Project Proposals

2017-2018

Contents

Protection of Wintering and Stop-Over sites in Guatemala 3

Protection of Migratory Bird Habitat of Desert Grasslands in the El Tokio Grassland Priority Conservation Area (PHASE II) 7

Restoration of Migratory Grassland Bird Habitat in the Valles Centrales and Janos Grassland Prioity Areas 11

Protecting stopover and wintering habitat for key priority species of shorebirds and waterbirds at Laguna Madre, Mexico 15

Implementation of the Golden-winged Warbler Conservation Plan in Nicaragua 18

Conserving Critical Piping Plover and other Shorebirds Wintering Sites in the Bahamas 21

Conserving Thick-billed Parrots and Neotropical Migrants in old-growth forests of the Sierra Madre Occidental, Mexico – Phase II 25

Golden Eagle Conservation in Mexico 30

Status of Western Yellow-billed Cuckoos in Sonora, Mexico 34

Protecting Key Wintering Sites for the Endangered Red Knot in NE Brazil 37

Wood Thrush Conservation in Central America 39

Neotropical Flyway Project: 2017 Season 45

The Pacific Flyway Shorebird Survey: Identifying Threats and Conservation Hotspots in Northwest Mexico 50

Conservation in Costa Rica's Guanacaste National Park 54

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

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. FUNDAECO, a Guatemalan conservation organization, 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.

Threats: Cattle ranching, 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 the forested massifs of Sierra Caral, San Gil and the lowland peninsula of Manabique. Here Wood Thrush, Kentucky Warbler, Worm-eating Warbler, Black-throated Green Warbler and Painted Bunting are present here in large numbers in the winter. ABC funded research identified the region's caribbean mountin tops as important spring stopover sites for the Cerulean Warbler—a priority Watchlist bird. Other Watchlist species depend upon the area including Golden-winged Warbler, Canada Warbler and Olive-sided Flycaters. The coastline of Punta de Manabique is 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, Catbird, 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 the management of lands in buffer zones for 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. Paperwork was submitted to the government for designation as a National Protected Area, which was met with great success. On May 13, 2014, by an overwhelming pro-conservation vote, the Guatemala Government established Sierra Caral as a National Protected Area. This new status protects 47,000 acres that safeguard three species of threatened birds, a host of migratory birds that breed in the United States, a dozen globally threatened frog and salamander species (five found nowhere else in the world) and the rare Merendon palm-pitviper (*Bothriechis*

thalassinus), an arboreal, blue-toned venomous snake. Sierra Caral was the first new 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 a new reserve at 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 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 of ABC's and FUNDAECO's migratory bird corridor program is the purchase of a property called Finca Ana Perdoma, which will serve to consolidate the conservation of 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, hunting and agricultural expansion into pristine forests. 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. Patrolling of this road has led to the confiscation of illegally harvested wood. Experience has shown that patrolling activities are effective in deterring illegal harvesting.

In total ABC and FUNDAECO has secured over 8,200 acres of land for conservation, helping to create four new reserves and expand one since 2011. This work has helped to secure the protection of the core areas of the most important remaining wildlife habitat in Caribbean Guatemala, what ABC and FUNDAECO are calling the Conservation Coast.

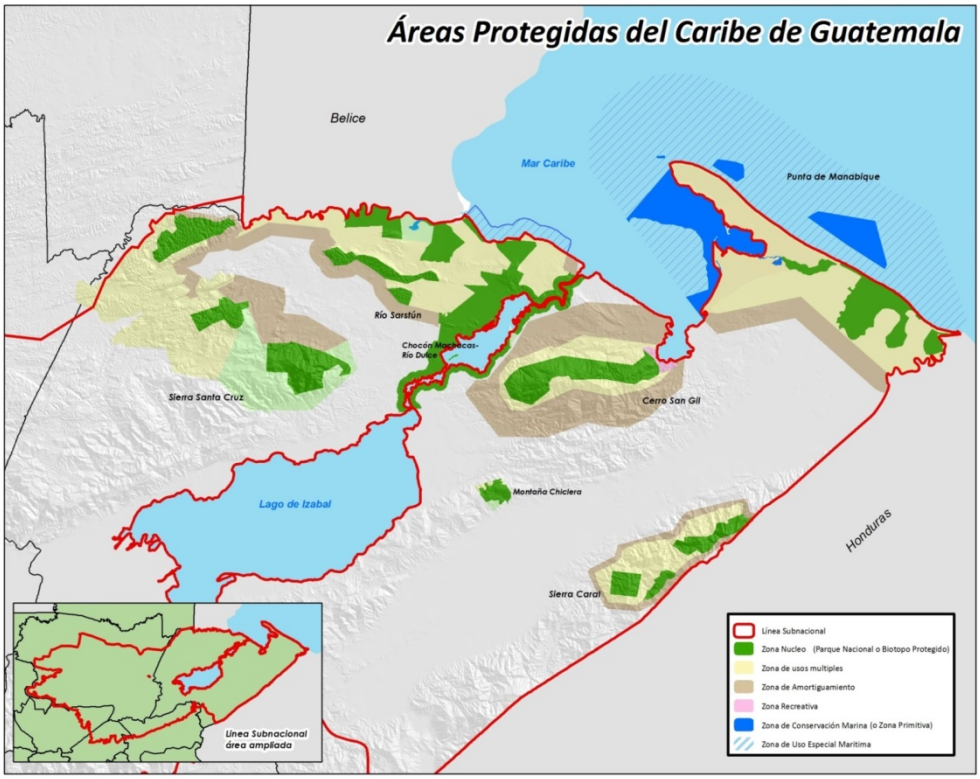
Activities: To wrap up Phase V, funding is needed to complete the payment on the Perdoma property and create the Santa Cruz reserve. We are now entering into a new phase of this project, Phase VI, where we are focusing on improving the management of lands in the buffer zones of these protected areas. While private landowners need to continue to have economic opportunities, we believe those economic opportunities can be tied to conservation and be managed in a way that is beneficial to birds.

A core concept within the next phase of our work is the development of Biocenters (BioCentros) which are properties that will act as training grounds for communities to learn about production methods of products that can be produced in a way that are 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 from this living classroom will be sold on local or international markets, and the return from these sales will go into sustaining the BioCentros and also supporting the sustainability of the reserves ABC, FUNDAECO, Southern Wings and others have helped to create.

Southern Wings can play a key role in the successful development of BioCentros. FUNDAECO has identified a series of properties that would make for good BioCentros. The properties have forest on them, but also have areas currently in pasture that can be restored, and put into production tests for products like; timber, rubber, chocolate, cardomom, cinnamon, rambutan fruit, black pepper, all spice and xate palm. Funding is needed for the acquisition of these properties, initial efforts for restoration and production and for workshops with community members.

Budget total $145,312 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))
Matching funds: Guard salaries, market studies, monitoring staff/equipment, REDD+ funding and travel, and acquisition.

Figure 1. Major regional protected areas with Sierra Santa Cruz



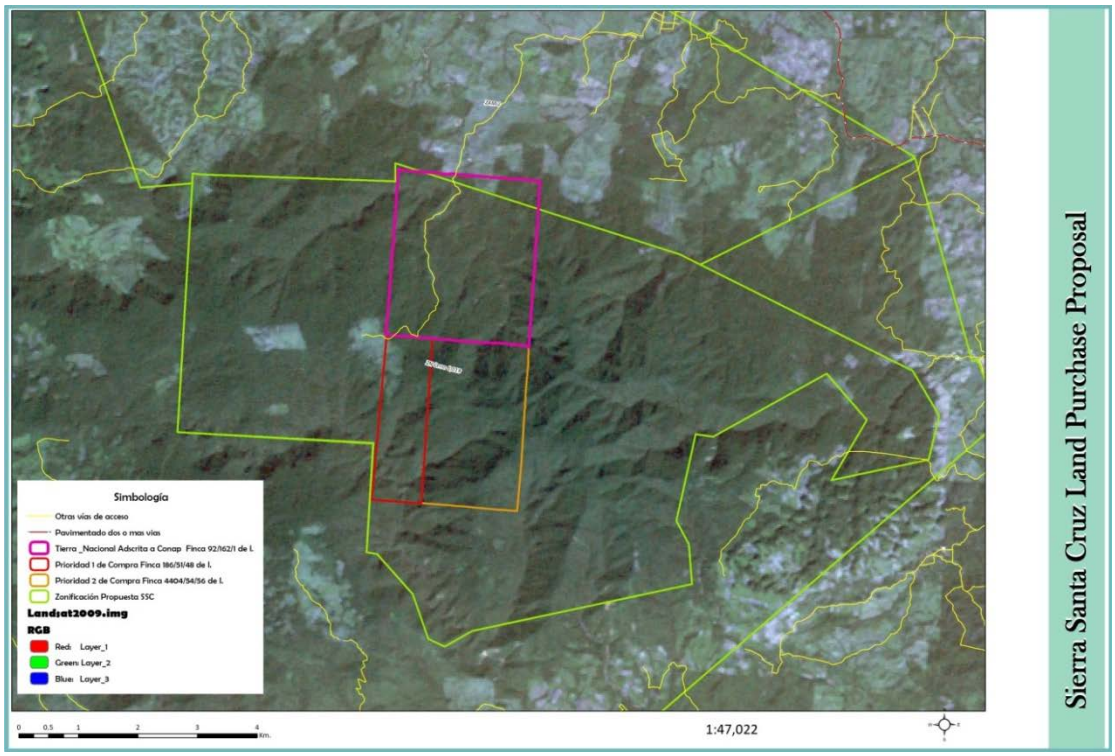


Figure 2. Map of Finca Perdomo land acquisition (red) and future land acquisition (orange) inside Sierra Santa Cruz

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

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 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.

Within El Tokio, PNE and ABC have supported conservation efforts on more than 150,000 acres of habitat through the creation of private reserves, ejido reserves and conservation agreements that restrict cattle ranching and agriculture practices; and through the installation of erosion control measures and ranching best management practices. This includes working with the following ejidos: 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 helped purchase 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, there are additional ejidos that are between the La India Ejido and the properties owned by PNE that are not yet working with PNE to manage habitat for wildlife. These ejidos, El Venado, Las Hormigas and Las Esperanzas, have been targeted for future engagement to develop new ejido reserves and advance the creation of the El Tokio Corridor.

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. Increased agriculture requires more wells which further exacerbate the drought conditions in the region. 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) (100 to as many as 2,000 individuals have been seen in a single flock at nearby ponds). This GPCA 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. Resident birds of significance include the Burrowing Owl and Worthen's Sparrow, an IUCN Endangered and Alliance for Zero Extinction (AZE) species.

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. Another project goal is the implementation of a comprehensive "Vital Signs" biological monitoring program on PNE's reserves to monitor the impact of our conservation work and inform future actions and facilitate additional scientific investigations such as a LBCU tracking project and migratory bird abundances.

Previous Southern Wings Successes – PNE has conducted restoration on multiple properties in El Tokio. At the Lomas del Gorrion property, PNE installed erosion control rock walls, berms and gabion dams across over 50% of the property that has led to extremely successful restoration; so much so, that it is now necessary to implement a partial grazing regime to maintain a variety of appropriate vegetative heights. Reforestation with native junipers has also occurred. The guard stationed at Lomas del Gorrion and Cuatro Gorriones has been crucial to repair fences to keep out goats from neighboring properties.

