackle enormous gaps in our knowledge of stopover regions in Central America and northern South America. This information will feed into a wealth of conservation plans that currently lack actions addressing the needs of species such as the Cerulean Warbler and Canada Warbler during their lengthy migrations through Neotropical regions. Ultimately, the goal is to prioritize and protect key habitats and sites through a conservation business plan for migration stopover sites in Central America and northern South America. This plan will guide actions aimed at ensuring that not only major stopover regions for currently threatened are safeguarded, but

also for the millions of individuals that belong to common yet declining species that are essential to ecosystem functionality across the Americas.

Specific objectives of this project are to:

1. Identify previously unknown stopover/staging sites ("Delaware Bays for songbirds")
2. Determine habitat quality and needs for key species within stopover sites
3. Determine migratory connectivity and migration strategies with tracking technologies
4. Engage and train local biologists, conservationists, and communities
5. Incorporate migration-stopover needs into full life-cycle bird conservation plans

Predicted occupancy rates for Scarlet Tanager and Yellow-billed Cuckoo across northern Colombia reveal spring stopovers in pre-montane forests (SCTA) and in lowland tropical dry forests (YBCU).



Previous Successes: During the initial phases of the Neotropical Flyways project in 2016 and 2017, with funding from Cornell Lab of Ornithology, Environment and Climate Change Canada, and SELVA, more than 8,000 transect surveys were conducted along 350 transects at 25 sites across northern Colombia and Panama. These surveys have produced over 50,000 records during passive transects and migration counts during fall migration in Colombia alone, gave rise to a total of 1.7 million birds. Surveys were designed to cover a range of elevations, climatic conditions and habitats, thereby facilitating the development of spatial predictions of stopover use at the regional level. Analysis of spring data in

Colombia, revealed the previously unknown importance of dry forest stopover sites for species such as Yellow-billed Cuckoo and Barn Swallow, while also highlighting the importance of pre-montane forests for species like Blackburnian Warbler and Scarlet Tanager (see selection of maps below). We also successfully tested and implemented a new survey protocol for migratory birds, trained 9 Colombian and 3 Panamanian biologists, worked alongside the National Parks authority in three national parks and carried out education activities in local schools.

Outreach activities have included the organization of a migration stopover symposium and presentation of results at PIF VI in Costa Rica (Nov 2017), the publication of a review of major stopover regions in the Neotropics (PDF), presentation of results to three Colombian National Parks, and three oral presentations at the Colombian Ornithology Congress (Nov 2016).

Activities/Actions (for specific dates): The NFP will focus on understanding migrant strategies and stopover use in six countries over a period of six years: Colombia, Panama, Costa Rica, Nicaragua, Honduras and Belize. In the current proposal, we are seeking funding for planned actions during 2018/2019. These include:

March-May 2018 - Completing the characterization of spring stopovers in tropical dry forest in Colombia through constant effort mist-netting and the deployment of Motus tags

August-November 2018 – Undertake fall occupancy surveys at a minimum of six sites across Costa Rica, with a special focus on recently discovered stopover regions for Cerulean Warbler

November-January 2018/2019 – Visit potential study sites in Nicaragua and plan spring occupancy surveys to be undertaken simultaneously in Panama, Costa Rica and Nicaragua

January-March 2019 – Carry out occupancy analyses for fall migration through Panama, Costa Rica and Colombia and identify major stopover regions.

March-May 2019 – Carry out occupancy surveys across Panama, Costa Rica and Nicaragua during spring migration

Budget (Spring and Fall 2018): Total Request is $112,240. Contact Deb Hahn for more detailed budget information. Note: because the project is built on modular activities in each country and region smaller amounts of funding can go towards specific components in each season.

Matching funds: Funding has been provided by Cornell Lab of Ornithology -- $45,990 for 2016, $20,000 for 2017, and $10,000 is promised for 2019. The Canadian Wildlife Service has provided $15,000 for 2017/2018. Smaller contributions from SELVA, Acadia University, Guelph University and Saskatchewan University total $10,000. Equipment, namely 50 radiotransmitters, represent a further $8750.