PNE has also worked with La Hediondilla, Tanque Nuevo and Matehuapil ejidos to establish 15 year conservation agreements on over 70,000 acres. PNE has written management plans for these properties and implemented conservation actions to improve growth of native grasses, reduce erosion and keep cattle out of sensitive areas. At La Hediondilla, a pond exists where thousands of LBCUs congregate each year. PNE conducted a hydrological study and biological assessment to better understand the structure that allows this pond to have water for longer than other water sources in the area and what draws the LBCUs to this particular pond. From this analysis a management plan was developed with the ejido to ensure a minimum water volume is maintained.

Recently, funds have been invested in better understanding the impact of goat grazing on grassland habitat and the development of goat management recommendations for the San Jose de los Alamitos ejido. Monitoring has been conducted across multiple ejidos to better understand the distribution of migratory birds and their presence and abundance on different properties.

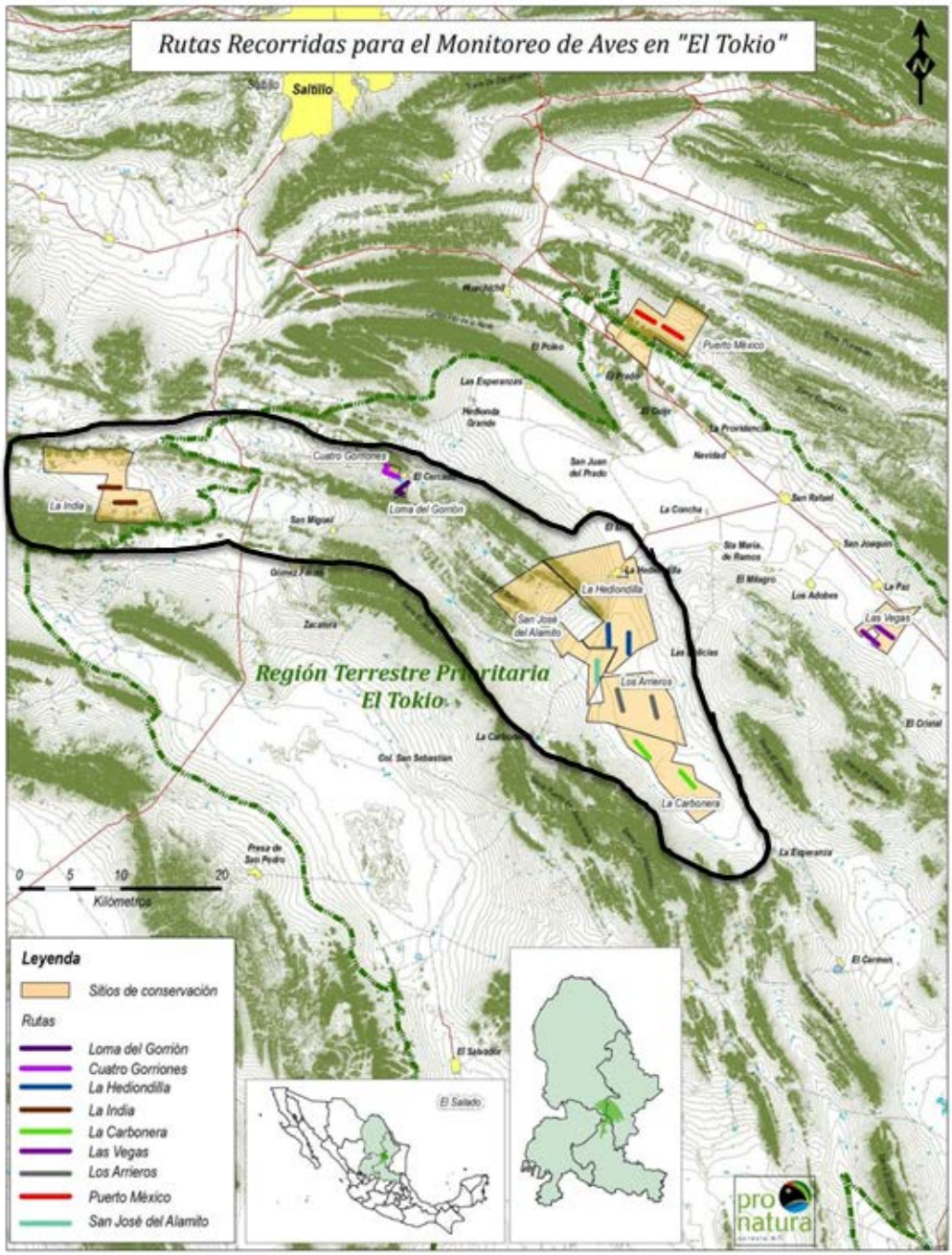
Specific 2017-2018 project activities:

Additional restoration activities are needed for ejidos with whom we are working or have worked including San Jose del Alamito, Puerto Mexico, Tanque Nuevo, Matehuapil. and La Carbonera. Three new ejidos, Las Hormigas, El Venado, and Las Esperanzas were approached for initial conservation agreement discussions. Of these Las Esperanzas was interested in a conservation agreement with PNE in exchange for technical capacity for land management. An agreement with the ejido is under development. Once in place management activities will need to be addressed. Southern Wings funding could provide useful support for this management.

Additionally, fencing in San Jose del Alamitos is needed to restrict goat access to certain areas that are in need of protection and restoration. Puerto Mexico, which has a 740 acre reserve currently does not have an active management. A management plan needs to be developed and restoration activities should be implemented. There also 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 persons to conduct effective monitoring.

Budget total $56,750 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))

Matching Funds – American Bird Conservancy and PNE have secured multiple grants for work in the Chihuahuan Grasslands including funding for reforestation efforts from Mexican government sources. Multiple organizations as part of the efforts to create the El Tokio Corridor are providing in-kind investment in to this project including providing support for monitoring.



Map – El Tokio and location of key reserves where monitoring has been conducted. Proposed El Tokio Corridor identified in black.

Restoration of Migratory Grassland Bird Habitat in the Valles Centrales and Janos Grassland Prioity Areas

Partners:

States that have participated to date: Arizona, 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 that winter in the Chihuahuan Desert.

Overview – Grassland birds are declining more rapidly than any other group of North American birds. Habitat loss and degradation on the wintering grounds is a common factor among declining migratory species. The Chihuahuan Desert of northern Mexico is a continentally important wintering area, supporting more than 90% of migratory grassland bird species breeding in western North America, including some, like Baird's Sparrow and Chestnut- collared Longspur, that winter nowhere else. These birds are sentinels for unsustainable practices that are degrading grasslands across the continent and are experiencing such drastic declines that unless we can stabilize and reverse their trends they will no longer be a part of a continental grassland heritage. Our aquifers are being depleted, community water supplies are at-risk, grazing lands are becoming less productive and even lost to the plow. An entire culture of pastoralism that spans from Canada to Mexico is threatened.

Birds – The Valles Centrales and Janos regions support a diverse community of grassland birds. Species found here include (in descending order of abundance): 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 the Mexican Chihuahuan Desert, threatening to severely reduce the remaining low-slope native grassland habitat needed by nearly 30 high-priority grasslands bird species. Nowhere has the recent agricultural expansion been as rapid as in Valles Centrales of Chihuahua, the largest of 12 Grassland Priority Conservation Areas (GPCAs) in Mexico. Although these GPCAs were identified as conservation priorities by the Commission of Environmental Cooperation and The Nature Conservancy they are not immune to land conversion and have little to no effective legal protection.

Between 2006 and 2011, croplands in Valles Centrales alone expanded by 34%, destroying roughly 170,000 acres of grasslands and habitat for an estimated 466,000 wintering grassland birds, including 171,000 Chestnut-collared Longspurs, nearly 6% of their global population. Croplands now occupy 63% of the former low-slope grasslands in this GPCA. Pronghorn, prairie dogs and other grassland species are also at risk. Long-term unsustainable grazing practices along with increased aridity and droughts have reduced rangeland productivity and increased financial strain on ranchers, forcing many to sell their land. This pattern is similar across most GPCAs in the Chihuahuan Desert of northern Mexico.

Successes to Date – Bird Conservancy of the Rockies has led coordinated bird monitoring across university and NGO partners in the region since 2007 and has developed a deep knowledge of grassland bird distributions and their habitat requirements. These efforts have helped us forge working relationships with many landowners that in turn have improved grassland habitat for them and wildlife. IMC – Vida Silvestre A.C. is our primary partner in this extension work, a local NGO with decades of combined experience working on bird and grassland conservation with backgrounds strong in range and wildlife management. Working with us, we have created a Sustainable Grazing Network focused on engaging ranchers in sustainable practices compatible with wildlife conservation. Together we work with other partners and play a strong role in the Chihuahuan Desert Grasslands Alliance, to ensure conservation and outreach is coordinated across the region.

Restored Grasslands - Rancho Plan de Alamos. Previously infested with mesquite with little herbaceous cover.

Since 2013, we have partnered with 25 ranches representing 570,000 acres (including 'reference ranches' already under good management) to monitor birds and rangeland conditions in and around the Janos and Valles Centrales GPCAs. We co-develop wildlife-friendly management plans and provide technical and financial assistance for implementing rest-rotation grazing systems (including necessary infrastructure), protection of sensitive habitat, shrub-removal, erosion control and other restoration techniques. Management plans utilize winter habitat prescriptions developed for priority grassland bird species along with forage assessments to set grazing levels, evaluate success and adjust management. This collaborative programmatic approach, based on sound science, has demonstrated success in restoring degraded landscapes, has been accepted with enthusiasm by local communities and is ready to be scaled up to impact a larger footprint.

Highlights include:

1. **Outreach**
   - ***108 planning meetings*** with ranchers & ***88 ranch visits***
   - ***48 workshops & forums***
   - ***Best Management Practices guide***
   - ***Outreach video***
2. **Protection and Management**
   - ***15-yr collaborative agreements on 132,000 acres*** *with 9 private landowners*
   - ***Range management plans on* 97,500 acres** on 5 properties with integrated bird and habitat objectives
3. **Conservation and Management Actions** –
   - ***Removed shrubs on 5,821 acres*** *of grassland*, improving habitat for Sprague's Pipit, Aplomado Falcon, Baird's Sparrow, Chestnut-collared Longspur and other grassland species
   - Installed ***8 water storage tanks*** and ***25 km of water distribution lines*** to implement rest-rotation grazing
   - Installed ***or retrofitted 162 km of electric or wire fencing*** with a smooth bottom wire, allowing for greater movement of endangered Mexican Pronghorn
   - Installed ***50 watering drinkers*** for wildlife and/or cattle
   - Conducted ***pre- and post-management monitoring of birds and vegetation response*** on each project ranch, in addition to control sites with good management practices already in place
   - Constructed and installed ***52 nest platforms*** for Aplomado Falcons to increase suitable breeding habitat and reproductive success.
   - Constructed and installed ***129 stock tank escape ladders*** in active and recently active Aplomado Falcon territories to reduce risk of accidental drowning.

Goals

1. Enroll 200,000 additional acres into our Sustainable Grazing Network in the Chihuahuan Desert of northern Mexico to advance progress towards our overall goal of 500,000 acres by 2020.

2. Secure 15 year collaborative management agreements with at least 6 additional ranchers to protect conservation investments.
3. Double carrying capacity on these lands for priority grassland species such as Sprague's Pipit, Baird's Sparrow and Chestnut-collared Longspur and improve habitat for endangered Mexican Pronghorn and Aplomado Falcon.

Proposed Activities and Strategies – Funding from Southern Wings will allow us to expand our Sustainable Grazing Network by adding two extension biologists and by providing funds for implementing conservation practices. Keeping ranchers on the land by helping them improve their management and profitability, while simultaneously improving wildlife habitat, is currently the most immediate and cost-effective way to prevent further loss of grasslands. Proposed actions will complement existing conservation efforts on 210,000 acres, expanding the conservation footprint and landscape scale impacts to a total of 407,000 acres. These actions will also slow the spread of unsustainable cropland agriculture across a region that cannot support long-term intensive agriculture.

Annual Budget Need for 2017-2020: $224,854 (For more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))

Matching Funds – The project will leverage significant additional resources from Mexican federal assistance programs (e.g., from CONANP, SAGARPA), landowner investment in stewardship practices, the Neotropical Migratory Bird Conservation Act (USFWS), WWF – Carlos Slim Alliance, Bobolink Foundation, Bureau of Land Management, US Forest Service. Every dollar invested leverages at least one dollar from other sources.

Rancho Los Mimbres, a member of our Sustainable Grazing Network whose grazing is guided by an Integrated Range and Wildlife Management plan we developed with the ranch owner.

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. Pronatura Noreste has regional watershed projects to restore streams and fresh water ponds from the Texas border to Laguna San Andres south of Laguna Madre. Pronatura Noreste 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.

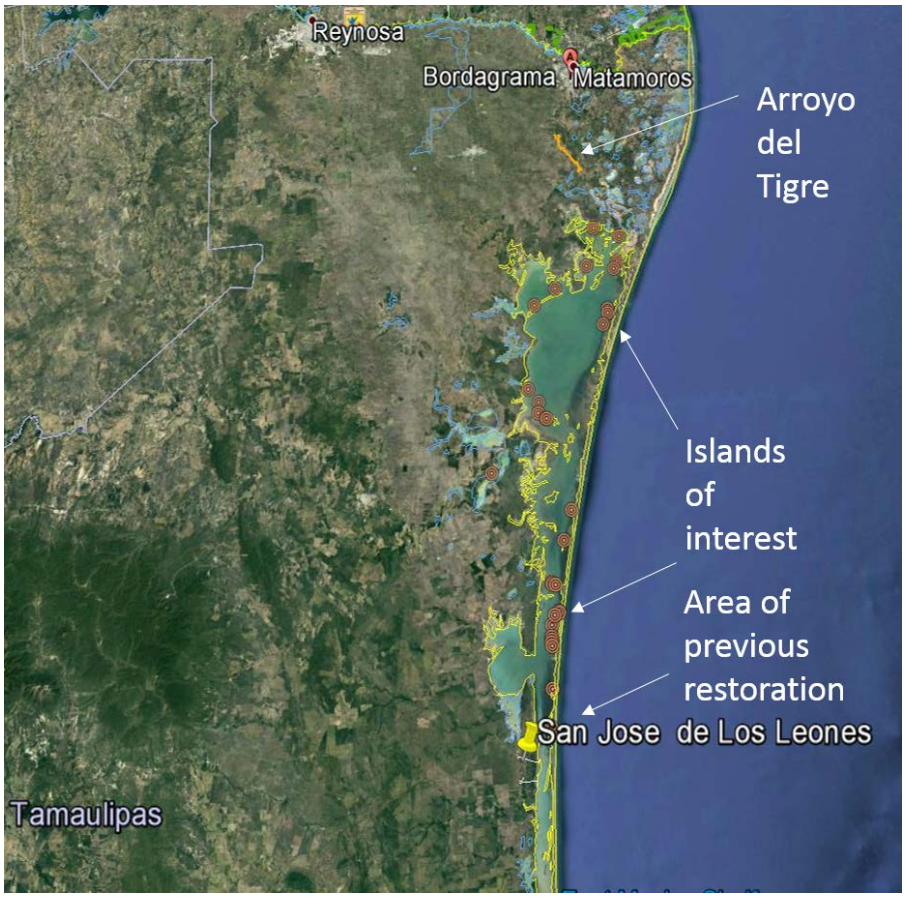
Birds – The focal species identified for Laguna Madre by PNE and local government authorities include: Piping Plover, Reddish Egret, Red Knot, Long-billed Curlew, Redhead and American Oystercatcher. Secondary focal species include: Wilson's Plover, Snowy Plover, Sanderling, Least Tern, Black Skimmer, 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, Southern Wings invested in the Laguna Madre project for the first time, funding mangrove reforestation that resulted in the planting of 15,000 saplings over 62 acres. Prior to this funding, 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 agricultural animals 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 fecal 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.

Budget total $160,500 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))
Matching Funds: Currently PNE has funding from NMBCA for Reddish Egret site protection and migration monitoring as well as funds from Disney for monitoring and CONANP is also contributing to this work out of their annual budget.

Map: Focal locations for conservation work in Laguna Madre


Reynosa
Bordagrama
Matamoros
Arroyo del Tigre
Islands of interest
Area of previous restoration
San Jose de Los Leones
Tamaulipas

Implementation of the Golden-winged Warbler Conservation Plan 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).

States that have participated to date: Pennsylvania, Missouri

Overview - The highlands of Jinotega in northern Nicaragua are becoming increasingly fragmented as agriculture, including sun-coffee production, is creeping up the mountain sides. 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. The highlands have been historically important wintering areas for many species of migratory birds. Protected existing forest and creating increased connectivity in this region between forest fragments is a high priority need for migratory bird conservation. 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.

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. Logging and cattle production further limit 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, 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 state agencies Species of Greatest Conservation Need, USFWS Birds of Conservation Concern, and/or on a watch list for Partners in Flight, National Audubon and others.

Overall Project goals –The long-term goal of this project is to secure wintering habitat for the Golden-winged Warbler and Wood Thrush in Nicaragua. The first phases focused on advancing the creation of a conservation corridor between El Jaguar Private Reserve and the Reserva Natural Volcán de Yalí, approximately six miles to the northwest of El Jaguar. We expanded the area to include the entire El Jaguar – Yali Golden-winged Warbler Focal Area, and 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. 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. This project is being implemented to meet these goals which also help to 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 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 others continue to use the area in good numbers for winter or migration habitat.

In 2015 and 2016, as part of our work with El Jaguar we held a workshops on the GWWA Wintering Grounds Conservation Plan and conservation opportunities and needs associated with the plan to expand the impact of the project. This workshop 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. Additionally, the tree nursery at the CEN has been expanded and the production of plants for reforestation and shade coffee efforts have started.

Also as part of our work 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.

Specific 2017-2018 project activities – This year, our objectives are to continue to conduct targeted reforestation efforts within the El Jaguar – Yali Focal Area, and begin to conduct reforestation efforts in the Peñas Blancas Focal Area. Landowners interested in conducting reforestation for restoration and for conversion of sun coffee to shade coffee have already been identified. Additional workshops and education programs will be key for local engagement in this new region. We will continue meetings with coffee cooperatives and coffee producers to share with them recommended conservation practices and encourage landowners to produce shade coffee instead of sun coffee.

We are also beginning to identify conservation needs in Saslaya National Park, which is another GWWA Focal Area, but also an area that is a key stop over site for many species of birds during spring migration. Here improved protection of the national park is needed through improved surveillance techniques and more special operations.

We are proposing to work with Wildlife Conservation Society (WCS) and a local university to conduct training programs and patrol operations. The training program will work with guards and other

stakeholders using the SMART protocol training utilized by WCS. The Spatial Monitoring and Reporting Tool (SMART) protocol is designed to improve anti-poaching efforts and overall law enforcement effectiveness in established conservation areas and management zones. SMART enables the collection, storage, communication, and evaluation of data on: patrol efforts (e.g. time spent on patrols, areas visited and distances covered), patrol results (e.g. snares removed, arrests made), and threat levels. When effectively employed to create and sustain information flow between ranger teams, analysts, and conservation managers, the SMART Approach can help to substantially improve protection of wildlife and their habitats.

MOSI Station Monitoring will continue for two additional field seasons at the two established stations at El Jaguar Reserve and baseline monitoring in Peñas Blancas will begin. While the project uses GWWA as a flagship species this region of Nicaragua is important for many other species of migratory birds including Wood Thrush, Eastern Wood Pee-wee, Ovenbird, Yellow-throated Vireo and Northern Parula.

Budget total: $56,710 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))
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.

Map – GWWA Focal Areas of Nicaragua as identified by Alianza Alas Doradas. El Jaguar is within Focal Area NI06. ABC is interested in expanding conservation activities to Focal Area NI03 and NI05.

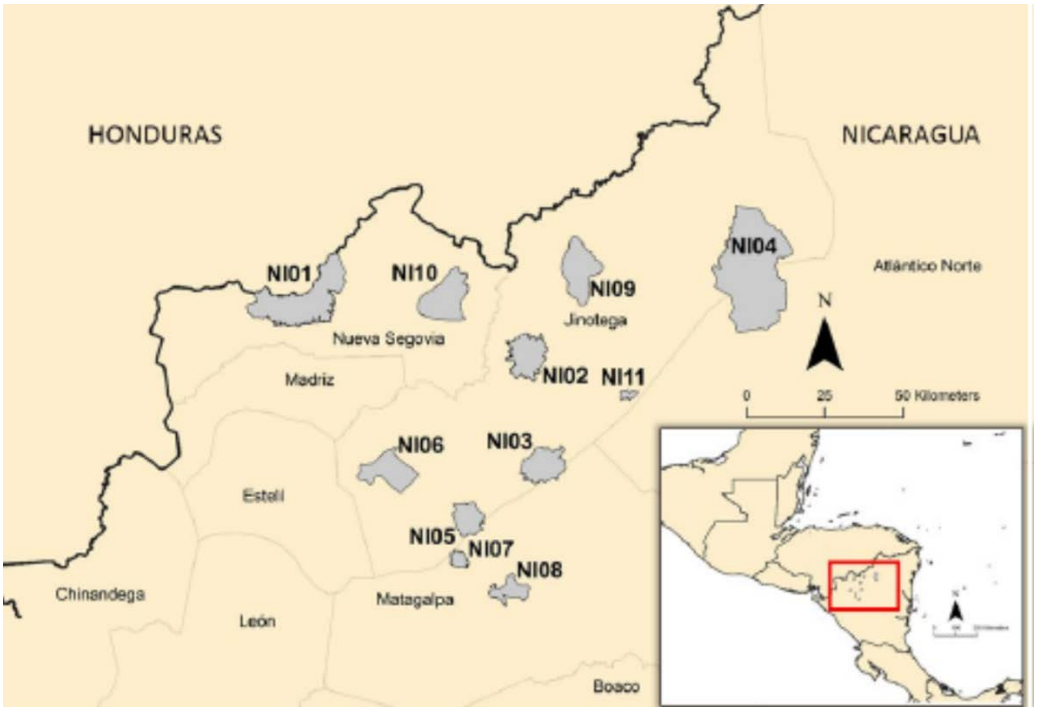


Figure 2. Key Nicaragua Golden-winged Warbler Focal Areas: *El Jaguar – Cerros de Yali Focal Area #NI06; Peñas Blancas #NI03; Datanlí-El Diablo #NI05, Saslay #NI04, Kilambe #NI02*

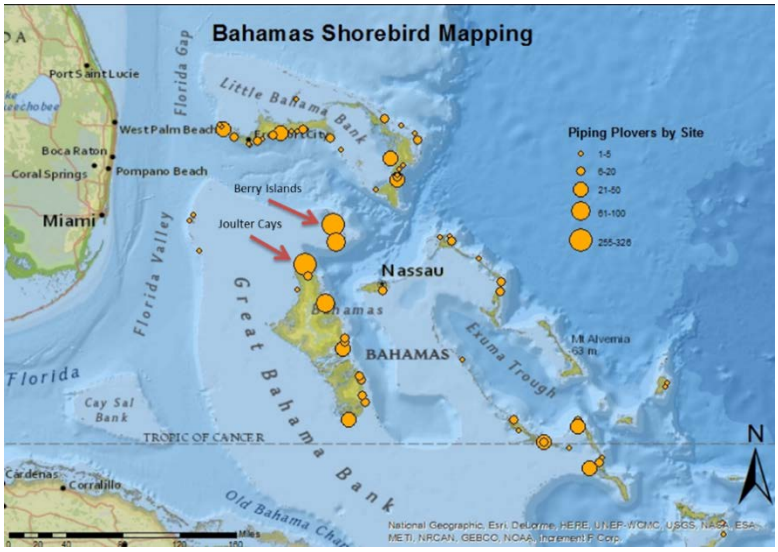
Conserving Critical Piping Plover and other Shorebirds Wintering Sites in the Bahamas

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.