The Pacific Flyway Shorebird Survey: Identifying Threats and Conservation Hotspots in Northwest Mexico

Partners: Terra Peninsular, CICESE, Point Blue Conservation Science, UNAM, CIBNOR, UABCS, Arizona Game and Fish Department (AGFD)

State(s) Participating: Arizona

Overview: Nearctic-neotropical migratory shorebirds (Order: Charadriiformes; Family: Charadriidae, Recurvirostridae, Scolopacidae) are highly mobile animals that traverse thousands of kilometers across the Western Hemisphere bi-annually and are reliant upon a network of coastal and interior wetland ecosystems. The Pacific Coast of the Americas (Fig. 1) supports entire populations of neotropical migratory shorebird species during winter (November-February). Wetlands stretching from southern Alaska to Chile are critical for the survival of these birds; including 12 Western Hemisphere Shorebird Reserve Network sites in NW Mexico. The health of these sites is critical to supporting shorebird populations. Current research indicates populations of shorebirds are declining (Brown et al. 2001) but the causes of these changes are not well understood (Butler et al. 2004).

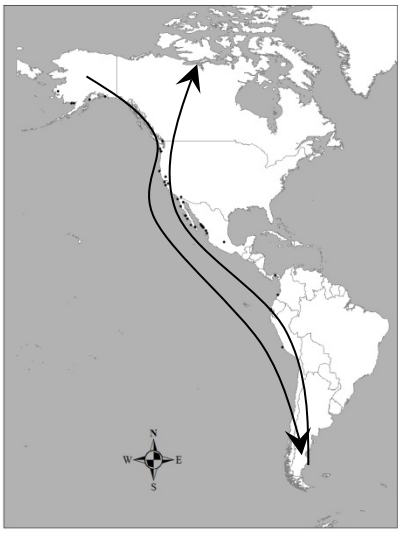


Figure 1. The Western Hemisphere with stylized migration route of shorebirds along the Pacific Coast of the Americas and important wetland sites as designated by the Western Hemisphere Shorebird Reserve Network.

The lack of broad-scale coordinated monitoring for Pacific Flyway shorebirds has limited our ability to effectively manage their populations particularly in light of the predictions of climate change, which will likely alter habitat conditions (e.g. sea-level rise, reduced wetlands due to drought). In 2011, in collaboration with the Copper River International Migratory Bird Initiative (CRIMBI) and >100 individual and organizational partners throughout the Pacific Flyway, we initiated the Pacific Flyway Shorebird Survey and then the Migratory Shorebird Project to fill gaps in Pacific Flyway population status and trends and then to assess hypothesized threats to shorebirds and identify priority conservation locations, respectively. Specifically, the objectives of the Pacific Flyway Shorebird Survey and then the Migratory Shorebird Project are to: (1) quantify spatial and temporal trends in distribution and abundance of shorebirds and other waterbirds both at the individual site level and across their wintering ranges; (2) provide science-based guidance for managers to inform actions and measure the response; (3) develop an "iterative learning" analytical framework to critically evaluate specific hypotheses about the factors influencing population changes and to identify priority wetlands; and (4) educate individuals, communities, and governments about the importance of their wetland resources and their connectivity with people, via shorebirds, throughout the Americas. These programs now collect standardized bird and habitat condition data on over 2.5 million non-breeding waterbirds from 11 countries annually.

Threats: The primary threats to shorebirds in the Pacific Flyway are believe to include 1) changes in habitat availability; 2) exposure to contaminants and pollutants; 3) human disturbance; 4) climate change; and 5) increasing predator populations. Human disturbance is thought to particularly be a problem in beach habitats (important for populations of Snowy Plover and Red Knot) which get a lot of use by humans compared to intertidal mudflats and rocky areas.

Birds: Shorebirds (Families: Charadriidae, Haematopodidae, Recurvirostridae, Scolopacidae); Waterfowl (Black Brant and ducks); Raptors; and Waterbirds (terns, egrets, etc. Of the shorebirds, eight species' populations are counted each year in Mexico that are listed in State Wildlife Action Plans for Pacific Flyway States including: Marbled Godwit (2 plans), Western Snowy Plover (5 plans), Red Knot (1 plan), Black-necked Stilt (2 plans), Long-billed Curlew (5 plans), American Avocet (3 plans), Long-billed Dowitcher (1 plan), and Western Sandpiper (2 plans). Further the wetland habitats and sites used by shorebirds during the non-breeding season and monitored a part of this program are important for other migratory waterbirds in particular Black Brant in Northwest Mexico; all 13 sites of importance for wintering Black Brant in NW Mexico are surveyed each year and Brant as well as other waterfowl are counted as part of the PFSS.

Project goal:
The general goal is to improve the efficiency of conservation and management for coastal wetlands, shorebirds, waterbirds and waterfowl in Mexico through the integration of data and prioritization in decision-making. This will be achieved by conducting the following actions.

1. Complete annual non-breeding bird surveys at 21 sites across Mexico (Fig. 2) and compiling these survey data in to the Pacific Flyway Shorebird Survey node of the Avian Knowledge Network. Data collected in the field includes the number birds (shorebirds, waterbirds and waterfowl), measures of bird disturbance, and assessment of habitat condition. The number of avian predators of shorebirds and other waterbirds (raptors) are also recorded.

2. Expand our survey efforts on sandy beach to improve sampling for Snowy Plover, Red Knot, Willet, and Sanderling and be better able to understand human impacts which are centered on beaches.

3. Integrate these survey data from new and existing sites along with spatial data on the distribution of shorebird habitat across Mexico into models to assess what are the drivers of shorebird distribution and abundance and the importance of different threats. Distribution models developed with these data for Pacific Flyway State Wildlife Action Plan focal species will be used to highlight priority areas for non-breeding shorebird conservation.

Southern Wings Successes in 2017:

- <u>Site Designation:</u> In 2017 Bahía de Todos Santos, near Ensenada, Baja California was designated as a new WHSRN site, based on the shorebird data provided by this Project.

- Nonbreeding Waterbirds Monitoring: During January and February 2017 we completed the annual non-breeding bird surveys at 21 sites across northwest Mexico (Fig. 2). These sites included 243 sampling units that are surveyed by about 50 volunteers in northwest Mexico.
- Aerial Surveys: To expand our survey efforts on sandy beaches on 29 March, 2017 we conducted an aerial survey along the coastline between Ensenada and San Quintín, northwest Baja California. This flight was possible, thanks to the generosity of LightHawk Volunteer Pilot Joseph DuRousseau. The objective was to locate aggregations of shorebirds in sandy beaches.
- Pacific Brant Surveys: We provided a technical report on Brant surveys in Mexico to the The Pacific Flyway Study Committee for their meeting on February 27-March 3, 2017.
- Expanding Shorebird Surveys: To improve sampling for Sanderling and Snowy Plovers and be better able to understand human impacts, which are centered on beaches, we intensified to three surveys per month at Estero de Punta Banda (south of Ensenada, B.C.). Five out of 16 sampling units are sandy beaches.
- Snowy Plover Surveys: Nonbreeding Snowy Plovers were monitored in five sites (Estero de Punta Banda, San Quintin, Laguna Atotonilco, Marismas Nacionales and Ceuta). Between February and March 2017 we have conducted one nonbreeding survey at each site (and two surveys at Marismas Nacionales and Estero de Punta Banda). In May 2017 we will be able to conduct breeding surveys in all five sites, thanks to this PFSS support.
- Nonbreeding Waterbird Monitoring: During April we completed three non-breeding waterbird surveys at Bahía Ceuta, Sinaloa and at Estero de Punta Banda Baja California.
- Snowy Plover Breeding Monitoring: During May and June 2017 breeding Western Snowy Plovers were monitored in six sites (Estero de Punta Banda and Bahía San Quintin, Baja California; Ensenada de La Paz, Baja California Sur; Laguna Atotonilco, Jalisco; Bahía Ceuta, Sinaloa; and Marismas Nacionales, Nayarit.
- Least Tern Monitoring: During June we conducted a range-wide survey of the endangered California Least Tern colonies along the Pacific coast of the Baja California peninsula. Results from this survey will be presented at the Pacific Seabird Group Annual Meeting in La Paz in February 2018.
- Training: On May 4th, 2017 we had a one-day workshop in Ensenada with 15 experts on waterbirds from different sites in northwest Mexico. We developed a standard waterbird monitoring program and coordinated midwinter waterbird surveys in 20 sites in Mexico to be conducted this winter.
- Training: As part of this project, Abril Heredia, graduate student of Eduardo Palacios, is working on the effect of human disturbance on shorebirds. In 2018 she will get her MSc degree at CICESE.
- Training: In May 2017, our MSc student Abril Heredia worked for a week with a team of other biologists from Washington Department of Fish and Wildlife to conduct capture and marking of Red Knots in Grays Harbor, WA