Results Achieved 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. (Casuarina reduces roosting habitat and provides cover for avian predators.)

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.

Next Steps

Specifically we would like NEAFWA to consider supporting 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 (dhahn@fishwildlife.org)):
A $50,000 a year investment for three years would allow us to improve 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 A.C (PNO), 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, Unidad Forestal Foresta, San Diego Zoo Global (SDZG).

Overview: The Sierra Madre Occidental (SMO) is the longest mountain range in México, spanning >1200 km from the international border with the U.S. in a southeast direction. Ecosystems in these mountains range from subtropical deciduous forest to mixed conifer forests in its highest altitudes, and they also provide habitat or act as corridors for rare and endangered species. In northern Chihuahua, high elevation mixed conifer forests provide habitat for the endemic Thick-billed Parrot (*Rhynchopsitta pachyrhyncha*) and a suite of other resident and Neotropical migrant species of concern to Arizona.

The thick-billed parrot (TBPA) is listed as endangered throughout its range, including Mexico and the US. Historically the species range in the U.S. extended as far north as the mountains of southeastern Arizona and possibly southwestern New Mexico. The last confirmed sighting of a naturally occurring flock in the U.S. was in 1938 in the Chiricahua Mountains of Arizona. The parrot's current range is limited to high elevations of the SMO, migrating seasonally from their primary breeding (summering) grounds in Chihuahua to wintering areas farther south. Birds arrive in Chihuahua by late May and have departed by early November. The northern-most breeding area is Mesa de las Guacamayas (within the Janos Biosphere Reserve), located approximately 80 kilometers south of the U.S./Mexico border. The species has experienced significant historical declines. Estimates vary on the number of thick-billed parrots. A 2012 survey of 6 breeding areas counted 2097 individuals. This number may be a conservative estimate because not all known breeding areas are surveyed annually and other more remote or potential breeding areas have not yet been inventoried.

As part of a comprehensive conservation program ongoing since the mid-1990s, several old-growth forest areas in Chihuahua have been designated as protected areas. The level of protection afforded to a given area depends on the type of official designation (Biosphere Reserve, Protected Area of Flora and Fauna, or Priority Region for Conservation) and whether core areas have been established. Concerns persist for long-term conservation in these designated areas with inadequate protection.

This project is designed to reduce threat impacts on 5 protected areas which are priority regions for bird conservation: Tutuaca, Papigochic, Campo Verde, Madera and Mesa de Guacamayas. The project's approach is to increase the effective conservation of these areas and to restore old-growth forest patches. One species specific objective is to conserve the TBPA populations occupying these mix conifer forests through active management (monitoring, increase reproductive success, disease research) and the effective protection of their nesting, drinking, roosting, or perching sites (through zoning, conservation easements, or other mechanisms). The goal is to increase protection and

maintain a network of protected areas with ample benefits for AZ Neotropical migratory birds of concern, resident species, and the endangered TBPA.

Threats: Old-growth forests in the SMO have been almost completely eliminated. Estimates indicate there remains less than 1% of their original distribution. The disappearance of this type of forest has occurred mainly due to the unrestricted logging that has been taking place in the SMO for more than 100 years and also due to the increase in frequency of forest fires.

Birds: Numerous populations of migratory and resident birds depend on these old-growth forests, as they provide cavities for shelter, and the food and water resources during migration. The diversity of bird fauna for the SMO is quite notable with the region registering more than 250 bird species, 35% being neotropical migrants (at least 10 species which are included in Arizona's SGCN list: Grace's Warbler, Virginia's Warbler, Red-faced Warbler, Cordilleran Flycatcher, Whip-poor-Will, Elegant Trogon, and Band-tailed Pigeon). Another 50 species also are listed in the Sonoran Joint Venture Conservation Plan, including 20 of high continental priority: Montezuma Quail, White-naped Swift, Arizona Woodpecker, Grace's Warbler, Virginia´s Warbler, Red-faced Warbler, Red–headed Tanager, Northern Goshawk, Mexican Chickadee, Cordilleran Flycatcher and Pine Flycatcher, and 45 species of regional concern such as the Mexican Spotted Owl, Flammulated Owl, Lucy's Warbler, Black Swift, Elegant Trogon and Brown–backed Solitaire.

Previous Southern Wings Success (2016): Pronatura Noroeste accomplished the following conservation actions;

Monitoring

- Continued TBPA Monitoring and Management Program: reproductive success, habitat use, and deployment of new satellite transmitter technology testing in two individuals at Campo Verde and Papigochi.
- Detected 101 TBPA nests in four natural protected areas (6 at Campo Verde, 30 at Tutuaca, 9 at Papigochic, and 56 at Madera), followed 22% of total nest with an estimated 2.10 reproductive success (fledged per nest).
- Registered depredation of 8 nest: 7 nest depredated by a Ringtail (Bassariscus astutus) in Madera, and one depredated by a White-nosed coati (Nasua narica) in Tutuaca.
- Monitored neotropical migrants using point count transects at seven sites (APFF Tutuaca, Papigochic, Campo Verde, Mohinora y en las RPC Madera y Sierra Tarahumara y El Vergel): registered 115 species (1,036 individuals), 60% are Neotropical birds and 8 species are of particular concern (Peregrine Falcon, Sandhill Crane, Black Swift, Rufous Hummingbird, Elegant Trogon, Grace's Warbler, Hermit Warbler, and Red-faced Warbler)

Management

- Monitored 649 hectares (included in a Payment for Environmental Services scheme) for wildfires, diseased trees, and illegal cattle grazing.

- Restored and maintained 404 hectares: reforestation of 344 ha in Ejido Chinatu with two species of pine (Pinus arizonica y P. duranguensis) and soils conservation works in 60 ha at Heredia (CONAFOR/CONANP/ funds).
- Cleared 10 ha of pine cones (minimize fire risk), reduction of fuel material in 50 ha and creation of firebreaks in a total of 5 km.
- Implemented best management practices for neotropical migrants and TBPAs in mix-conifer forests at 428,737.96 ha (53 properties) where 367,183.23 ha was left for conservation (86%) and 61,554.54 ha (14%) for managed timber harvesting.
- Implemented measures for best forest management practices in three forest management units through: through: 1) segregation of TBPA nesting sites 2) exclusion of snags and *Pinus strobiformis* from harvesting; specifically, implemented/promoted forest management practice of leaving 6 snags per hectare with diameter of 40 cm or more, 3) permanent debar of *Pseudotsuga menziesii* and *Populus tremuloides* and 4) continued program of building firebreaks, reduction of dead material and surveillance of active TBPA nesting sites.
- Trained a forestry management group in best management practices for neotropical migrants and TBPA habitat requirements within the mix-conifer forests.

Conservation

- Implemented a lands conservation scheme for 30,000 hectares in the Chinatu Region (CONAFOR/PRONATURA funds). Signing of a conservation agreement with Ejido Chinatu and Pronatura Noroeste A.C in progress.

Enviromental Education

- Raised environmental awareness to 258 children through workshops and hands-on activities
- Delivered environmental education for 2 groups at APFF Campo Verde, 3 groups in APFF Tutuaca, 3 groups in Ejido Chinatu, 1 group in Otachique y 2 groups in RB Janos.

Specific Activities planned for 2017: Pronatura Noroeste will implement the following conservation actions in 2017;

Species Monitoring

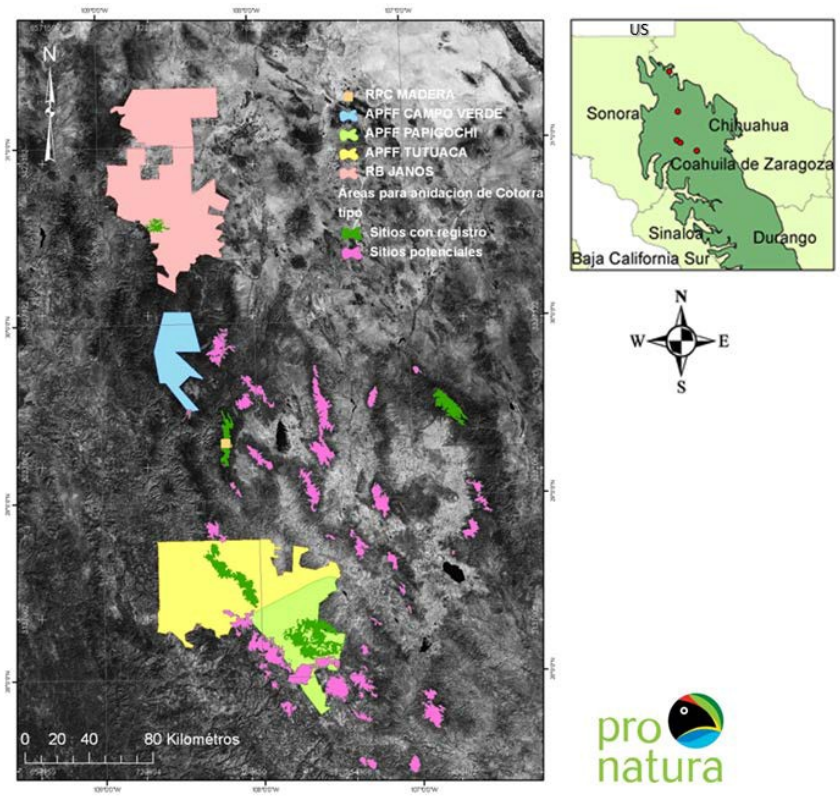
- Continue the TBPA Monitoring Program (reproductive success, home range, and habitat use) in the 5 protected areas and surrounding habitat (RB Janos, APFF Campo Verde, Tutuaca, Papigochic and RPC Madera).
- Continue Monitoring neotropical migrants using point count transects at six sites (Ejido Tutuaca, El Largo, Chinatu, Heredia, Cinco de Mayo (mesa de las Guacamayas) within the the SMO.
- Track and assess movement patterns of individual TBPAs tagged with prototype satellite transmitters.
- Deploy 20 camera traps at the RPC Madera breeding area to identify TBPA nest predators (using partner funds), and implement actions to minimize predation by installing aluminum bands on nest trees to serve as barriers.