Specific Activities planned for 2018: Terra Peninsular and partners will implement the following conservation actions in 2018;

- Conduct outreach and education activities at two sites (Golfo de Santa Clara, Sonora and Estero de Punta Banda, Baja California) to mitigate the effects of human disturbance on migrating shorebirds, especially Red knots and Sanderlings.
- Collaborate in three bird festivals in Bahía de Todos Santos and Bahía San Quintín, Baja California, and at Golfo de Santa Clara, Sonora. The goal is to educate individuals, communities and governments about the importance of their wetland resources and their connectivity with people, via shorebirds and other waterbirds.
- Provide training on monitoring shorebirds and disturbance to volunteer partners in the Biosphere Reserve Alto Golfo y Delta del Río Colorado.
- Conduct annual non-breeding bird surveys of at least 10 of the 21 wetland sites across NW Mexico (Fig. 2), using defined protocol and compiling these survey data into the California Avian Data Center (CADC), node of the Avian Knowledge Network (AKN). Data collected in the field includes the number of birds (shorebirds, waterbirds and waterfowl), measures of bird disturbance, and assessment of habitat condition. The number of avian predators (raptors) of shorebirds and other waterbirds are also recorded.
- Continue our shorebird surveys on sandy beach to improve sampling for Snowy Plover, Red Knot, Willet, and Sanderling and be better able to understand human impacts that are centered on beaches. Analyze data and make appropriate comparisons across sites and years.
- Combine bird survey data with habitat maps to identify conservation priority wintering sites for Pacific Flyway State Wildlife Action Plan focal species (see Birds above) and work to develop shorebird friendly management and conservation strategies for important areas, as data becomes available and analyzed.

Budget: Total Request is $20,000. Contact Deb Hahn for more detailed budget information.

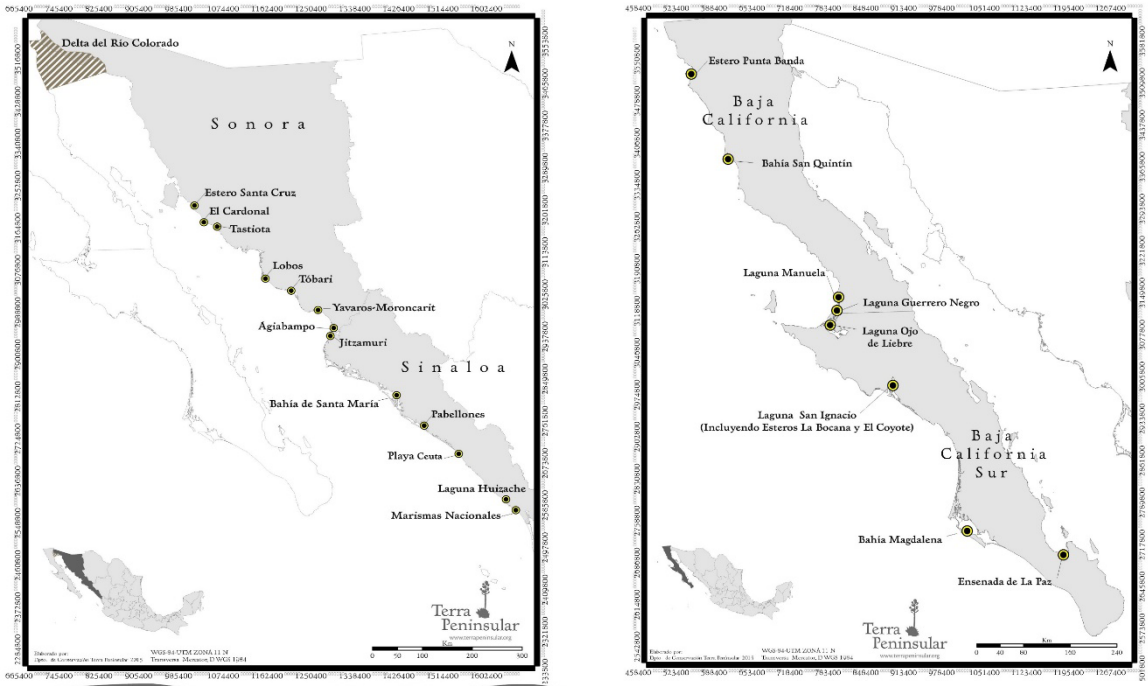


Figure 2. Location of 21 coastal wetland sites which are part of the Pacific Flyway Shorebird Survey in Northwest Mexico; AGFD will support work in some of these sites in 2018.

Protecting Winter Habitat for Cerulean Warblers in the Andes

Partner: Fundación Jocotoco (Ecuador), American Bird Conservancy (ABC)

States/ regional state agency associations that have participated to date: NEAFWA, Missouri, Indiana

Overview: Fragmentation and loss of wintering habitat are among the main drivers for the decline of many neartic-neotropical migratory birds. Ecuador provides wintering habitat to 105 species of forest-breeding migratory birds, many of them included in the U.S. Fish and Wildlife Service Species of Conservation Concern List. Ecuador's population growth is higher than that of neighboring countries. Ecuador has the highest deforestation rates over the last 50 years in South America. Annual loss of forests ranges from 148,000 to 495,000 acres resulting from increasing human land use. Forest loss is highest in the Andes and in Western Ecuador where the Fundación Jocotoco has established a network of eleven reserves.

In the southern buffer area of Fundación Jocotoco's Tapichalaca Reserve and the Yacuri National Park is a matrix of coffee farms that covers 830 acres. The farmers belong to a coffee cooperative, APECAP (Asociación de Productores Ecologicos de Altura de Palanda), which has approached Fundación Jocotoco repeatedly for assistance in implementing organic and bird-friendly practices on their farms. 130 of the 174 producers have some form of organic certification. Some of the farms are already producing organic coffee and are certified by a domestic third-party verifier. There is already some awareness that organic coffee requires less agrochemicals, which are costly to purchase, and can have higher yields. This area presents a unique opportunity to increase tree cover through the implementation of shade coffee, as many of the farmers see the value of bird-friendly coffee for niche markets and are receptive to bird-friendly practices.

Threats: The Cerulean Warbler is the most threatened neotropical migrant land bird in South America. Over 90 percent of the Cerulean Warbler's preferred wintering habitat has been lost. Therefore, it is critical to protect remaining habitat, restore degraded habitat, and ensure the local community has the information and incentives to conserve the habitats in perpetuity.

Birds: More than two dozen Neotropical migrants winter in the area, including the following species that are present on the properties targeted by this project: Cerulean Warbler, Blackburnian Warbler, Blackpoll Warbler, Canada Warbler, Black-billed Cuckoo, Swainson's Thrush, Olive-sided Flycatcher, Western Wood-Pewee, and Summer Tanager. Most of these birds are Species of Greatest Conservation Need, USFWS Birds of Conservation Concern and/or on a watch list for Partners in Flight, National Audubon and others.

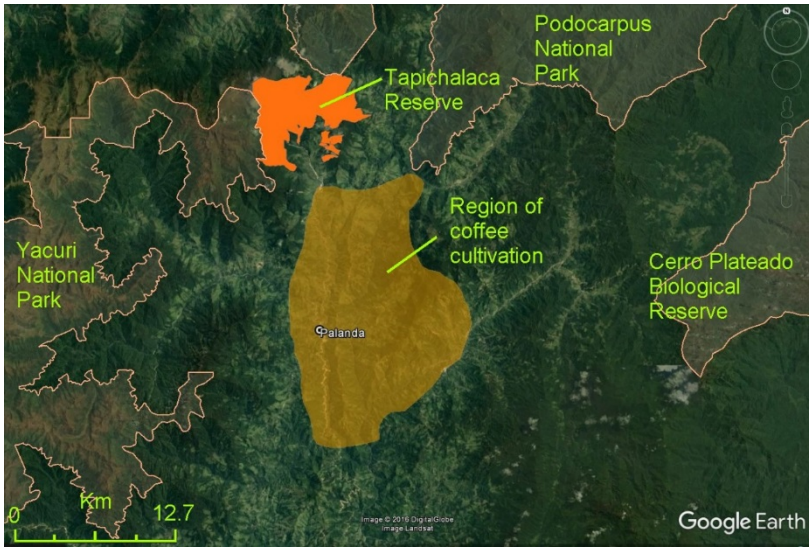
Project Goals: This project seeks to apply methods proven in other regions of Central and South America in Ecuador to increase tree cover across productive landscapes for the benefit of migratory species. This project seeks to implement bird-friendly best-practices across 15% the coffee farm matrix surrounding Tapichalaca Reserve in Ecuador. Southern Wings funds will be used to plant at least 10,000 native trees in shade coffee systems, reforest degraded areas within the Tapichalaca Reserve, monitor the response of migratory birds to restoration and the implementation of shade coffee,