Habitat Management

- Work to renew long-term conservation easement with Ejido Tutuaca to protect 2100 ha of old-growth pine forest.
- Continue to implement best management practices for neotropical migrants birds and TBPAs in mix-conifer forests within 250,000 ha across 15 ejidos- through: 1) segregation of TBPA nesting sites 2) exclusion of snags and *Pinus strobiformis* from harvesting*;* specifically, implement/promote forest management practice of leaving 6 snags per hectare with diameter of 40 cm or more, 3) permanent debar of *Pseudotsuga menziesii* and *Populus tremuloides* and 4) carry out a program of building firebreaks, reduction of dead material and surveillance of active TBPA nesting sites.
- Begin coordination with partners to discuss interest/feasibility of the Second TBPA Binational Conservation Workshop.

Budget 2017: AGFD (year 5/2017) will provide **$USD 10,000** for the completion of the projects activities as follow:

	Coun	Unit	AZGFD	UMAFOR	PNO	CONANP*
Renew commitment for long-term conservation easement with Ejido Tutuaca to protect old-growth pine forest	210	ha		5,000	7,400	3,500
Continue the TBPA Monitoring Program (reproductive success, home range, and habitat use).	1	Yr	5,520	7,500	5,000	2,200
Monitor neotropical migrants using point count transects at six sites (Ejido Tutuaca, El Largo, Chinatu, Heredia, Cinco de Mayo (mesa de las Guacamayas) within the SMO	1	Yr	840	5,000	1,000	5,000
Implement habitat BMPs for neotropical migrants and TBPAs in mix-conifer forests witihin 250,000 ha	1	Ejidos	840		1,000	5,000
Study on TBPA nest predation	1	Study	1,200		1,500	
Partners coordination/planning			600			
Administrative cost (10%)			1,000			
Total			10,000	12,500	13,900	18,700
* $USD 7,400 each year, Pronatura as payments for 5 years to support habitat protection.						



Designated Protected Areas in the Mexican state of Chihuahua, within the Sierra Madre Occidental. High elevation mixed conifer forest patches with confirmed or potential Thick-billed Parrot breeding habitat are also noted.

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.

Previous Successes (2016): Pronatura Noroeste and partners accomplished the following conservation actions;
GOEA Monitoring & Conservation-

- Analyzed satellite data of 1 tracked individual to better understand movement patterns and habitat use. Estimated a home-range of 10,084.83 km^2 (see figure 1). Also assessed landownership and predominant vegetation types within home-range polygon.
- Compiled 24 reports of GOEA observations from local communities in Sonora and Chihuahua and investigated 50% of them; including 9 from Sonora, where presence of GOA adults was confirmed at (1) Sierra La Madera, Madalena de Kino, (2) Cerro Colorado- Rancho El Babiso, Municipal boundary of Magdalena and Cucurpe, (3) Sierra Azul, Imuris, (4) El Represo-Rancho

Arirabi, Imuris, (5) Sierra la Mariquita, Cananea, (6) Sierra Bueno Aires, Cananea, Ajos-Bavispe Forest Reserve, (7) Sierra San Luis, Agua Prieta, (8) Las Mesitas (El Cajón), and (9) Mesa Bonita, both in the Municipality of Nacori Chico (Figure 2).

- Documented 4 nesting structures in Sierra La Madera (Rancho El Yeso), Magdalena where adults were observed but no breeding activity was documented.
- Identified and monitored one active nest in Las Mesitas and evaluated potential for deploying a new satellite transmitter.
- Provided input to Regional CONANP staff regarding main threats to GOEAS in Sonora.
- Participated and helped implement the Golden Eagle National Forum held in Zacatecas as part of Mexico's Golden Eagle Day.
- Organized a GOEA workshop in Sonora on monitoring and nest searching techniques for personnel from CONANP, INAOE, UNISON, and UMA-Barrancas del Cobre.
- Provided assistance on the feasibility of locating and retrieving two satellite transmitters from GOEAs outfitted in the US.

Habitat Conservation-

- Conducted outreach to Rancho El Yeso landowner, and evaluated potential areas for habitat restoration within the ranch (figure 3).

Specific Activities planned for 2017: Pronatura Noroeste will implement the following conservation actions.

GOEA Monitoring-

- Track and evaluate data from GOEA(s) tagged with satellite transmitters to better understand movement and habitat use patterns.
- Identify suitable individuals to possibly deploy 1 additional satellite transmitter.
- 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.

Habitat Conservation-

- Train and build capacity of local partners in the rehabilitation and restoration of degraded habitats.
- Develop a habitat restoration strategy for a micro watershed in Sonora, identifying degraded areas, restoration opportunities and appropriate techniques.

Budget: AGFD (year 3/2017) will provide $USD **6,000.00** for the completion of the project activities as follow:

Item	AZGFD	BirdLife-CEMEX	PNO	TOTAL
Track and evaluate data from GOEA(s) tagged with satellite transmitters to better understand movement and habitat use patterns.	200.00	1,200.00	1,000	2,400.00
Identify suitable individuals (by monitoring nesting pairs with young) to possibly deploy 1	1,500.00	1,950.00		3,450.00
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.	3,470.00	6,530.00	2,400	12,400.00
Provide training to local partners for in the rehabilitation and restoration of degraded		3,300.00	4,800	8,100.00
Develop a habitat restoration strategy for a micro watershed in Sonora, identifying degraded areas, restoration opportunities and		9,500.00	3,200	12,700.00
Partners	230.00			230.00
Administrative cost	600.00			600.00
Total	**6,000.0**	**22,480.0**	**11,400**	**39,880.0**

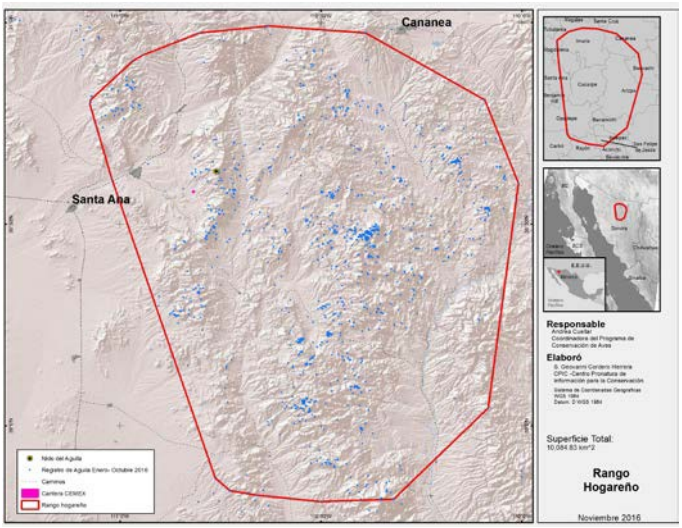


Figure 1. Estimated home-range of tracked GOEA in in Sonora, Mexico.

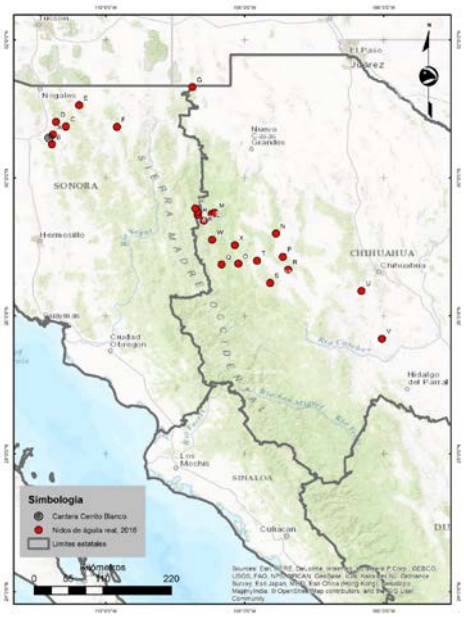


Figure 2. Map of nesting territories identified in Chihuahua and Sonora, Mexico.

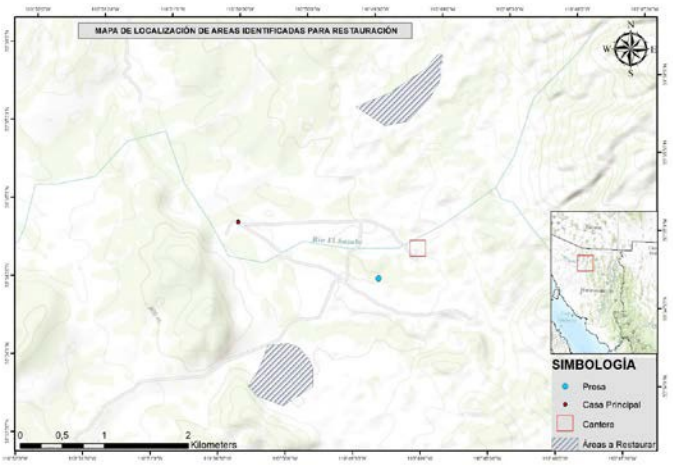


Figure 3. Map showing potential areas for restoration in Rancho El Yeso, in Sonora, Mexico.

Status of Western Yellow-billed Cuckoos in Sonora, Mexico

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

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 (2015 and 2016):

- Surveyed 16 sites located on the Sonora, Moctezuma, Bavispe, Altar, San Pedro, and Bambuto Rivers in the State of Sonora, Mexico in 2015. All sites were visited twice, with the first survey period from 30
  June to 23 July 2015 and the second survey period conducted from 25 July to 16 August 2015. We had
  162 cuckoo detections in 64.9 km of transects from 30 June to 23 July, and 129 cuckoo detections in 57.5 km of transects from 25 June to 16 August.
- Surveyed 14 sites located on the Sonora, Mexico in 2016 (Fig. 1) in three habitat types: 1) riparian (all in sites surveyed in 2015), 2) desert arroyo, and 3) upland. All sites were visited

twice, with the first survey period from 30 June to 23 July 2016 and the second survey period conducted from 25 July to 17 August
2016. We had 153 cuckoo detections in 60.3 km of transects from 30 June to 23 July, and 104 cuckoo detections in 53.0 km of transects from 25 June to 16 August.

- Results suggest that YBCUs have persisted in these drainages with remaining riparian habitat and that use of desert arroyo habitat is comparable to that of riparian habitat.

Specific Activities planned for 2017: Universidad Estatal de Sonora will implement the following actions.

- Survey 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.
- Evaluate and assess safety of proposed sampling locations in riparian and non-riparian habitat
- Survey 5 of the sites in riparian habitat (R) previously monitored in 2015 and 2016 as a reference to compare data between years
- Survey 5 sites in upland habitat (U).
- Survey 5 sites in desert arroyo habitat (D).

Survey site	UTM easting (mE)	UTM northing (mN)
Bámuri (D)	411,571	3,330,070
Agua Caliente (R)	513,839	3,424,544
Agua Caliente (U)	609,887	3,239,069
El Cajón de la Uvalama	546,360	3,167,903
Mazatan (U)	580,254	3,220,763
El Gavilán (R)	544,507	3,243,623
Granados (R)	663,964	3,305,022
La Reforma Norte (R)	459,213	3,420,619
Torres (D)	521,939	3,183,259
El Sapo (D)	468,129	3,167,584
Huásabas (U)	670,854	3,312,680
Los Güérigos (U)	540,209	3,406,402
Cajón Bonito (U)	688,291	3,462,655
Bacoachito (D)	416,107	3,241,385
Mazocahui (R)	577,925	3,263,017

- Train field crew and volunteers on USFWS survey protocol (in collaboration with partners).
- Conduct call playback surveys (targeting breeding individuals) at sampling locations during a minimum of two periods (preferably three) during the cuckoo's 2017 breeding season using the USFWS protocol.
- Collect rapid vegetation assessments (including photo documentation).
- Analyze data and make appropriate comparisons across sites and years.

Budget: AGFD (year 3/2017) will provide **$USD 8,750** for the completion of the projects activities as follow:

Expenses	AZGFD
Field personnel	
1 field technician ($1,000/month × 2.5 months)	2,500
1 field assistant ($500/month × 2.5 months)	1,250
Field and Coordination travel (50 days of field work)	
Gasoline (200 km/day × 50 days × 0.2 liter/km × $1/liter)	2,000
Per diem ($25/day/person × 50 days × 2 persons)	2,500
Hotels ($60/night × 20 nights)	500
Total	8,750

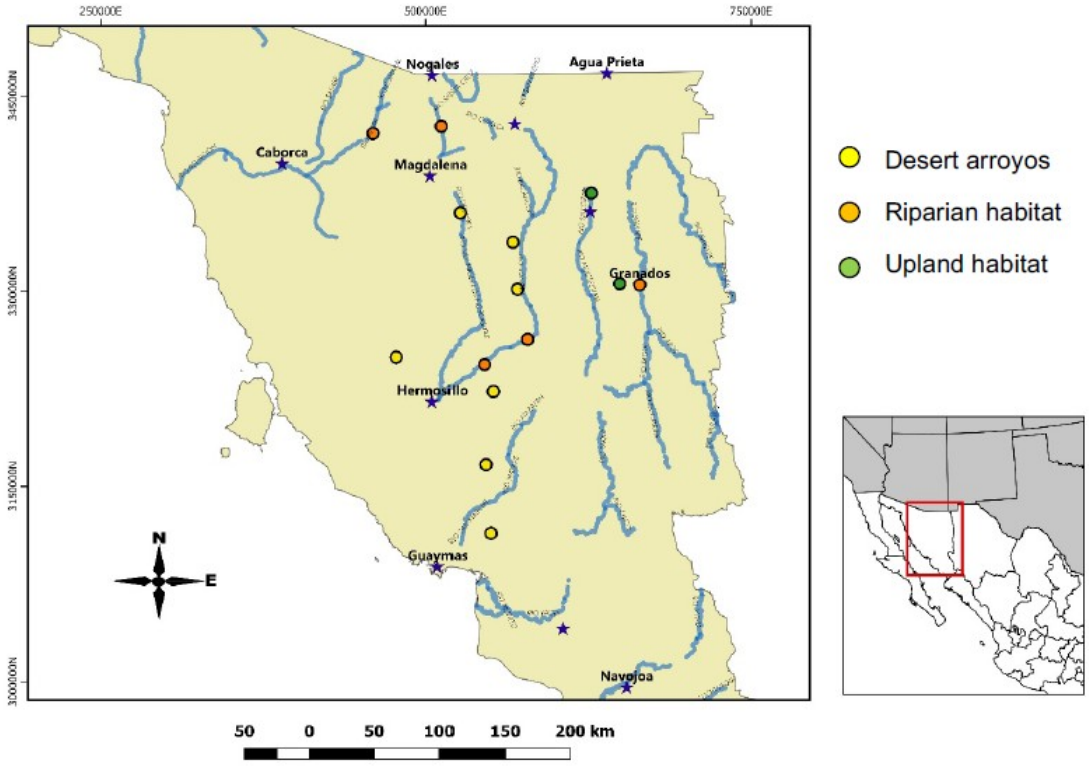


Figure 1. Location of YBCU survey sites in Sonora,

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

In Country Partner: Aquasis
States that have participated to date: New project
States with a strong biological connection: East Coast states of the United States in particular from Virginia north.

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 in reducing the quality of food sources and availability of stopover and wintering habitats. Red Knots undergo one of the greatest migrations known to science, with some populations covering 20,000 miles annually between their high-arctic breeding grounds and the southern tip of Patagonia. These long journeys are energetically demanding and require immediate feeding upon arrival at key stopover sites.

This project initially focuses on the the Banco dos Cajuais in northeastern Brazil. This unique coastal formation encompasses one of the largest intertidal flats in northeast Brazil, and is a key stopover and wintering site for endangered Red Knots of the Atlantic Flyway. The intertidal flat is linked to smaller areas of mangrove and salt marsh habitat; the local abundance of food resources suitable to many different coastal bird species makes this area extremely important to protect. Of particular interest is the diversity of bivalves in the mudflat, which appear to constitute the entire diet of the Red Knots refueling here during migration. Monitoring efforts by ABC's partner Aquasis also indicate that a portion of the population remains in the area for an extended period, some even overwintering.

For the past twenty years, Aquasis has been working in various coastal areas in the state of Ceará in northeast Brazil to identify and protect biologically important sites for shorebirds and is responsible for having initiated and coordinated various research, education and political processes to promote biodiversity and natural resources conservation in this region. In 2014, Aquasis worked with local authorities to formally protect the Banco dos Cajuais by including it in the Barra Grande Protected Area. This expanded Barra Grande from 3,000 acres of mangrove forest to encompass 42,000 acres of intertidal habitat of known importance to resident and migratory bird species. A management plan for the municipality is now in needed in order to manage the protected area effectively and efficiently.

Threats: Coastal areas in northeast Brazil have been 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 and salt harvesting operations. To ensure adequate management of the habitat of Banco dos Cajuais it is critical that a zone-based management framework be agreed upon and implemented by local partners.

Birds: Our target species are 19 species of migrants, including the 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 Barra Grande site in Brazil is one of the few known high-quality stop-over and wintering sites that is not well protected. If it is not properly protected, it will severely impact the survival rate of individuals and inevitably lead to a decrease in population. There are other sites on the coast of Argentina, Suriname, French Guiana that are also in need of additional conservation and protection, but we are initially focusing on Brazil where our local partner has already laid a solid foundation for conservation of this area.

The objective of this project is to support municipal authorities in developing and implementing a preliminary Zoning Plan for the Barra Grande Protected Area (the intertidal area is depicted in yellow in the map on the next page and the mangrove portion in green), while conducting an awareness campaign targeted at local stakeholders to value the area as an important component in conserving this valuable ecosystem. A Zoning Plan will provide important guidelines for the initial management of the protected area, including the identification of potential Wildlife Refuge Areas and a proposal for land use regulations, while a more extensive Management Plan can be developed.

Southern Wings Successes to Date: New project.

Specific project activities and budget: Our primary activity will be to collaborate with the local municipality and other area stakeholders to develop a preliminary zoning proposal. We will also hire a guard to patrol the protected area. Awareness building and promotion is critical to the project, since many local people are unaware of the importance of the area to migratory birds, nor of the regulations of the protected area. We will print materials and distribute promotional items to build awareness and support of the project in the local communities.

Budget: Budget total $32,950 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))

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

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 is developing a unified program using the most up to date technologies and social science to define objectives and create strategies and projects to effectively address these threats at scale to save one of the great natural phenomena on the planet.

Our program focuses on migratory species with the greatest conservation need. Along with Golden-winged Warbler, Cerulean Warbler, Long-billed Curlew and a suite of declining grassland birds, ABC has identified the Wood Thrush as a focal species for ABC's Migratory Bird Program. ABC has already been active in implementing conservation actions in Mexico, Guatemala, Honduras, and Nicaragua that benefit Wood Thrush.

Our work focuses initially on two areas within Honduras: The Agalta Valley and the nearby Sierra de Agalta, and the Yoro Corridor that connects four National Protected Areas (Pico Pijol, Maria Auxiliadora Central and Montaña de Yoro National Parks along with Texiguat National Wildlife Refuge).

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. While these activities are necessary to sustain local economies, ABC works in partnership to develop and implement market-based solutions that can reduce the impact of production and ensure that there are mechanisms in place for habitat protection.

Birds: Our species of principal interest is the Wood Thrush. However, within the areas targeted for conservation action within this proposal, three areas have been identified as focal areas for Golden-winged Warbler by the Alianza Alas Doradas. 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 Central America (with an initial focus on Honduras where we have identified priority sites for Wood Thrush) to sustain the current population of Wood Thrush and other priority migrants like Golden-winged Warbler and Blue-winged Warbler. 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.

Yoro Biological Corridor: 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 is 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 is collaborating with a group of partners to expand implementation of Integrated Open Canopy (IOC) coffee production in partnership with a local fair trade coffee cooperative in the Yoro region called the Cooperativa Mixta Sub-Yoro, or COMISUYL Coffee Cooperative. The goal continues to be 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). The initial goal is to bring 20 coffee producers/landowners into the program and to identify and map the first 200 ha of land. This is facilitated by having trained farmers and technicians explain how selling units of carbon is similar to selling *quintales* of coffee. In 2017, if possible, an additional 10 more farms and 60 more hectares will be incorporated in this project. We plan to enter these landowners into 20 year contracts, provide them carbon offset funds and ensure protection of their native forest habitat. It should be noted that our partner Mesoamerican Development Institute has co-management authority for two of the protected areas within this corridor and the ICF and local municipalities are supportive of the implementation of IOC practices for forest conservation.

Sierra de Agalta and Agalta Valley: 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 Asociación de Investigación para el Desarrollo Ecológico y Socioeconómico (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.

Upslope from the Agalta Valley, the Sierra de Agalta National Park and environs has been identified as a Golden-winged Warbler 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 will work with the landowners within these 9 communities to improve or re-establish 494 acres of coffee production to make it friendlier to birds.

Southern Wings Successes to Date: In the Agalta Valley, we were able to establish 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. We also conducted an analysis of water, cattle rotation, and forage production to develop best management practices for three ranches, and we provided technical assistance in the implementation of these plans. 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.

In the Yoro Biological Corridor, we have identified coffee producers who have indicated a willingness to implement IOC production, and have similarly identified forest patches totaling approximately 490 acres on farms with high conservation value. We have mapped seven targeted IOC farms.

Activities:

Yoro Biological Corridor: MDI and its principal collaborators seek support to collect additional field data needed to refine their carbon accounting (obtain the initial estimates of carbon offsets for IOC) and continue mapping additional farms for IOC expansion. MDI and its principal collaborators will also continue forest bird surveys on farms to quantify biodiversity benefits of IOC coffee implementation and will attempt to recover the geo-locators that that were deployed last season. The team is now proficient in survey protocols, carbon offset calculations, and database management and is seeking resources to continue with the following activities to s**trengthen and maintain local expertise.**

The proposed field work builds on previous field training and includes the following field activities.

- Measure and map at least 20 areas (farms) of IOC coffee cultivation in the Yoro Biological Corridor.
- Measure and map at least 200 hectares of forested areas on IOC farms in the Yoro Biological Corridor.
- Conduct vegetation surveys to document forest areas by forest type and age.