conduct outreach with coffee cooperative members on bird-friendly production methods, and help the coffee cooperative market and promote the bird-friendly coffee they will produce.

Southern Wings Successes to Date: Southern Wings has contributed to the successful management of three reserves in Colombia and Ecuador (Pauxi Pauxi, Cerulean Warbler, and Narupa) for the protection of migratory bird habitat. In addition, Southern Wings funding has been integral in expanding shade coffee in the Cerulean Warbler Corridor in Colombia. Most recently, Southern Wings support contributed to the planting of 1,600 native trees on 40 coffee plantations in the buffer zone of the Tapichalaca Reserve in southern Ecuador; the planting of 7,500 trees within the Reserve; and the initiation of a bird monitoring program in southern Ecuador in collaboration with the senior members of APECAP.

Budget: Total Request is $45,200. Contact Deb Hahn for more detailed budget information.

Matching Funds: ABC has applied for, and received, a grant from NMBCA for reforestation in the Andes in the amount of $44,764, which will serve as match for this project.



Conservation in Costa Rica's Guanacaste National Park

Partners: Minnesota Department of Natural Resources, Guanacaste Dry Forest Conservation Fund, Dr. Janzen (Professor of Biology, University of Pennsylvania), Dr. Frank Joyce (Director of Tropical Biology and Conservation Programs, University of California), and Marta Maria Chavarria, (Research Director of Guanacaste National Park)

Birds: Among the most common and regularly observed Neotropicaligrants in the Guanacaste region including mangrove forests and surrounding dry forests are the Baltimore Oriole, Ruby-throated hummingbird, Blue-winged Teal, Great Blue Heron, Osprey, Peregrine Falcon, Spotted Sandpiper, Prothonotary Warbler, Scissor-tailed Flycatcher, Barn Swallow, Tennessee Warbler, Yellow Warbler, Great Crested flycatcher, and Yellow-throated Vireo.

Overview: In 2015 they began the Minnesota-Guanacaste National Park effort with the Guanacaste Dry Forest Conservation Fund. One focus is the designation and protection of Costa Rica's first "Bird Conservation Area" in the mangrove forests and adjacent uplands in the vicinity of Cuajiniquil. They are currently identifying potential sites.

Another critical component of the effort has been incorporation of support for bird conservation into the local community of Cuajiniquil and among local citizens and youth. The goal is to have the local community see the benefits of the national park both as a habitat for birds and a future employer for local youth who may eventually work as biologists, park managers, birding guides, and tourism specialists. Through a mentorship program, they are also training an elite group of enthusiastic young students (ages 11 to 14) from the village of Cuajiniquil. The kids proudly refer to themselves as "Los Trogones," and have been developing their bird identification and photography skills as they do bird inventories of their area with their mentors. They carried out their first two Christmas bird counts in December. It is hoped that this partnership can be used to complement nongame wildlife educational efforts in Minnesota.

It is the current vision for this project to extend the project beneftis eastward each year to additional forested life zone habitats with the designation as new "Bird Conservation Areas" that include both public and private lands associated with Guanacaste National Park. These subsequent areas would include habitats for species like the Golden-winged Warbler, Chestnut-sided Warbler, Wood Thrush, Summer Tanager, Broad-winged Hawk, Rose-breasted Grosbeak, Black-and-white Warbler, Northern Rough-winged Swallow and Northern Waterthrush.

For more information contact Carrol Henderson, MN DNR (carrol.henderson@state.mn.us)