- Maintain a database of information on participating farms— farm soil conditions, vegetation and avian survey results, number of coffee plants planted, etc.
- Conduct avian surveys using established protocols and attempt to recover geolocators deployed on Golden-winged Warblers and Blue-winged Warblers.

Sierra de Agalta and Agalta Valley: 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. Work will continue to educate cattle ranchers as ASIDE introduces and demonstrates improved ranching practices that will allow the ranchers to maintain economically viable operations while minimizing the impacts of cattle and their ranch operations on critical and disappearing natural forest habitat. The results to date have been excellent despite the short time frame, and all players are motivated to continue in the hope of seeing mid-term success in restoration and preservation of the native dry forest and riparian habitats. The following activities are presented for second phase implementation:

- Continue the program of extension, training and technical assistance to the 3 pilot ranches and expand to incorporate 3 more. This includes providing training and technical assistance to ranchers in practices that increase the survival of trees planted as part of reforestation efforts.

- Collect seeds and vegetative material from two hardwood species Biscuite *(Acacia deamii)* and Madreado *(Gliricidia sepium)* that are highly desired by all for reforestation, living fences and fence posts.

- Maintain a nursey of 5,000 plants (2,500 Biscuite and 2,500 Madreado) and distribute and plant these seedlings among 6 cattle ranches and to make possible the continued reforestation.

- Provide materials to 6 ranches to contain cattle and prevent open grazing in forest and riparian areas and to protect the El Ciruelo Wildlife Refuge from cattle and trash dumping.

- Continue the exchange of experience and knowledge between Honduran ranchers and the ranchers in Chihuahua, Mexico who have created innovative ways of maintaining cattle production that is compatible with bird life in dry grassland habitats.

In the Sierra, with Southern Wings funding we will pilot 185 acres of shade-coffee cultivation development. This includes removing old non-productive coffee bushes, replacing them with roya resistant coffee bushes and providing new, additional trees for shade. Technical Assistance and outreach will be provided by staff from the Universidad Nacional de Agricultura (UNA).

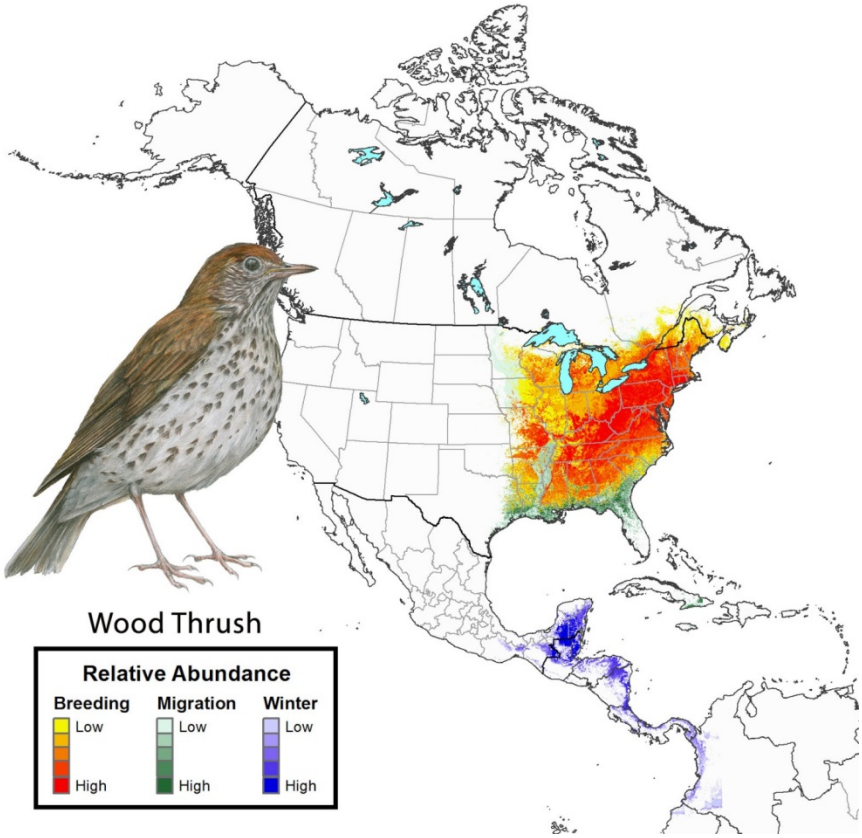
In return for the improved management of these acres of coffee production, UNA will enter into agreements with these communities to provide improved protections to 4,942 acres of intact forest that is within the Sierra de Agalta National Park and park buffer zones. Additionally, due to the extreme lack 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. Specific areas of the park will be identified for patrolling by communities that receive technical assistance from UNA.

As match to further support bird conservation in Sierra de Agalta, UNA has developed a community education program that incorporates bird identification and bird conservation themes for 42 schools within the eastern slope of Sierra de Agalta. Each of these schools is visited four times a year. Additionally bird festival days have been conducted each year.

Budget total = $97,396; Yoro Biological Corridor = $28,607; Agalta Valley = $25,700; Sierra de Agalta = $34, 915. (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))

The two polygons indicate the location of Yoro Biological Corridor (left) and the Agalta valley (right)



Wood Thrush full life cycle distribution pattern.

Neotropical Flyway Project: 2017 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.

States that have participated to date: None

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. See Table 1

Overview: Close to 300 species of landbirds, whose combined populations represent billions of birds, migrate between the Neotropics and North America. Many of these species make an annual round trip of over 10,000 km, and those species that migrate farthest are often those experiencing the greatest declines. This has given rise to concerns that migration and the capacity of our ecosystems to maintain this key ecological process is disappearing. 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.

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.
- Most species migrate through the western Caribbean and the Neotropical Flyway Project will identify critical stopover regions and habitats along the Caribbean slope of 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.

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, such as in the Sierra

Nevada de Santa Marta in Colombia, as well as lowland tropical wet and dry forests. As elsewhere in the Neotropics, 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. Given the diffuse threat of deforestation over the entire study region, targeting specific sites and habitats within those sites, and incorporating this information into local and regional conservation plans is especially critical. The almost complete lack of knowledge of migratory stopovers in this region constitutes a threat in itself, hampering full life-cycle bird conservation.

Birds: More than 50 species of landbirds regularly migrate through northern Colombia on their way to and from South American wintering grounds, and many more through Central America. 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 Tennessee Warbler, Yellow Warbler and Swainson's Thrush. The most abundant species recorded during the first phase of the study (spring 2016, northern Colombia) include common, yet declining, forest-breeding migrants such as Tennessee Warbler, Bay-breasted Warbler, Eastern Wood-Pewee, Scarlet Tanager, and Yellow-billed Cuckoo, as well as diurnally migrating aerial insectivores, including Eastern Kingbird and Barn Swallow. Based on past studies, a broader range of species are expected to use these sites in large numbers during fall migration.

Table 1. Species targeted by the Neotropical Flyway Project, 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	XX		X				
XX	Black-billed Cuckoo	X	XX		X				
XX	Olive-sided Flycatcher	X						X	
	Tennessee Warbler	X							
	Bay-breasted Warbler	X							
XX	Cerulean Warbler	X	XX		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	XX	X			X	X	X
XX	Yellow-billed Cuckoo		XX	X	X		X	X	
XX	Chimney Swift		XX		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 Neotropical Flyway Project 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 lack actions addressing the needs of species such as the Cerulean Warbler and Canada Warbler on migration. 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

Previous Successes or history: The Neotropical Flyway Project is an expansion of the SELVA project "Crossing the Caribbean", which began identifying and prioritizing stopover sites for Neotropical migratory birds in northern Colombia in 2009. Over the last seven years, the project has studied in detail the stopover ecology of migratory birds at two strategic sites in northern Colombia, the Sierra Nevada de Santa Marta (SNSM) and the Darién. Through observations, SELVA has described how species richness and abundance varies across the elevation gradient of the SNSM and how migrant bird density varies between pre-montane forest and shade coffee plantation, as well as illuminating for the first time the diurnal migration of over a million birds through the Darién, including raptors and aerial insectivores. Constant effort mist-net stations led to the discovery of major stopover sites for Veery and Gray-cheeked Thrush.

Mist-netting stations in the SNSM, in combination with observations, have also been used to evaluate a series of potential indicators of stopover habitat quality, and were central to designing effective and efficient methodologies for the Neotropical Flyway Project. Finally, through a collaboration with Motus Wildlife Systems, the deployment of radio-transmitters and the tracking of birds using automated receiving towers, has been tested as a highly efficient means of estimating stopover durations and determining whether birds are using a site/region for one-day rest-stops between flights or for energy acquisition during multi-day stopovers. Gray-cheeked Thrushes tagged in SNSM have been recorded by Motus receivers in Panama, Jamaica, and throughout the U.S. and Canada, illustrating the tremendous potential of this tracking technology for advancing our knowledge of migration in hard-to-detect species.

During the initial phase of the Neotropical Flyway project in spring 2016, with funding from Cornell Lab of Ornithology and SELVA, more than 5,200 surveys were conducted along 242 transects at 16 sites in northern Colombia. We recorded 71 species of Nearctic-Neotropical migratory birds, 57 classed as landbirds and 14 as waterbirds. A total of 14,090 individuals were recorded on passive transects, 3,945 during playbacks and 163,288 during migration counts. The most commonly recorded species were, in descending order: Red-eyed Vireo, Barn Swallow, Yellow Warbler, Tennessee Warbler, Turkey Vulture, Bay-breasted Warbler, Northern Waterthrush, Blackburnian Warbler, Swainson's Thrush and Eastern Kingbird. We also successfully tested and

implemented a new survey protocol for migratory birds, trained 9 Colombian biologists, worked alongside the National Parks authority in three national parks and carried out education activities in local schools. This initial effort has tentatively resulted in the discovery of several new stopover areas in northwestern Colombia and in seasonal dry forests on the central coastal plain. These preliminary conclusions will be tested with additional extensive surveys during fall migration in 2016.

Activities/Actions (for specific dates): This project 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. The initial phase in Colombia during 2016 will refine the observation protocols to be deployed during a second phase covering all countries. Based on observations from one fall and one spring migration in each country, sites will be selected for constant effort mist-netting stations to be run during four consecutive migration seasons.

Post 2016, the expansion of the project will proceed in three main phases:

1) An initial analysis of all available data, including published stopover studies, eBird data, records from biological collections and country databases, and geolocator tracks will be combined to assess our current state of knowledge of stopover regions and migratory routes within the study region. This information will contribute directly to the process of site selection for phases 2 and 3 and be published as a review paper.
2) Intensive observation methodologies, following the protocols developed during 2016, will be deployed during one spring and one fall migration season at each of the selected study sites in Central America.
3) Based on the results of phases 1 and 2, one or two sites per country will be selected for the establishment of constant effort mist-netting stations to be run during two consecutive years, covering two spring and two fall migrations, as well as radio-tracking studies using MOTUS network arrays and targeting key migratory species.

The current proposal is for funding to continue phase 2 of the project during Spring and Fall 2017. This work will include expansion of extensive migrant surveys into Panama and Costa Rica, focusing on both concentration areas along the Caribbean coast and pre-montane forest in two inland highland areas, where eBird records and our scouting in fall 2016 indicate potential stopovers by species like the Cerulean Warbler (Fig. 1). Because of timing constraints, we are now planning to begin the Panama and Costa Rica surveys in Fall 2017, and we are planning a training session and pilot season to establish the study sites and survey points during spring. In addition we will begin phase 2 by establishing two new constant-effort mist-net stations to determine habitat quality for migrants at newly discovered stopover sites based on the 2016 surveys in Colombia. Possibilities for new banding stations (to be determined following analysis of 2016 data) will likely include the following two regions, where high concentrations of poorly known species such as the Yellow-billed Cuckoo and Bay-breasted Warbler were discovered (Fig. 2):

A. NW Caribbean, Urabá and the Darién
B. Central Caribbean lowlands of Cordoba, Sucre and Bolivar

Budget: (Spring and Fall 2017) $61,150 (For a more detailed budget contact Deb Hahn (dhahn@fishwildlife.org))

Matching funds: a 1 to 1 match is required. Funding has been provided by Cornell Lab of Ornithology -- $45,990 for 2016. We anticipate at least $20,000 to be provided in 2017. Environment and Climate Change Canada is providing $25,000 for the installation of four Motus receiving stations in northern Colombia to be run in conjunction with new constant-effort mist-netting sites. We are seeking additional partners in Panama and Costa Rica, which will add additional in-kind and possibly cash funding to the overall project. In addition, SELVA

is providing $1000 (in kind project costs). These existing funds mean that we are seeking a total of $40,150 for activities in 2017.

Figure 1. Proposed study regions, including the three regions (black rectangles) to be surveyed in Panama and Costa Rica in 2017.

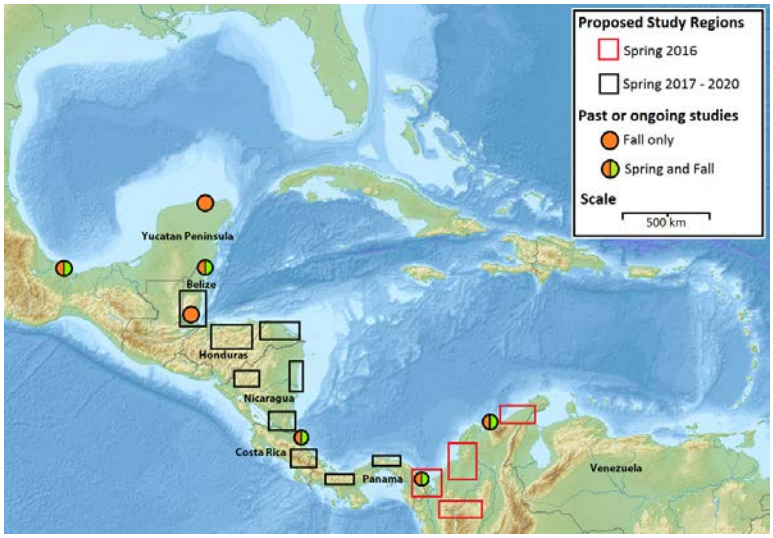
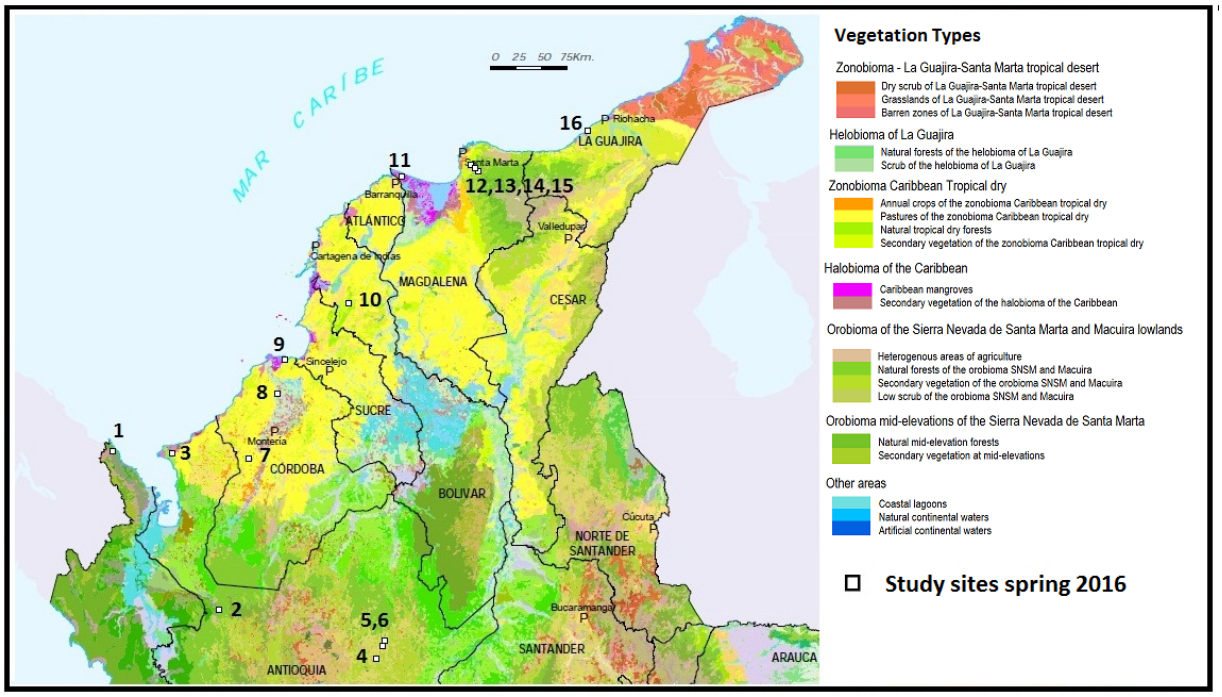


Figure 2. Location of study sites in northern Colombia. Possible mist-netting stations include sites 2, 7 and 10. **A) NW Caribbean** 1. Capurganá, Darién; 2. Serranía de Abibe; 3. Ciénaga de Marimonda; **B) NW Andes** 4. Porce II, Amalfí; 5. Guayabito, Amalfí; 6. Bodega vieja, Amalfí; **C) Central Caribbean** 7. Finca la Palmeras, Cordobá; 8. Ciénaga el Baño, Cordobá; 9. Bahía Cispata, Cordobá; 10. SFF Los Colorados; **D) Sierra Nevada de Santa Marta and lowlands** 11. VP Isla de Salamanca; 12. Minca, Sierra Nevada de Santa Marta (SNSM); 13. La Victoria, SNSM; 14. Bellavista, SNSM; 15. La Tagua, SNSM; **E) La Guajira** 16. SFF Los Flamencos.



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)

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).

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.

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.

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; ten of 13 sites of importance for 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 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.

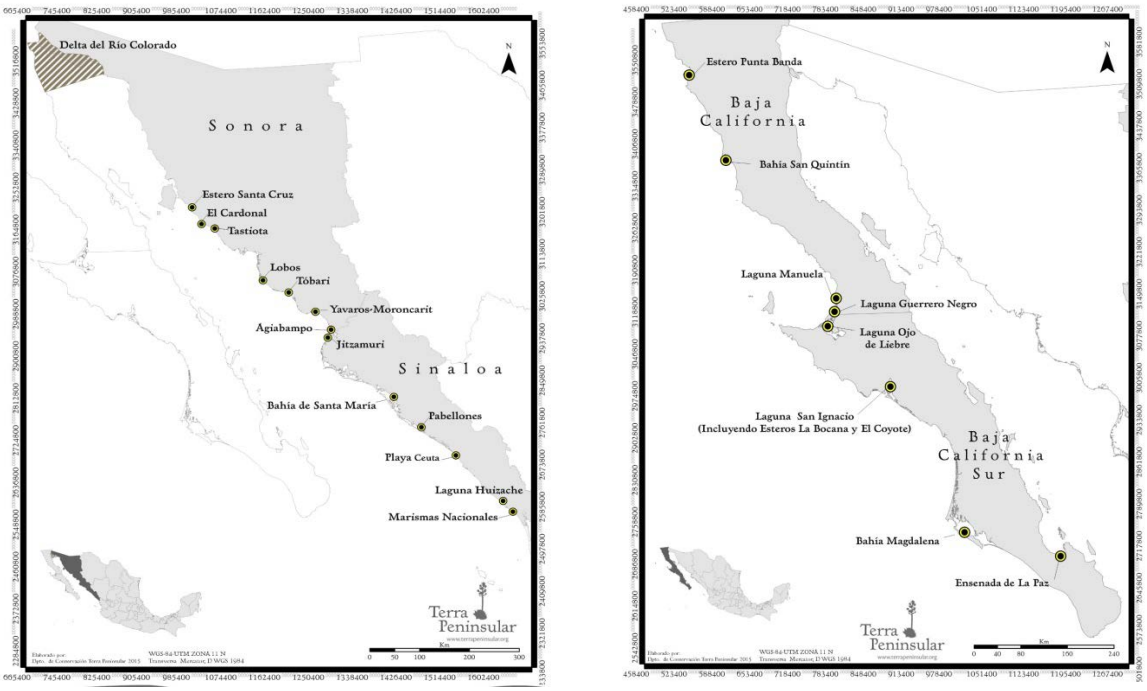
2. Expand survey efforts on sandy beach to improve sampling for Snowy Plover, Red Knot, Willet, and Sanderling and be better able to understand human impacts which are centered on beaches.

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.

Specific Activities planned for 2017 – Terra Peninsular and partners will implement the following conservation actions in 2017;

- Conduct annual non-breeding bird surveys of 10 wetland sites across NW Mexico, using defined protocol and compiling these survey data into the Pacific Flyway Shorebird Survey, node of the Avian Knowledge Network. 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 of shorebirds and other waterbirds (raptors) are also recorded. The list of sites includes 9 Ramsar and WHSRN sites: 1) Bahía Santa María, 2) Ensenada de Pabellones, 3) Playa Ceuta, 4) Estero de Urías, and 5) Huizache-Caimanero, in Sinaloa; 6) Estero de Punta Banda and 7) Bahía de San Quintín, in Baja California; 8) Complejo Lagunar Guerrero Negro – Ojo de Liebre, 9) Laguna San Ignacio, and 10) Ensenada de La Paz, in Baja California Sur.
- Expand osurvey efforts 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.

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 2017.



BUDGET 2017: AGFD (year 1/2017) will provide **$USD 5,000.00** for the completion of the project activities as follow:

Task	**Total Cost**	**SWP Request**	**AGFD***
Survey of 18 sites (>200 survey areas) across NW Mexico (AGFD funds to support some sites)	$20K	$5K	$1500.00
Design, protocol, and pilot surveys of additional sandy beach areas in NW Mexico	$10K	$5K	$1500.00
Integration of data into the Pacific Flyway Shorebird Survey node of the Avian Knowledge Network and data summary apps	$10K	$5K	$1,000.00
Assess effect of human disturbance on bird abundance.	$10K	$5K	$1,000.00
Developing distribution models and identify conservation priority locations.	$25K	$5K	
TOTAL	**$75K**		
Southern Wings Request Total		**$25K**	
MATCH			
David and Lucile Packard Foundation	$10K		
US Forest Service International Programs	$25K		
In-kind (CICESE, GANO, Terra Peninsular)	$15K		
TOTAL MATCH	**$50K**		

*****budget by category are estimates, adjustments may be made by category to maximize efficiency and progress on over-all project goals.

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)